

INFORMATION TO USERS

This material was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

- 1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.**
- 2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.**
- 3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in "sectioning" the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again -- beginning below the first row and continuing on until complete.**
- 4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from "photographs" if essential to the understanding of the dissertation. Silver prints of "photographs" may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.**
- 5. PLEASE NOTE: Some pages may have indistinct print. Filmed as received.**

University Microfilms International

300 North Zeeb Road

Ann Arbor, Michigan 48106 USA

St. John's Road, Tyler's Green

High Wycombe, Bucks, England HP10 8HR

77-25,274

NUGENT, Robert Martin, 1935-
A COMPARISON OF ACTUAL COSTS OF OPERATING
REIMBURSABLE SECONDARY VOCATIONAL EDUCATION
PROGRAMS WITH THE AMOUNT RECEIVED UNDER THE
"ADDED COST CONCEPT" IN OAKLAND COUNTY,
MICHIGAN.

Michigan State University, Ph.D., 1977
Education, vocational

Xerox University Microfilms, Ann Arbor, Michigan 48106

© Copyright by
ROBERT MARTIN NUGENT
1977

**A COMPARISON OF ACTUAL COSTS OF OPERATING
REIMBURSABLE SECONDARY VOCATIONAL EDUCATION
PROGRAMS WITH THE AMOUNT RECEIVED UNDER THE
"ADDED COST CONCEPT" IN OAKLAND COUNTY, MICHIGAN**

by

Robert Martin Nugent

A DISSERTATION

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

DOCTOR OF PHILOSOPHY

College of Education

1977

ABSTRACT

A COMPARISON OF ACTUAL COSTS OF OPERATING REIMBURSABLE SECONDARY VOCATIONAL EDUCATION PROGRAMS WITH THE AMOUNT RECEIVED UNDER THE "ADDED COST CONCEPT" IN OAKLAND COUNTY, MICHIGAN

by

Robert Martin Nugent

The purpose of this study was to determine if the actual vocational education program added costs incurred by local districts and area vocational education centers in Oakland County were adequately reimbursed by the Michigan Department of Education, Vocational-Technical Education Service in fiscal year 1974-75. Since a current issue in education concerns the higher cost attributed to the operation of secondary vocational education programs and the reimbursement which individual districts receive for these programs, the importance of the concept of "Added Cost" funding in Michigan seemed quite appropriate for analysis.

The data was compiled from the Michigan Department of Education, Vocational-Technical Education Service's Form VE-4559, which was collected from the twenty-eight Local Education Agencies and four Area Vocational Education Centers in Oakland County, Michigan. Twelve secondary vocational education programs were selected and analyzed; they were Cooperative Education, General Merchandise, Nursing Aide/Orderly, Health Occupations, Food Management, Business Data Processing, Steno and Secretarial, Clerical and Secretarial Lab, Auto Mechanics, Building Trades, Machine Shop and Welding and Cutting.

Of the 172 reimbursed vocational education programs in the study, 150 were Local Education Agency programs and twenty-two were Area Vocational Education Center programs. The following program costs were considered in this study:

- Instructional salaries and fringe benefits
- Salaries and fringe benefits of aides and para-professionals
- Instructional travel
- Contracted instruction
- Instructional supplies
- Equipment rental
- Equipment maintenance
- Vocational transportation
- In-service training
- Vocational administration
- Placement and follow-up

All programs having the same occupational education code were grouped and analyzed collectively. The actual program added cost and the mean average added cost of operating each program were determined: (1) on an Area Vocational Education Center basis; (2) a Local Education Agency basis; and (3) then reflected as a combined total. The average actual added cost was then compared to the state-wide average, which was the basis for reimbursement of vocational programs.

Within the limitations of the study, the following conclusions seem reasonable, based on the findings:

1. The present allocation of funds through the "Added Cost" concept is not consistently meeting the actual added costs of vocational programs in Oakland County.
2. The present "Added Cost" allocation of funds is resulting in a very high proportion of the costs being assumed by the Local Education Agencies and Area Vocational Education Centers, instead of by the Michigan Department of Education through the Vocational-Technical Education Service.
3. The Area Vocational Education Centers programs generally cost more to operate than did the Local Education Agencies programs.

4. There is a noticeable lack of expenditures in both the Local Education Agencies and Area Vocational Education Centers in the categories of contracted instruction and in-service training.
5. The study supports the findings of previous studies; that vocational program costs are concentrated in the areas of instructional salaries and fringe benefits and instructional supplies. It further identifies an additional finding; that vocational administration costs are also a high factor in vocational program cost.
6. There is a need to develop a formula or a standard of comparison upon which to measure expenditures.
7. There is not a high usage of para-professionals in either the Local Education Agencies or the Area Vocational Education Centers.
8. The placement component of the Area Vocational Education Centers generally increased the program actual added costs when compared to the Local Education Agencies programs.

The present "Added Cost" method of reimbursing vocational education programs in the State of Michigan generally did not meet the actual program costs at the Local Education Agencies and Area Vocational Education Centers in Oakland County.

ACKNOWLEDGMENTS

The writer wishes to express his appreciation to the many people who have made this dissertation possible:

To Dr. Lawrence Borosage, chairman of his doctoral committee, who gave of his time and wise counsel in guiding the writer through the research project. The guidance was professional, appropriate and a service of personal satisfaction.

To Dr. Frederick R. Ignatovich, Dr. Daniel H. Kruger and Dr. Rex E. Ray, for helpful suggestions and encouragement during the progress of the study.

To the Directors of Vocational Education and the Principals of the Area Vocational Education Centers in the constituent school districts of Oakland Schools for their cooperation in the data collection phase of the project.

To Dr. William J. Emerson and Dr. Kenneth W. Brown, Superintendents of Oakland Schools, for their personal encouragement and support in this study.

To the staff members of Oakland Schools for technical and professional counsel, especially Dr. Marie Schrag.

To Miss Linda Tee for her expertise, accuracy and speed in typing this dissertation.

And finally, to his wife, Lois, for her encouragement and patience, he expresses his gratitude and love.

TABLE OF CONTENTS

	page
List of Tables	v
 Chapter	
I. OVERVIEW OF THE PROBLEM	1
Introduction	1
The Problem	1
Need for the Study	2
The Significance of the Study	4
Delimitations of the Study	4
Study Procedures	5
Definition of Terms	6
 II. REVIEW OF RELATED RESEARCH	 13
Cost Effectiveness of Vocational Education	13
Accounting Practices	14
Cost-Benefits	16
Differential Cost of Vocational Programs	17
Program Costs at the Local Level	19
Cost Analysis of Vocational Programs	23
Summary	24
 III. PROCEDURES UTILIZED IN THE INVESTIGATION	 25
Selection of the Study Population	25
Description of the Study Population	26
The Design of the Study	28
 IV. ANALYSIS OF THE DATA	 34
Cooperative Education	35
General Merchandise	37
Nursing Aide	39
Health Occupations	41
Food Management	41
Business Data Processing	45
Steno and Secretarial	47
Clerical and Secretarial Lab	49
Auto Mechanics	51
Building Trades	53
Machine Shop	55
Welding and Cutting	57
Summary	59

	page
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	63
Summary	63
Conclusions	68
Implications	70
Recommendations	72
APPENDICES	
A. Cooperative Education	74
B. General Merchandise	77
C. Nursing Aide	80
D. Health Occupations	81
E. Food Management	82
F. Business Data Processing	84
G. Steno and Secretarial	85
H. Clerical and Secretarial	87
I. Auto Mechanics	90
J. Building Trades	92
K. Machine Shop	94
L. Welding and Cutting	96
BIBLIOGRAPHY	98

LIST OF TABLES

Chapter III

Table	Page
I.	27

Chapter IV

I.	Total Actual Added Program Cost 1974-75 00.COOP - Cooperative Education	35
II.	Total Actual Added Program Cost 1974-75 04.0800 - General Merchandise	37
III.	Total Actual Added Program Cost 1974-75 07.0303 - Nursing Aide	39
IV.	Total Actual Added Program Cost 1974-75 07.9900 - Health Occupations	40
V.	Total Actual Added Program Cost 1974-75 09.0203 - Food Management	42
VI.	Total Actual Added Program Cost 1974-75 14.0200 - Business Data Processing	44
VII.	Total Actual Added Program Cost 1974-75 14.0700 - Steno and Secretarial	46
VIII.	Total Actual Added Program Cost 1974-75 14.9800 - Clerical and Secretarial Lab	48
IX.	Total Actual Added Program Cost 1974-75 17.0302 - Auto Mechanics	50
X.	Total Actual Added Program Cost 1974-75 17.1000 - Building Trades	52
XI.	Total Actual Added Program Cost 1974-75 17.2302 - Machine Shop	54
XII.	Total Actual Added Program Cost 1974-75 17.2306 - Welding and Cutting	56
XIII.	Comparison of "Added Cost" to Actual Cost	59

CHAPTER I

OVERVIEW OF THE PROBLEM

Introduction

A current issue in education concerns the higher cost attributed to operating secondary vocational education programs and the reimbursement to individual districts which operate these programs. In 1970 provision was made by the Michigan legislature in Public Act 100 to reimburse school districts and area vocational centers for vocational education on an added cost basis.¹ This study will determine whether, in Oakland County, in fiscal year 1974-75 the "Added Cost" method of reimbursing Local Education Agencies and Area Vocational Education Centers did in fact meet the actual eligible costs in operating selected "reimbursed vocational education programs".

The Problem

The purpose of this study is to determine if the "Added Cost" reimbursement received from the Michigan Department of Education, Vocational Education and Career Development Service (since renamed

¹State of Michigan, Department of Education, Vocational Education and Career Development Service: Memorandum to Superintendents, CEPD Coordinators and Vocational Directors from Jack Michie, Director, March 28, 1973.

Vocational-Technical Education Service) did meet the 100% eligible costs of secondary vocational programs at the Local Education Agencies and Area Vocational Education Centers in Oakland County. Fiscal year 1974-75 was the fourth year in which secondary vocational education programs were funded on an "Added Cost" basis. Since the "Added Cost" figures are based upon a state-wide average, it may be that all areas of the state are not dealt with on an equitable basis, especially a county located in a metropolitan area.

Need for the Study

In 1971, Pennsylvania State University's Institute for Research on Human Resources was contracted by the Michigan State Advisory Council for Vocational Education to sample over 100 Michigan schools to identify the "Added Costs" of vocational education in the state. The survey collected student hours and financial information for a number of vocational programs as well as nonvocational programs. The nonvocational program costs were developed into an average cost per student and identified as the "base" cost of secondary programming. The base cost was then subtracted from the average costs associated with specific vocational programs and the resultant figure was called the "Added Cost" of a specific vocational program. Within each occupational (vocational) field, the added cost of the program showed wide variation. For example, in the Trade and Industrial occupational field on a per pupil basis, the range was from \$192.00 for Small Engine Repair to \$775.00 in a sheet metal program. Since the original computation of "Added Costs" was completed, the Michigan Department of Education, Vocational-Technical Education

Service has adjusted some dollar amounts in the various vocational education programs. In fiscal year 1974-75, the Michigan Department of Education, Vocational-Technical Education Service required that Form VE-4559 "1974-75 School Year Expenditure and Revenue Report for Secondary Vocational Programs" be completed and returned by September 15, 1975.

This study will compare information obtained from the above mentioned financial documentation, reported at the program level, in the twenty-eight Local Education Agencies in Oakland County as well as the four Area Vocational Education Centers. The study will determine if the "Added Cost" funds received from Michigan Department of Education, Vocational-Technical Education Service, did in fact cover the actual eligible costs of operating a "reimbursed vocational education" program at the secondary level. This will be the first study to determine, on a county-wide basis, if actual costs of operating selected vocational programs were being met through the "Added Cost" concept.

A study of this type will be beneficial to practitioners of Vocational Education Administration because it analyzes possible discrepancies between actual and reimbursed costs in programming. It should provide definitive answers to continued and additional funding for secondary vocational education, especially in determining actual program costs; and, therefore, be useful to members of the legislature who determine the future support of vocational education.

The Significance of the Study

The 1963 Vocational Education Act and subsequent amendments have stressed to administrators in the field the charge for accountability. Accountability certainly encompasses the need to study the costs in operating vocational education programs at the local, regional, state and national levels.

A study of this type involving twenty-eight Local Education Agencies whose 9-12 enrollment was 43,976 with a combined vocational education enrollment of 26,362 students enrolled in 495 vocational education programs, will develop some definite answers in the area of actual vocational program "Added Costs". The study will determine if the actual program added costs at the Local Education Agencies and Area Vocational Education Centers are the same, and then compare these actual added costs to the reimbursement received from the State of Michigan in the form of "Added Cost".

Delimitations of the Study

This study is limited to the twenty-eight Local Education Agencies and four Area Vocational Education Centers of Oakland County. Because this study is not dealing with the cost of educating a student in the general program, but with reimbursable vocational programs, the specific delimitations are:

1. For the vocational education program to be included in the study, it must have met established state guidelines for an "approved vocational program" and have generated "Added Cost" reimbursement in fiscal year 1974-75.

2. Further delimited by the criteria that at least 25% of the Local Education Agency and Area Vocational Education Centers offered a specific program in fiscal year 1974-75 so that a reasonable population size exists for each program being analyzed.

Study Procedures

After the professional literature had been searched and the appropriate materials had been analyzed in detail, the financial documents were obtained from twenty-eight Local Education Agencies and four Area Vocational Education Centers in the county.

As a result of the previously stated delimitations, all Local Education Agencies and Area Vocational Education Centers offering the following programs are included in the study.

Program Descriptor

Cooperative Coordination
General Merchandise
Nursing Aide
Health Occupations
Food Management
Business Data Processing
Steno and Secretarial
Clerical and Secretarial Laboratory
Auto Mechanics
Building Trades
Machine Shop
Welding and Cutting

The resulting data obtained from the documents was tabulated, analyzed and interpreted.

Conclusions and recommendations were drawn.

Definition of Terms

For the purpose of this study, the following terms were thought to have connotations that would depart somewhat from their more traditional use.

Added Cost. "The added costs of a vocational program are measured by calculating the difference between the average cost of the vocational program and the average cost of the alternative secondary academic or 'general' education program."¹

Added Cost Reimbursement. "Funds which are allocated to school districts and area center for the purpose of reimbursing the extra cost of vocational programs. Added cost funds are allocated to Local Education Agencies and Area Vocational Education Centers on the basis of a state 'average' added cost factor for each vocational program."²

Actual Cost. The dollar amounts expended by the Local Education Agencies and Area Vocational Education Centers in the operation of vocational education programs.

Cost-Benefit Analysis. "An evaluative technique which relates the total value of benefits of a program to the total costs of the program, used to aid decisions regarding optimum resource allocation."³

¹State Board Adopted Policies and Procedures for Funding Vocational Education Programs Through Added Costs for FY 1976-77, Addison S. Hobbs, State of Michigan, Department of Education, 1976.

²Ibid.

³Larry J. Bailey and Ronald Stadt, Career Education: New Approaches to Human Development, Knight Publishing Company, Bloomington, Illinois, 1973.

Cost Effectiveness. "The utilization of output variables in nonmonetary forms to serve as indices for the benefits of specific programs. The output variables are specified by various goals of a specific program, such as numbers of persons trained in a given skill, employment or level of proficiency."⁴

Accounting Practice. The method of systematically recording income and expenses in a specific period. There are two types of accounting methods or practices, namely, the accrual basis and cash basis.

The following definitions are for the categories of expenditures in the financial documentation VE-4559 as defined by the Michigan Department of Education, Vocational-Technical Education Service.

Student Hours is defined by the Michigan Department of Education, Vocational-Technical Education Service as the number of minutes per week that each section (class) meets times the number of students divided by 300 minutes. (If the program is a semester program, divide the amount by two.)

Form VE-4559 was used for reporting program level expenditure and revenue data for all secondary vocational education programs in Michigan receiving either vocational education "Added Cost" (state funds) or per pupil allowance (federal funds) reimbursement in the 1974-75 school year. A separate form was completed for each program receiving state vocational education "Added Cost" funds or federal per pupil allowance during the regular 1974-75 school year.

⁴Ibid.

Eligible Costs⁵ is not simply a "spreading" of "Added Cost" funds received, but rather the extra costs the district actually incurred in operating the vocational program, above and beyond the cost of nonvocational programs. The Michigan Department of Education does review and compare these extra district costs with "Added Cost" revenues received to establish if school districts are operating in a manner consistent with the expenditure guidelines.

Instructional Salaries⁶ is that portion of the salary which results from the vocational program having a lower student/teacher ratio than the district's secondary (7-12) student/teacher ratio. The Local District Summary: 1974 Fourth Friday Report serves as basis for the computation. This amount is derived by employing the following formula.

$$\begin{array}{l} \text{Secondary Student/} \\ \text{Classroom Teacher} \\ \text{Ratio} \end{array} = \frac{\text{Secondary Student Count}}{\text{Secondary Classroom Teachers}}$$

$$\left(1 - \frac{\text{Average Student/Teacher Ratio Per Section for Auto Mechanics} = 20}{\text{Average Student/Teacher Ratio for School District} = 25} \right) \times \text{Teachers Salary} = \text{Eligible Amount}$$

Salaries and Fringe Benefits of Aides and Para-Professionals.⁷

Included in this category are the full or prorated portions of the salaries and fringes of all teacher aides or para-professionals

⁵State of Michigan, Department of Education, Vocational-Technical Education Service: Memorandum to School Business Offices from Addison S. Hobbs, Director, June 15, 1975.

⁶Ibid.

⁷Ibid.

providing services to the particular program. Proration is based on the percent of the total time devoted to the particular program.

Fringe Benefits⁸ include Local Education Agency payments for employee health, dental, and life insurance; social security and retirement.

Instructional Travel.⁹ Included in this category are the travel costs of the instructor of the program incurred in the operation of the program.

Contracted Instruction¹⁰ included the programs contracted with private business or industry, private school, community college, or another Local Education Agency.

Instructional Supplies.¹¹ Included in this category is the cost of vocational supplies (not equipment) which were consumed in the particular program, as well as the cost of audio-visual and resource materials. The cost of welding rods, lumber, etc., is included also. However, basic nonvocational supplies, such as paper, pencils, etc. which apply to all programs, were not included. In some cases, supplies used in more than one vocational program would require prorated allocation among programs.

Equipment Rental.¹² Included in this category is the rental of all equipment used in connection with the instructional

⁸Ibid.

⁹Ibid.

¹⁰Ibid.

¹¹Ibid.

¹²Ibid.

program. In cases where the equipment is used in more than one vocational program, an allocation of costs was required. The allocation was based upon the percentage of the time the equipment was used for the particular program.

Equipment Maintenance.¹³ Included in this category are the costs of any special or contract maintenance associated with equipment used in connection with the instructional program. The cost of maintenance performed by Local Education Agency employees was not included. In some cases where the equipment was used in more than one vocational program, an allocation of costs was required. The allocation was based upon the percentage of the time the equipment was used for the particular program.

Vocational Transportation.¹⁴ Included in this category was the cost of any special transportation directly and uniquely associated with the particular program. The cost of transportation in getting students from the school to the program site (excluding students of work experience and coop) are included. Transportation costs, to and from an on-site building project, for example, are included for a Building Trades program. The following costs, however, were not allowed:

- (a) Field trips.
- (b) Transportation to the educational facility before school and from educational facility after school.
- (c) Transportation to area centers and to shared-time programs.

¹³Ibid.

¹⁴Ibid.

In-Service Training.¹⁵ Included in this category was the cost of in-service training activities directly related to vocational education. Cost was not included where the primary purpose of the training was applicable to the general education faculty or to obtain credits toward a degree.

Vocational Administration.¹⁶ Included in this category was the prorated cost (salary, fringes, and office costs) of vocational administration including vocational directors, area center principals, vocational supervisors, shared-time directors and their staff. Not included was any nonvocational administrative costs. The total vocational education administrative costs are allocated to the particular program by multiplying the Proration Factor times the total Vocational Administration Cost.

Prorated Factor.¹⁷ The proration factor is calculated as follows:

$$\text{Proration Factor} = \frac{\text{Number of Students Enrolled in the Particular Vocational Education Program}}{\text{Number of Students Enrolled in all Vocational Education Programs (Excluding Consumer and Homemaking, Home Economics - 09.01 programs)}}$$

For a vocational director or shared-time director who was eligible for up to 40% salary reimbursement with Federal funds through the Michigan Department of Education, Vocational-Technical Education Service, it was necessary to deduct the Federal administrative reimbursement prior to applying the proration factor.

¹⁵Ibid.

¹⁶Ibid.

¹⁷Ibid.

Placement and Follow-up.¹⁸ Included in this category was the prorated cost (salary, fringes, and office costs) of vocational education job placement and follow-up personnel (professional and clerical). The cost was prorated to the particular program by multiplying the Proration Factor times the Total Vocational Placement and Follow-up costs (salaries, fringes, and office costs).

Other Direct Costs.¹⁹ Included in this category are any other costs directly associated with the instructional program and not generally associated with nonvocational programs. Any costs included in this category are substantiated on a separate sheet and attached to the Form VE-4559 submitted by the Local Education Agency or Area Vocational Education Center.

Total Indirect Costs.²⁰ Included in this category are the amounts of indirect costs associated with each program. The rate for each Local Education Agency for determining the amount is computed from each audited Form DS-4169 (Form B), "Annual School District Financial Report for Fiscal Year Ended June 30, 1974". The rate multiplied times the TOTAL DIRECT COSTS provides the entry for Indirect Costs.

Any associated secretarial and/or clerical salaries, contracted services, insurance expenses, supplies, other administrative expenses, data processing and maintenance and operation costs are eligible as indirect costs for rate computation purposes.

¹⁸Ibid.

¹⁹Ibid.

²⁰Ibid.

CHAPTER II

REVIEW OF RELATED RESEARCH

The related research is presented in six categories; (1) cost effectiveness of vocational education; (2) accounting practices in vocational programs; (3) cost-benefits of vocational programs; (4) differential costs of vocational programs; (5) local level vocational program costs; and (6) cost analysis of vocational programs.

Cost Effectiveness of Vocational Education

In 1969, Kaufman¹ and others made a cost effectiveness study of vocational and nonvocational education in secondary schools. The study found that inadequacies in cost records existed which should have been available for cost analysis. One of the recommendations of the study was the need for schools to keep more adequate cost records which, if available, could be used in a management information option on both the local and state level.

A study for the Legislative Commission on Expenditures² in

¹Dr. Jacob J. Kaufman and others, "A Cost-Effectiveness Study of Vocational Education: A Comparison of Vocational and Non-vocational Education in Secondary Schools", The Pennsylvania State University, March, 1969.

²Manpower Training in New York State - Legislative Commission on Expenditure Review, New York State Legislature, Albany, New York, 1970.

New York State indicated the need for coordination of vocational education program cost effectiveness with Manpower Training. The Commission, among other findings, determined that since 1966 the level of funding had increased from \$4 million to \$36 million but little had been done to coordinate programs and that serious problems existed in financial accountability and program effectiveness of the vocational education component of Manpower Training.

The area of cost effectiveness in a specific vocational program, namely Cooperative Education, was explored by Molnar³ and others. The results suggested that it was possible to analyze historical costs and effectiveness of selected vocational education programs but no direct comparison could be made for Cooperative Education.

Cost-effectiveness studies are new to vocational education and vary widely in their findings as well as techniques of measurement, but the evidence supports vocational education as being a sound investment in human resources.

Accounting Practices

Some of the research literature investigated concerned the lack of uniform accounting systems or procedures on a district or state-wide basis.

³Daniel E. Molnar, "Cost Effectiveness of Selected Cooperative Vocational Education Programs as Compared with Vocational Programs Without a Cooperative Component: Final Report", Battelle Memorial Institute, Columbus, Ohio, June, 1973.

The Barsby⁴ study in Arizona, in 1971, examined the actual accounting practices in occupational education in a junior college district as well as that of three high schools. In his study he states that state, county and local administrators often do not have sufficient information on either the costs of the activities with which they are concerned nor the effects of these activities to allow them to make sound policy and administrative decisions.

A California study by Lindman⁵ examined the weaknesses of the present public schools account classification system. It is Lindman's belief that the function-object account classification system is too weak to supply information needed by local school boards, state legislatures and Congress concerning the actual costs of programs.

In 1971, a study was published by Forgey⁶ dealing with junior colleges in Illinois. One conclusion drawn was the need for uniform cost accounting procedures which would allow for meaningful analysis of data among colleges.

Studies which deal with the need for a uniform accounting practice, on both the secondary and junior college level, note the

⁴Steven L. Barsby, "School Accounting Practices for Occupational Education: An Appraisal and Suggested Revisions for the State of Arizona", Arizona Research Coordinating Unit, Northern Arizona University, 1971.

⁵Erick L. Lindman, "A Three-Dimensional Program Account Classification System for Public Schools", University of California at Los Angeles, June, 1968.

⁶George M. Forgey, "Some Selected Economic Benefits and Characteristics of Junior College Programs", Mid-State Educational Consultants, Normal, Illinois, April, 1971.

lack of an informational base on actual program costs. The lack of uniform accounting practices prevents analysis of costs across programs and also within the program itself.

Cost-Benefits

A cost-benefit study was conducted by Ghazalah⁷ in 1972 which evaluated the private and social costs and returns on vocational programs offered at the high school level. This study was conducted for the State of Ohio, Division of Vocational Education. The study calculated the rate of return on vocational education and left little doubt that vocational programs should be maintained and expanded.

The California State Department of Education sponsored a cost-benefit analysis study which determined that as a decisional tool for allocating funds, such an approach assesses the economic efficiency of a program.⁸

Cost-benefit studies of vocational education present researchers with difficulties because it is not easy to quantify the benefits derived or to determine costs in such areas as foregone earnings. The trend in the analysis of vocational programs is toward cost-effectiveness.

⁷Dr. Ismail A. Ghazalah, "The Role of Vocational Education in Improving Skills and Earning Capacity in the State of Ohio: A Cost-Benefit Study", Department of Economics, College of Business Administration, Ohio University, Athens, Ohio, November, 1972.

⁸"Cost-Benefit Analysis - Trade and Technical Education: A Final Report", Division of Vocational Education, California State Department of Education, Los Angeles, California, 1969.

Differential Cost of Vocational Programs

Wystrom's⁹ 1973 study of twenty-five schools in Illinois developed a Cost Differential Analysis Project which dealt with cost per credit hour and the cost differentials for occupational education. His study includes tables illustrating the effects lower maximum enrollment have on vocational program costs when a comparison is made with costs per credit hour for nonvocational courses. This study also illustrated the need to develop a formulae based upon differential costs.

In 1972 the Michigan State Advisory Council for Vocational Education authorized a study by Kaufman¹⁰ and his associates to determine actual vocational and nonvocational program costs on a state-wide basis.

A survey instrument, which was developed by Pennsylvania State University, was used as a vehicle to sample Michigan secondary schools. Out of a total of 555 Michigan schools offering vocational and/or nonvocational secondary curricula, 251 were chosen for the sampling. 108 schools returned the questionnaire by the August 20, 1971 deadline. The Kaufman study used data from the secondary schools in Michigan who responded to the survey, and initially broke the state into various regions, namely:

⁹Dr. Dennis C. Wystrom and others, "Cost Differential Analysis Project: Methods of Research, Data Analysis, and Suggested Utilization", Department of Occupational Education, Southern Illinois University, Carbondale, Illinois, May, 1973.

¹⁰Jacob J. Kaufman, "The Costs of Vocational and Nonvocational Programs: A Study of Michigan Secondary Schools", Institute for Research in Human Resources, The Pennsylvania State University, 1972.

Region I - Wayne, Oakland and Macomb Counties.

Region II - all counties in Southern Michigan (excluding Region I) that are south of and including Muskegon, Kent, Montcalm, Gratiot, Midland and Bay counties.

Region III - all counties in Northern Michigan (excluding the Upper Peninsula) north of and including Oceana, Newaygo, Mecosta, Isabella, Gladwin and Arenosa counties.

Region IV - all counties in the Upper Peninsula.

Within the aforementioned regions were community divisions. The communities were categorized as:

Metropolitan Core - one city or adjacent cities with populations of 50,000 or more which serve as the economic focal points of their environs.

City - community of 10,000 to 50,000 that serve as the economic focal point of its environs.

Town - community of 2,500 to 10,000 that serves as the economic focal point of its environs.

Urban Fringe - a community of unpopulation size that has as its economic focal point a metropolitan core or a city.

Rural Community - a community of less than 2,500.

Among the conclusions reached was the recommendation to reimburse vocational programs at the secondary level on the basis of enrollment and use average added cost estimates for various vocational programs. The present Michigan "Added Cost" reimbursement resulted from this study. One of the difficulties noted in the Michigan study by Kaufman was discussed in relation to the sampling procedure. "As far as region and community type are concerned, it can be observed that Regions I and II (southeastern and southern Michigan, respectively) were underrepresented in the final sample, while Regions III and IV (northern Michigan and the Upper Peninsula) were overrepresented.

Also, since the response from rural areas was more favorable than for any other community type, rural schools are clearly overrepresented. The most underrepresented community type is metropolitan."¹¹ The statements have implication for this study because Oakland County is contained in Region I and categorized as a metropolitan area.

Program Costs at the Local Level

Several researchers have analyzed program costs at Local Education Agencies. A study conducted for the Illinois Advisory Council requested data on program costs at the district level but, because of the small sample size, it was not considered to be typical of the schools in that state. The study conducted by Hicklin¹² recommended changes in accounting procedures and provided limited information in (1) cost per credit, (2) program costs and (3) total costs.

Certain specific subject areas have been researched to determine program costs; among these is a study by Edwards¹³ which concerns the cost of computer instruction. The initial program costs of equipment purchase, construction, and space requirements has been

¹¹Ibid.

¹²Charles R. Hicklin and Charles W. Edwards, "An Exploratory Analysis of Differential Program Costs of Selected Occupational Curricula in Selected Illinois High Schools: A Findal Report", Mid-State Educational Consultants, Normal, Illinois, March, 1971.

¹³Judith B. Edwards, "Computer Instruction; Planning and Practice", Northwest Regional Educational Laboratory, Portland, Oregon, September, 1969.

studied by the Division of Vocational Education in Ohio.¹⁴ The vocational education program area of Home Economics which was generally offered at a local district was the subject of the Ohio study.

The two Ohio studies noted the wide variations in equipping programs, with computer instruction being one of the most expensive to initially equip and Home Economics one of the least costly to equip. Studies such as these have resulted in yearly allowance set asides being suggested to maintain and replace vocational education program equipment.

Program costs at the post-secondary level in fifteen area schools of Iowa were researched by Cage.¹⁵ It was found that vocational-technical programs costs were higher than the cost of educating a student in the Arts and Science curricula and that enrollment had the greatest degree of inverse relationship with student program costs.

The Tennessee State Research Coordinating Unit for Vocational Education conducted a study involving six selected secondary schools in that state. Harris and O'Fallen¹⁶ contracted to conduct this study in which data was analyzed to determine low, high and mean costs by

¹⁴Ohio Vocational Home Economics: Suggested Space and Equipment Cost for Job Training Programs. Ohio State Department of Education, Columbus, Ohio, June, 1967.

¹⁵Bob N. Cage, Cost Analysis of Selected Educational Programs in the Area Schools of Iowa, Iowa Department of Education, Des Moines, Iowa, 1968.

¹⁶George W. Harris, Jr. and others, "Cost Analysis of Secondary School Vocational Technical Education Programs", Tennessee State Research Coordinating Unit for Vocational Education, State Department of Education Division of Vocational-Technical Education, June, 1973.

program and course. (Cost category was based on current enrollments and on capacity enrollments.) In this study of six Tennessee secondary schools, it was determined that the total cost per pupil contact hour ranged from under \$1.00 to above \$2.00. The study also stressed the need for more accurate costs in the development of an effective management information system.

A study by Aldrich¹⁷ sponsored by the California State Department of Education, published in 1972, dealt with an analysis of vocational program costs. The study, using three high schools and one community college for seven states, attempted to determine vocational program costs at the secondary and post-secondary levels to assist state and local administration in offering financial support. Among the findings was the need for more efficient program-weighting factors, because the present system was not sufficiently sensitive to local needs nor precise enough to be used in a state vocational fund's allocation system.

The problem of apportioning state categorical aid funds for vocational education among local school educational agencies was treated under a D.H.E.W. study by Lindman.¹⁸ The study found that funds were not being allocated for vocational equipment replacement, and that there was a general lack of goals for vocational education which resulted in an inability to estimate costs. One of the

¹⁷Daniel G. Aldrich, "An Analysis of Vocational Program Costs", California State Department of Education, Sacramento, 1972.

¹⁸Erick L. Lindman, "Financial Support for Vocational Education in the Public Schools: Final Report", University of California at Los Angeles, September, 1972.

recommendations was that specific guidelines should be established for prorating indirect costs; and, also, that state agencies should establish specific guidelines for the acquisition, maintenance and replacement of equipment which his study found lacking.

In June of 1975, Gasior¹⁹ and others, in a New Jersey study dealing with practical nursing and health related occupations, collected cost data for one year to determine program level cost per pupil. The study placed stress on the program budget accounting systems' more accessible data when compared to the traditional accounting system used in most schools. A conclusion derived from this study stated that expenditures should be used rather than budget estimates for calculating per pupil cost. This related closely to this study, which uses actual expenditures for vocational education programs in Oakland County.

A study in Minnesota conducted by Mohrenweiser²⁰ and others focused on the determination of added costs for vocational education programs at the secondary level. In this study, as in others, there was difficulty in obtaining accurate financial data directly associated with vocational programs. Mohrenweiser, in his recommendations, stated that there was a need to devise a system to account for cost differentials among programs and among school districts which would

¹⁹Albert G. Gasior and others, "Model for Costs Per Pupil for Vocational Education Programs and Types of Schools", New Jersey State Department of Education, Division of Vocational Education, Trenton, New Jersey, June, 1975.

²⁰Dr. Gary A. Mohrenweiser and others, Educational Management Services, Inc., State Department of Education, Minneapolis, Minnesota, August, 1973.

encourage optional program enrollments. As in other studies, he claimed that direct vocational instruction salary costs account for approximately one-half of the total program cost per instructional contact hour.

Cost Analysis of Vocational Programs

The State of Ohio has conducted a cost analysis study with approximately 20% of all school districts participating each year. The PRIDE²¹ (Program Review for the Improvement, Development and Expansion of Vocational Education and Guidance) program has as one of its six parts a review of costs of operating vocational education programs. As a part of this management information system at the secondary level, the Ohio program provides:

- (1) an internal analysis of the cost of operating a vocational education program among the expenditure categories of Administration, Supervisor Vocational Areas, Principal/Director School, Vocational Texts and Supplies, Vocational Shop Laboratory Equipment, Other Expenditures, and Operation and Maintenance, and
- (2) a comparative analysis of operating costs attributed to a vocational education program both by expenditure categories and total cost among classes, taxonomies, kinds of school districts and program types in their management information system.

²¹"A System for Analyzing the Costs of Operating Vocational Education Programs at the Secondary Level in Ohio: A Study of School Year 1973-74", Division of Vocational Education, Ohio Department of Education, Columbus, 1975.

Byrl R. Shoemaker, Director of the Division of Vocational Education for the State of Ohio, states, "The reasons for analyzing educational program costs are not unique to vocational education. . . . However, its efforts to determine educational costs put forth by investigators have not provided the depth and breadth of the cost elements necessary to meet the need of vocational education in Ohio."²²

Summary

On the basis of the studies that have been conducted, these statements are made.

1. There is difficulty in obtaining accurate financial data directly associated with the cost of vocational education programs.
2. Inadequacies in local cost records exist which limit the management of a school building or district in making sound judgements regarding vocational education programming.
3. Some of the literature notes that there is a lack of uniform accounting systems within the district or on a state-wide basis which results in the inability to analyze that data which may be available and further notes that until such systems are in place there cannot be an effective management system for vocational education.
4. There is generally a lack of efficient program-weighting factors within state vocational funding allocation systems which result in the system not being sufficiently sensitive to local school districts needs and lacking in cost differentials among various programs.
5. There is generally a lack of depth in determining the actual elements of cost which contribute to the total cost of vocational education programs.

²²Ibid.

CHAPTER III

PROCEDURES UTILIZED IN THE INVESTIGATION

Selection of the Study Population

Fiscal year 1974-75 was the fourth year in which the State of Michigan reimbursed secondary vocational education programs on an "Added Cost" basis. Since the "Added Cost" figures for reimbursing Local Educational Agencies for secondary vocational education programs were based on a state-wide average, this investigation was undertaken to determine the actual program added costs incurred by the local districts and area centers in a large Michigan county.

In fiscal year 1974-75, the county of Oakland had a student population (9-12 enrollment) of 73,403, with a vocational education enrollment of 23,994 or 32.688%. The county is composed of twenty-eight Local Educational Agencies plus four Area Vocational Education Centers and one Intermediate School District, namely Oakland Schools. Because of the large vocational enrollments in both comprehensive secondary schools as well as area vocational education centers, the county was selected as the population of this study. The county evidences a wide range of school membership with a range of 3,312 to 23,014 membership per Local Education Agency.

Description of the Study Population

This study was directed to reimbursed secondary vocational education programs, and did not deal with the cost of educating a student in a general program. The study deals with those secondary vocational education programs at the Local Education Agency level and Area Vocational Education Centers which were reimbursed in 1974 on an "Added Cost" basis by the Michigan Department of Education, Vocational-Technical Education Service.

Several delimitations were recognized in the selection of this population, namely:

1. The programs to be included had to meet the standards established by the Michigan Department of Education, Vocational-Technical Education Service for reimbursement as an "Added Cost" vocational education program.
2. The programs had to be reimbursed in fiscal year 1974-75 according to the Vocational Education Employment Demand Program Ranking, as established by the Michigan Employment Security Commission in association with the Michigan Department of Education, Vocational-Technical Education Service.
3. A further delimitation for inclusion was the requirement that at least 25% of the local districts or area centers in the county received "Added Cost" reimbursement for this program in fiscal year 1974-75.

As a result of the aforementioned delimitations, all Local Education Agencies and Area Vocational Education Centers in the county receiving "Added Cost" reimbursement in fiscal year 1974-75 for the following programs were included in the study; they are:

TABLE I

Number of LEA*
and Centers Offering Programs

O.E. Code	Program Descriptor	LEA	Centers
00.COOP	Cooperative Education (Distributive Education, Health, Office, Trade and Industrial)	26	
04.0800	General Merchandise and Coop Related	25	3
07.0303	Nursing Aide/Orderly	9	1
07.9900	Health Occupations and Coop Related	7	
09.0203	Food Management	9	3
14.0200	Business Data Processing	4	2
14.0700	Steno and Secretarial	12	1
14.9800	Clerical and Secretarial Lab	18	1
17.0302	Auto Mechanics	14	3
17.1000	Building Trades	9	2
17.2302	Machine Shop	8	3
17.2306	Welding and Cutting	9	3

*Local Education Agency

A total of 172 reimbursed vocational education programs are included in this study composed of 150 Local Education Agency programs and twenty-two Area Vocational Education Center programs.

The Design of the Study

The study determined the actual program added costs through an analysis of the financial documents (Form VE-4559) completed for each eligible secondary vocational program at the local level. During October of 1974, seven regional in-service education meetings, conducted by staff members of the Vocational-Technical Education Service, were held throughout the state dealing with the source documentation, the Form VE-4559. In order to determine the reliability of record expense tracking within programs of the districts, three districts were selected at random. Purchase orders and requisitions served as the major source of documentation. These were checked to determine the accuracy of the amounts that appeared within the categories of the district Form VE-4559.

The procedure used in this study was as follows:

1. Collect from each Local Education Agency in the county a copy of Form VE-4559 entitled "1974-75 School Year Expenditure and Revenue Report for Secondary Vocational Programs", which had been signed by the superintendent or authorized Local Education Agency official for each program included in the study.
2. Obtain a copy of the "End of Year Report, 1974-75 Vocational Education Program Reimbursement", Form X0107, dated 08-26-75, from the Michigan Department of Education, Vocational-Technical Education Service which gives the final "Added Cost" reimbursement for each program included in the study.

3. Compare actual "Added Cost" amounts received in each program (source, Form X0107) to data supplied by Local Education Agency stating total actual added vocational costs for each program in the study (source, Form VE-4559).
4. Areas of actual vocational added cost to be considered in each program were:
 - a. Instructional salaries and fringe benefits
 - b. Salaries and fringe benefits of aides and para-professionals
 - c. Instructional travel for the above
 - d. Contracted instruction
 - e. Instructional supplies (including audio visual and resource materials)
 - f. Equipment rental
 - g. Equipment maintenance
 - h. Vocational transportation
 - i. In-service training
 - j. Vocational administration
 - k. Placement and Follow-up

Each salary and fringe benefit was prorated based upon the total teaching load of the staff members compared to teaching load in a particular reimbursed vocational education program.

In determining "eligible additional teacher costs", each Local Education Agency's secondary (7-12) student teacher ratio was computed based on information submitted to the Michigan Department of Education on Form DS-4061, "Local District Summary: 1974 Fourth Friday Report".

To illustrate:

$$\text{The Secondary Student/ Classroom Teacher Ratio} = \frac{\text{Secondary Student Count*}}{\text{Secondary Classroom Teachers**}}$$

*Form DS-4061, Page 1, Table I.A, Sum of Lines 9-14

**Form DS-4061, Page 3, Table II.A, Line 31, Column 2

To determine eligible costs of vocational teachers' salaries, the following formula was used. For example,

Auto Mechanics:

$$\left(1 - \frac{\text{Average Student/Teacher Ratio Per Section for Auto Mechanics} = 20}{\text{Average Student/Teacher Ratio for School District} = 25} \right) \times \text{Teachers Salary} = \text{Eligible Amount}$$

$$\left(1 - \frac{20}{25} \right) \times \$14,375 = \$2,875$$

Thus the additional cost of supplying a teacher in the Auto Mechanics class because of lower student enrollment compared to district teacher/pupil ratio is \$2,875.00.

5. The procedure used to determine \bar{X} total program cost in each of the previously stated areas of consideration was as follows:

Each program had preprinted information supplied by the Michigan Department of Education, Vocational-Technical Education Service which included district identification number, the occupational education program code, program title, "Added Cost" amount received by the program, enrollment of students, the student hours, and the unrestricted indirect cost rate stated in a percentage figure. An example of the preprinted information, and its format is:

84-84010

_____ Public Schools

OE Program Code ____-____-

Auto Mechanics

Added Cost Amount = \$_____

Student Hours = ____

Enrollment = ____ Res = ____

Non-Res = ____

Unrestricted Indirect Cost Rate = ____%

6. The actual 1974-75 program costs for each selected program were supplied by each Local Education Agency and Area Vocational Education Center in the following format designed by the Michigan Department of Education, Vocational-Technical Education Service in Form VE-4559, dated January, 1975.

Actual 1974-75 Program Costs	Eligible Vocational Costs
1. Instructional Salaries and Fringe Benefits <u>Eligible Amount</u>	
2. Salaries and Fringe Benefits of Aides and Para-Professionals	
3. Instructional Travel (For 1 and 2 above)	
4. Contracted Instruction	
5. Instructional Supplies (Including Audio-Visual and Resource Materials)	
6. Equipment Rental	
7. Equipment Maintenance	
8. Vocational Transportation	
9. In-Service Training	
10. Vocational Administration	
11. Placement and Follow-up	
12. Other Direct Costs	
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	
14. TOTAL INDIRECT COSTS	
15. TOTAL COSTS (Sum of Lines 13 and 14)	

7. Added cost reimbursement to a Local Education Agency was based on student hours in the program. The student hours information was calculated by the Michigan Department of Education, Vocational-Technical Education Service as defined in Chapter I in the section entitled "Definition of Terms". The student hours figure was consistently divided into each eligible cost amount, as well as the total actual cost of the program to determine the particular actual cost.

8. All programs of like occupational education codes and program descriptors were analyzed using the student hours figures, as previously explained, and the total program costs based on student hours for all Local Education Agencies and Area Vocational Education Centers were added together and divided by the number of student enrollments to determine the average actual cost of operating a specific program.
9. The mean obtained, composed of Local Education Agency and Area Vocational Education Center programs, was then compared to the "Added Cost" amount on which the state reimbursed the program to determine if the "Added Cost" was sufficient to meet the actual program added cost incurred in operating each program.
10. The following procedure was used to determine the Total Actual Added Cost of a vocational program:

$$\text{Total Actual Added Cost} = (\text{Student Enrollments} \times \text{Actual Program Cost}) / \text{Student Hours}$$

Example:

$$\begin{aligned} \text{Total Actual Added Cost} &= 70 \times \$58.00 \\ \text{Total Actual Added Cost} &= \$4,060.00 / \text{Student Hours} \end{aligned}$$
11. To determine if there was a program discrepancy the following procedure was used:

$$\begin{aligned} \text{Discrepancy} &= \text{"Added Cost"} - \text{Actual Added Cost} \\ \text{Discrepancy} &= \$69.00 - \$170.00 \\ \text{Discrepancy} &= - \$101.00 \end{aligned}$$

(The "Added Cost" did not meet the actual added cost. This program cost \$101.00 per student hour in excess of the "Added Cost" reimbursement of \$79.00 per student hour.)

CHAPTER IV

ANALYSIS OF THE DATA

Twelve secondary vocational education program subject areas funded under the Michigan "Added Cost" concept were analyzed on a county-wide basis. In the following sections, the analysis for each is presented. As explained in Chapter Three, the Michigan Department of Education, Vocational-Technical Education Service Form VE-4559 was used as the source documentation for this analysis of "Added Cost" in the county of Oakland, Michigan.

Twenty-eight Local Education Agencies and four Area Vocational Education Centers provided copies of their financial documentation which were used as the data for this study. The financial documents were completed at the program level by the districts and area centers after in-servicing during the month of October, 1974 by personnel of the Michigan Department of Education. Each Local Education Agency and Area Vocational Education Center was required to determine the actual eligible program cost for each program which had received "Added Cost" reimbursement.

The twenty-eight Local Education Agencies and four Area Vocational Education Centers were assigned a random number (10-41) to maintain confidentiality of information in this analysis.

Cooperative Education

The first secondary vocational education program analyzed was Cooperative Education. Included were programs in the fields of distributive education, health occupations, home economics, office education, and trade and industrial education.

Cooperative Education was offered and reimbursed with "Added Cost" monies in twenty-six of the Local Education Agencies and was not offered at the Area Vocational Education Centers.

A total of 3,352 students were enrolled in Cooperative Education in those Local Education Agencies which received "Added Cost" reimbursement in fiscal year 1974-75. The enrollments appear in Table I.

The "Added Cost" reimbursement for Cooperative Education was \$69.00 per pupil hour in fiscal year 1974-75. The actual added costs of this program are shown in Table I. The mean average actual added cost of the twenty-six Local Education Agencies was \$170.00 as shown in Table I.

Line item expenditures for Cooperative Education (Appendix A) indicated that one item, namely instructional salaries and fringe benefits, accounted for amounts greater than the "Added Cost" received in eighteen of the Local Education Agency's program. Cooperative Education was not offered by the Area Vocational Education Centers.

The finding of the analysis of the actual program added cost for Cooperative Education indicates that the "Added Cost" reimbursement of \$69.00 per pupil hour does not meet the actual added cost of the program.

TABLE I

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 00.COOPProgram Descriptor Cooperative Education

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
10	70	\$ 58	\$ 4,060
11	52	203	10,556
12	113	68	7,684
13	346	130	44,980
14	85	68	5,780
15	199	354	70,446
16	65	201	13,065
17	152	210	31,920
18	36	199	7,164
19	426	109	46,434
22	43	146	6,278
24	28	135	3,780
25	78	221	17,238
28	60	88	5,280
29	96	62	5,952
30	104	71	7,384
31	274	311	85,214
32	354	115	40,710
33	87	203	17,661
34	214	216	46,224
35	74	225	16,650
36	18	395	7,110
37	138	107	14,766
38	39	312	12,168
40	186	213	39,618
41	15	206	3,090

Mean Actual Added Program Cost

			Discrepancy
District	\$170.00	Reimbursed	- \$101.00
Area Center		by state	
Combined Cost	\$170.00	\$69.00	- \$101.00

*Denotes Area Vocational Education Center.

General Merchandise

The second secondary vocational education program analyzed was General Merchandise, occupational education code number 04.0800. The General Merchandise program was offered and reimbursed under the "Added Cost" concept in twenty-five Local Education Agencies and three Area Vocational Education Centers.

A total of 2,504 students were enrolled in General Merchandise in those Local Education Agencies and Area Vocational Education Centers which received "Added Cost" reimbursement in fiscal year 1974-75. The student enrollments appear in Table II.

The "Added Cost" reimbursement for General Merchandise was \$79.00 per pupil hour in fiscal year 1974-75.

The actual added cost of this program on a Local Education Agency and Area Vocational Education Center basis is shown in Table II. The mean average actual added cost of the combined twenty-five Local Education Agencies and three Area Vocational Education Centers was \$138.00 as shown in Table II. The mean average added cost of the twenty-five Local Education Agency programs was \$132.00 and that of the Area Vocational Education Centers, \$220.00 which in both cases exceeded the reimbursed "Added Cost" amount.

Analysis of the line item expenditures (Appendix B) indicates that in the General Merchandise programs offered, the areas of instructional supplies and vocational administration costs accounted for the highest proportion of the program costs. In two of the three Area Vocational Education Centers, the per pupil hour cost for placement exceeded the vocational administration cost.

TABLE II

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 04.0800Program Descriptor General Merchandise

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
10	44	\$186	\$ 8,184
12	44	41	1,804
13	157	60	9,420
14	29	192	5,568
15	254	146	37,084
17	110	390	42,900
18	34	126	4,284
19	83	95	7,885
*20	32	292	9,344
21	110	128	14,080
22	21	181	3,801
23	66	81	5,346
24	24	264	6,336
25	19	226	4,294
*27	84	200	16,800
28	53	19	1,007
29	84	93	7,812
30	92	171	15,732
31	308	106	32,648
32	165	131	21,615
33	22	141	3,102
34	153	41	6,273
35	40	75	3,000
36	22	112	2,464
37	211	148	31,228
*39	44	206	9,064
40	79	228	18,012
41	32	125	4,000

Mean Actual Added Program Cost

			Discrepancy
District	\$132.00	Reimbursed	- \$53.00
Area Center	220.00	by state	- 141.00
Combined Cost	\$138.00	\$79.00	- \$59.00

*Denotes Area Vocational Education Center.

The finding of the analysis of the actual program added cost for General Merchandise is that the "Added Cost" reimbursement of \$79.00 per pupil hour does not meet the actual added cost of the program.

Nursing Aide

The third secondary vocational education program analyzed was Nursing Aide, occupational education code number 07.0303. The Nursing Aide program was offered and reimbursed under the "Added Cost" concept in nine Local Education Agencies and one Area Vocational Education Center.

A total of 483 students were enrolled in Nursing Aide programs in those Local Education Agencies and one Area Vocational Education Center which received "Added Cost" reimbursement in fiscal year 1974-75. The student enrollments appear in Table III.

The "Added Cost" reimbursement for Nursing Aide was \$84.00 per pupil hour in fiscal year 1974-75.

The actual added cost of this program on a Local Education Agency and Area Vocational Education Center basis is shown in Table III. The mean average actual added cost of the nine Local Education Agencies and one Area Vocational Education Center was \$134.00 as shown in Table III. The mean average added cost of the nine Local Education Agencies was \$130.00 and the Area Vocational Education Center actual added cost was \$176.00.

Line item expenditures (Appendix C) indicate that the major costs of the Nursing Aide program are in the areas of instructional salaries and fringe benefits, vocational administration and instructional supplies.

TABLE III

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 07.0303Program Descriptor Nursing Aide

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
15	125	\$122	\$15,250
16	44	42	1,848
17	27	83	2,241
19	116	151	17,516
*20	44	176	7,744
29	18	58	1,044
30	21	368	7,728
31	28	186	5,208
32	31	123	3,813
40	40	95	3,800

Mean Actual Added Program Cost

			Discrepancy
District	\$130.00	Reimbursed	- \$46.00
Area Center	176.00	by state	- 92.00
Combined Cost	\$134.00	\$84.00	- \$50.00

*Denotes Area Vocational Education Center.

The finding of the analysis of actual program added cost for Nursing Aide is that the "Added Cost" reimbursement of \$84.00 per pupil hour does not meet the actual added cost of the program.

Health Occupations

The fourth secondary vocational education program analyzed was Health Occupations, occupational education code number 07.9900. The Health Occupations program was offered and reimbursed under the "Added Cost" concept in seven Local Education Agencies and not at the Area Vocational Education Centers.

A total of 313 students were enrolled in Health Occupations programs as appears in Table IV.

The "Added Cost" reimbursed for Health Occupations programs was \$90.00 per pupil hour in fiscal year 1974-75.

The actual added cost of this program on a Local Education Agency basis is shown in Table IV. The mean average actual added cost of the seven Local Education Agencies was \$121.00 as shown in Table IV.

Line item expenditures for the Health Occupations programs (Appendix D) indicate that the major costs of this program are in the areas of instructional salaries and fringe benefits, vocational administration and instructional supplies.

The finding of the analysis of the actual program added cost for Health Occupations is that the "Added Cost" reimbursement of \$90.00 per pupil hour does not meet the actual added cost of the program.

Food Management

The fifth secondary vocational education program analyzed was Food Management, occupational education code number 09.0203. The

TABLE IV

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 07,9900Program Descriptor Health Occupations

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
13	30	\$149	\$ 4,470
17	36	115	4,140
19	139	119	16,541
28	44	27	1,188
29	30	112	3,360
30	6	424	2,544
33	28	200	5,600

Mean Actual Added Program Cost

			Discrepancy
District	\$121.00	Reimbursed	- \$31.00
Area Center		by state	
Combined Cost		\$90.00	

*Denotes Area Vocational Education Center..

Food Management program was offered and reimbursed under the "Added Cost" concept in nine Local Education Agencies and three Area Vocational Education Centers.

A total of 1,229 students were enrolled in Food Management in those Local Education Agencies and Area Vocational Education Centers which received "Added Cost" reimbursement in fiscal year 1974-75. The student enrollments appear in Table V.

The "Added Cost" reimbursement for Food Management was \$154.00 per pupil hour in fiscal year 1974-75.

The actual added cost of this program on a Local Education Agency and Area Vocational Education Center basis is shown in Table V. The mean average actual added cost of the nine Local Education Agencies and three Area Vocational Education Centers was \$186.00 as shown in Table V. The mean average of actual added cost of the nine Local Education Agencies is \$146.00 as shown in Table V. The mean average of actual added cost of the three Area Vocational Education Centers was \$273.00 per pupil as appears in Table V.

The line item expenditures for Food Management programs (Appendix E) indicate that in two of the Area Vocational Education Centers, the amount expended for instructional supplies exceeded the total actual added costs of the Local Education Agency programs (six of nine districts).

The finding of the analysis of the actual program added cost for Food Management is that the "Added Cost" reimbursement of \$154.00 met the actual per pupil hour added cost on a Local Education Agency level, but did not meet the higher program added cost of the Area Vocational Education Center.

TABLE V

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 09.0203Program Descriptor Food Management

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
10	21	\$125	\$ 2,625
*20	103	337	34,711
23	44	147	6,468
24	22	274	6,028
*26	113	416	47,008
*27	175	142	24,850
28	85	17	1,445
29	18	96	1,728
31	43	193	8,299
32	234	140	32,760
34	21	192	4,032
40	350	169	59,150

Mean Actual Added Program Cost

			Discrepancy
District	\$146.00	Reimbursed	+ \$8.00
Area Center	273.00	by state	- 119.00
Combined Cost	\$186.00	\$154.00	- \$32.00

*Denotes Area Vocational Education Center.

Business Data Processing

The sixth secondary vocational education program analyzed was Business Data Processing, occupational education code number 14.0200. The Business Data Processing program was offered and reimbursed under the "Added Cost" concept in four Local Education Agencies and two Area Vocational Education Centers in fiscal year 1974-75.

A total of 587 students were enrolled in Business Data Processing programs which appears in Table VI.

The "Added Cost" reimbursement for Business Data Processing was \$279.00 per pupil hour in fiscal year 1974-75.

The actual added cost of this program on a Local Education Agency and Area Vocational Education Center basis is shown in Table VI. The mean average actual added cost of the four Local Education Agencies and two Area Vocational Education Centers is \$308.00 as shown in Table VI. The mean average actual added cost of the four Local Education Agencies is \$299.00, and \$341.00 at the two Area Vocational Education Centers, as appears in Table VI.

Line item expenditures (Appendix F) indicated the use of aides and para-professionals in the Business Data Processing program. The Area Vocational Education Center had larger amounts spent on equipment rental than the Local Education Agencies, but the Local Education Agencies programs spent more on equipment maintenance than the Area Vocational Education Centers.

The finding of the analysis of the actual program added cost for Business Data Processing is that the "Added Cost" reimbursement of \$279.00 does not meet the actual added cost of the program.

TABLE VI

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 14.0200Program Descriptor Business Data Processing

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
19	188	\$339	\$63,732
*20	64	373	23,872
23	109	206	22,454
*26	64	309	19,776
30	13	421	5,473
37	149	307	45,743

Mean Actual Added Program Cost

			Discrepancy
District	\$299.00	Reimbursed	- \$20.00
Area Center	341.00	by state	- 62.00
Combined Cost	\$308.00	\$279.00	- \$29.00

*Denotes Area Vocational Education Center.

Steno and Secretarial

The seventh secondary vocational education program analyzed was the Steno and Secretarial program, occupational education code number 14.0700. The Steno and Secretarial program was offered and reimbursed under the "Added Cost" concept in twelve Local Education Agencies and one Area Vocational Education Center.

A total of 549 students were enrolled in the Steno and Secretarial program in those Local Education Agencies and the Area Vocational Education Center which received "Added Cost" reimbursement in fiscal year 1974-75. The student enrollments for the Steno and Secretarial programs appear in Table VII.

The "Added Cost" reimbursement for Steno and Secretarial programs was \$101.00 per student hour in fiscal year 1974-75.

The actual added cost of this program on a Local Education Agency and Area Vocational Education Center basis is shown in Table VII. The mean average actual added cost of the twelve Local Education Agencies and one Area Vocational Education Center is \$129.00 as shown in Table VII. The mean average added cost of the twelve Local Education Agencies is \$124.00 and the one Area Vocational Education Center actual added cost is \$183.00.

The line item expenditures (Appendix G) indicate that one Area Vocational Education Center expended more funds for para-professionals than instructional salaries in the Steno and Secretarial program. Expenditures for equipment maintenance, vocational administration and instructional salaries accounted for the majority of the program costs.

TABLE VII

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 14.0700Program Descriptor Steno & Secretarial

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
11	18	\$126	\$ 2,268
12	19	65	1,235
13	132	73	9,636
15	128	82	10,496
21	55	190	10,450
22	15	182	2,730
*26	44	183	8,052
29	43	139	5,977
31	8	502	4,016
33	22	121	2,662
36	22	75	1,650
38	8	830	6,640
40	35	145	5,075

Mean Actual Added Program Cost

			Discrepancy
District	\$124.00	Reimbursed	- \$23.00
Area Center	183.00	by state	- 82.00
Combined Cost	\$129.00	\$101.00	- \$28.00

*Denotes Area Vocational Education Center.

The finding of the analysis of the actual program added cost for Steno and Secretarial programs is that the "Added Cost" reimbursement of \$101.00 per pupil cost does not meet the actual added cost of the program.

Clerical and Secretarial Lab

The eighth secondary vocational education program analyzed was Clerical and Secretarial Lab, occupational education code number 14.9800. The Clerical and Secretarial Lab program was offered and reimbursed under the "Added Cost" concept in eighteen Local Education Agencies and at one Area Vocational Education Center in the County.

A total of 769 students were enrolled in Clerical and Secretarial Lab programs in those Local Education Agencies and Area Vocational Education Center which received "Added Cost" reimbursement in fiscal year 1974-75. The student enrollments appear in Table VIII.

The "Added Cost" reimbursement for Clerical and Secretarial Lab was \$82.00 per pupil hour in fiscal year 1974-75.

The actual added cost of this program on a Local Education Agency and Area Vocational Education Center basis is shown in Table VIII. The mean average actual added cost of the eighteen Local Education Agencies and the Area Vocational Education Center program is \$120.00 as shown in Table VIII. The mean average actual added cost of the eighteen Local Education Agency programs is \$119.00 and that of the Area Vocational Education Center, \$128.00, which in both cases exceeds the reimbursed "Added Cost" amount.

In the Clerical and Secretarial programs, instructional salaries, instructional supplies and vocational administration costs

TABLE VIII

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 14.9800Program Descriptor Clerical & Secretarial Lab.

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
10	82	\$ 68	\$ 5,576
11	22	64	1,408
12	12	237	2,844
14	44	63	2,772
17	73	116	8,468
19	85	68	5,780
22	23	152	3,496
24	11	222	2,442
25	16	144	2,304
28	18	91	1,638
30	36	150	5,400
31	44	177	7,788
32	86	185	15,910
33	19	107	2,033
34	41	111	4,551
35	39	58	2,262
37	9	467	4,203
*39	87	128	11,136
41	22	117	2,574

Mean Actual Added Program Cost

			Discrepancy
District	\$119.00	Reimbursed	- \$37.00
Area Center	128.00	by state	- 46.00
Combined Cost	\$120.00	\$82.00	- \$38.00

*Denotes Area Vocational Education Center.

account for the highest proportion of the costs in this program. The actual per pupil line item expenditures appear in Appendix H.

The finding of the analysis of the actual program added cost for Clerical and Secretarial Lab programs is that the "Added Cost" reimbursement of \$82.00 per pupil hour does not meet the actual added cost of the program.

Auto Mechanics

The ninth secondary vocational education program analyzed was Auto Mechanics, occupational education code number 17.0302. The Auto Mechanics program was offered and reimbursed under the "Added Cost" concept in fourteen Local Education Agencies and three Area Vocational Education Centers.

A total of 1,147 students were enrolled in Auto Mechanics in the Local Education Agencies and Area Vocational Education Centers which received "Added Cost" reimbursement in fiscal year 1974-75. The student enrollments appear in Table IX.

The "Added Cost" reimbursement for Auto Mechanics was \$139.00 per pupil hour in fiscal year 1974-75.

The actual added cost of this program on a Local Education Agency and Area Vocational Education Center basis is shown in Table IX. The mean average actual added cost of the fourteen Local Education Agencies and three Area Vocational Education Centers is \$156.00 as shown in Table IX. The mean average actual added cost of the fourteen Local Education Agencies is \$164.00 and that of the three Area Vocational Education Centers is \$135.00 per pupil hour.

TABLE IX

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 17.0302Program Descriptor Auto Mechanics

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
10	19	\$ 90	\$ 1,710
11	22	94	2,068
14	17	113	1,921
15	53	170	9,010
17	35	84	2,940
19	196	136	26,656
*20	119	126	14,994
22	50	231	11,550
23	110	198	21,780
25	40	197	7,880
*26	66	172	11,352
*27	118	124	14,632
30	47	154	7,238
31	114	196	22,344
32	79	255	20,145
34	40	31	1,240
35	22	87	1,914

Mean Actual Added Program Cost

			Discrepancy
District	\$164.00	Reimbursed	- \$25.00
Area Center	135.00	by state	+ 4.00
Combined Cost	\$156.00	\$139.00	- \$17.00

*Denotes Area Vocational Education Center.

Instructional supplies accounted for one of the highest costs of the Auto Mechanics program (Appendix I). As was true of the other programs analyzed on the line item expenditure basis, costs of instructional salaries and vocational administration accounted for a high proportion of the costs.

The finding of the analysis of the actual program added cost for Auto Mechanics is that the "Added Cost" reimbursement of \$139.00 per pupil hour exceeds the actual added cost of the three Area Vocational Education Centers and did not meet the actual added cost of the eight Local Education Agencies.

Building Trades

The tenth secondary vocational education program analyzed was Building Trades, occupational education code number 17.1000. The Building Trades program was offered and reimbursed under the "Added Cost" concept in nine Local Education Agencies and two Area Vocational Education Centers.

A total of 443 students were enrolled in Building Trades in the Local Education Agencies and Area Vocational Education Centers which received "Added Cost" reimbursement in fiscal year 1974-75. The student enrollments appear in Table X.

The "Added Cost" reimbursement for Building Trades was \$279.00 per pupil hour in fiscal year 1974-75.

The actual added cost of this program on a Local Education Agency and Area Vocational Education Center basis is shown in Table X.

In the Building Trades program, the instructional supplies costs were generally the highest line item expenditure for the Local Education Agencies. The Area Vocational Education Centers' costs in

TABLE X

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 17.1000Program Descriptor Building Trades

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
11	28	\$985	\$27,580
19	61	129	7,869
*20	55	209	11,495
21	39	1,437	56,043
23	26	727	18,902
*27	148	166	24,568
29	18	1,024	18,432
30	10	566	5,660
31	25	881	22,025
38	15	280	4,200
40	18	1,018	18,324

Mean Actual Added Program Cost

			Discrepancy
District	\$746.00	Reimbursed	- \$467.00
Area Center	178.00	by state	+ 101.00
Combined Cost	\$486.00	\$279.00	- \$207.00

*Denotes Area Vocational Education Center..

instructional supplies were generally considerably lower than those of the Local Education Agencies (Appendix J).

The mean average actual added cost of the nine Local Education Agencies and the two Area Vocational Education Centers is \$486.00 as shown in Table X. The mean average actual added cost of the nine Local Education Agencies is \$746.00 and that of the two Area Vocational Education Centers is \$178.00 per pupil hour. Because the homes built in the Local Education Agencies programs were not sold at the time the forms VE-4559 were completed, the average actual added costs may appear to be inflated.

The finding of the analysis of the actual program added cost for Building Trades is that the "Added Cost" reimbursement of \$279.00 per pupil hour exceeded the actual added costs at the Area Vocational Education Centers, but did not meet the actual added cost of the Local Education Agency programs.

Machine Shop

The eleventh secondary vocational education program analyzed was Machine Shop, occupational education code number 17.2302. The Machine Shop program was offered and reimbursed under the "Added Cost" concept in eight Local Education Agencies and three Area Vocational Education Centers.

A total of 408 students were enrolled in Machine Shop in those Local Education Agencies and Area Vocational Education Centers which received "Added Cost" reimbursement in fiscal year 1974-75. The student enrollments appear in Table XI.

The "Added Cost" reimbursement for Machine Shop was \$310.00 per pupil hour in fiscal year 1974-75.

TABLE XI

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 17.2302Program Descriptor Machine Shop

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
10	21	\$123	\$ 2,583
13	77	133	10,241
14	21	92	1,932
15	14	236	3,304
17	15	180	2,700
*20	48	201	9,648
22	17	246	4,182
23	86	137	11,782
*26	41	187	7,667
30	24	177	4,248
*39	44	141	6,204

Mean Actual Added Program Cost

			Discrepancy
District	\$149.00	Reimbursed	+ \$161.00
Area Center	177.00	by state	+ 133.00
Combined Cost	\$158.00	\$310.00	+ \$152.00

*Denotes Area Vocational Education Center..

The actual added cost of this program on a Local Education Agency and Area Vocational Education Center basis appears in Table XI. The mean average actual added cost of the eight Local Education Agencies and three Area Vocational Education Centers is \$158.00 as shown in Table XI. The mean average actual added cost of the eight Local Education Agencies is \$149.00 and three Area Vocational Education Centers, \$177.00 per pupil hour.

Instructional salaries and instructional supplies accounted for the major proportion of the costs in the Machine Trades program. The actual per pupil line item expenditures appear in Appendix K.

The finding of the analysis of the actual program cost for Machine Shop is that the "Added Cost" reimbursement of \$310.00 per pupil hour exceeds the actual added cost of the program.

Welding and Cutting

The twelfth secondary vocational education program analyzed was Welding and Cutting, occupational education code number 17.2306. The Welding and Cutting program was offered and reimbursed under the "Added Cost" concept in nine Local Education Agencies and three Area Vocational Education Centers.

A total of 690 students were enrolled in Welding and Cutting in those Local Education Agencies and Area Vocational Education Centers which received "Added Cost" reimbursement in fiscal year 1974-75. The student enrollments appear in Table XII.

The "Added Cost" reimbursement for Welding and Cutting was \$212.00 per pupil hour in fiscal year 1974-75.

The actual added cost of this program on a Local Education Agency and Area Vocational Education Center basis is shown in Table XII.

TABLE XII

TOTAL ACTUAL ADDED PROGRAM COSTS 1974-75

O.E. Code 17.2306Program Descriptor Welding and Cutting

LEA or Area Center	Student Enrollments	Actual Program Costs per Student Hour	Total Actual Added Cost
11	15	\$298	\$ 4,470
12	22	276	6,072
13	119	163	19,397
15	19	198	3,762
19	87	108	9,396
*20	57	230	13,110
23	88	203	17,864
*26	63	148	9,324
*27	86	278	23,908
30	27	233	6,291
32	80	241	19,280
34	27	167	4,509

Mean Actual Added Program Cost

			Discrepancy
District	\$188.00	Reimbursed	+ \$24.00
Area Center	225.00	by state	- 13.00
Combined Cost	\$199.00	\$212.00	+ \$13.00

*Denotes Area Vocational Education Center.

The mean average actual added cost of the nine Local Education Agencies and three Area Vocational Education Centers is \$199.00 as shown in Table XII. The mean average actual added cost of the nine Local Education Agencies is \$188.00 and that of the three Area Vocational Education Centers, \$225.00 per pupil hour.

In the Welding and Cutting programs (Appendix L) instructional supplies and instructional salaries are the highest program costs. However, the use of para-professionals in one Area Vocational Education Center and one Local Education Agency program resulted in higher expenditures for para-professional salaries and fringe benefits than for instructional salaries and fringe benefits.

The finding of the analysis of the actual program added cost for Welding and Cutting is that the "Added Cost" reimbursement of \$212.00 meets the actual added cost of the programs in the Local Education Agencies but did not meet the actual added cost of the Area Vocational Education Centers.

Summary

Analysis of the line item expenditures indicates the following:

1. There are not expenditures by the Area Vocational Education Centers for vocational transportation or for contracted instruction in any of the programs. The Local Education Agencies made expenditures for contracting instruction in only three instances (one district for Cooperative Education, two districts for Clerical and Secretarial Lab). With the exception of the three previously noted programs, no other amounts were expended in the category.
2. Expenditures for placement and follow-up were made in all of the Area Vocational Education Center programs but in less than 60% of the programs offered at the Local Education Agency.

The comparison of actual program costs and "Added Cost" reimbursement is shown in Table XIII. It should be noted that:

1. The actual combined average cost of the vocational programs at the Area Vocational Education Centers and the Local Education Agencies ("D" column listings in the table) exceeded the "Added Cost" reimbursement ("A" column) in eight of the vocational programs.
2. In the Cooperative Education and Nursing Aide programs offered only at the Local Education Agency level, the actual cost also exceeded the "Added Cost" reimbursement.
3. In the Welding and Cutting and Machine Shop programs, the "Added Cost" reimbursement exceeded the combined average cost of the vocational programs.
4. In eight of the ten programs offered by both the Local Education Agencies and Area Vocational Education Centers, the Centers' costs exceeded those of the Local Education Agencies.

TABLE XIII

COMPARISON OF "ADDED COST" TO ACTUAL COST

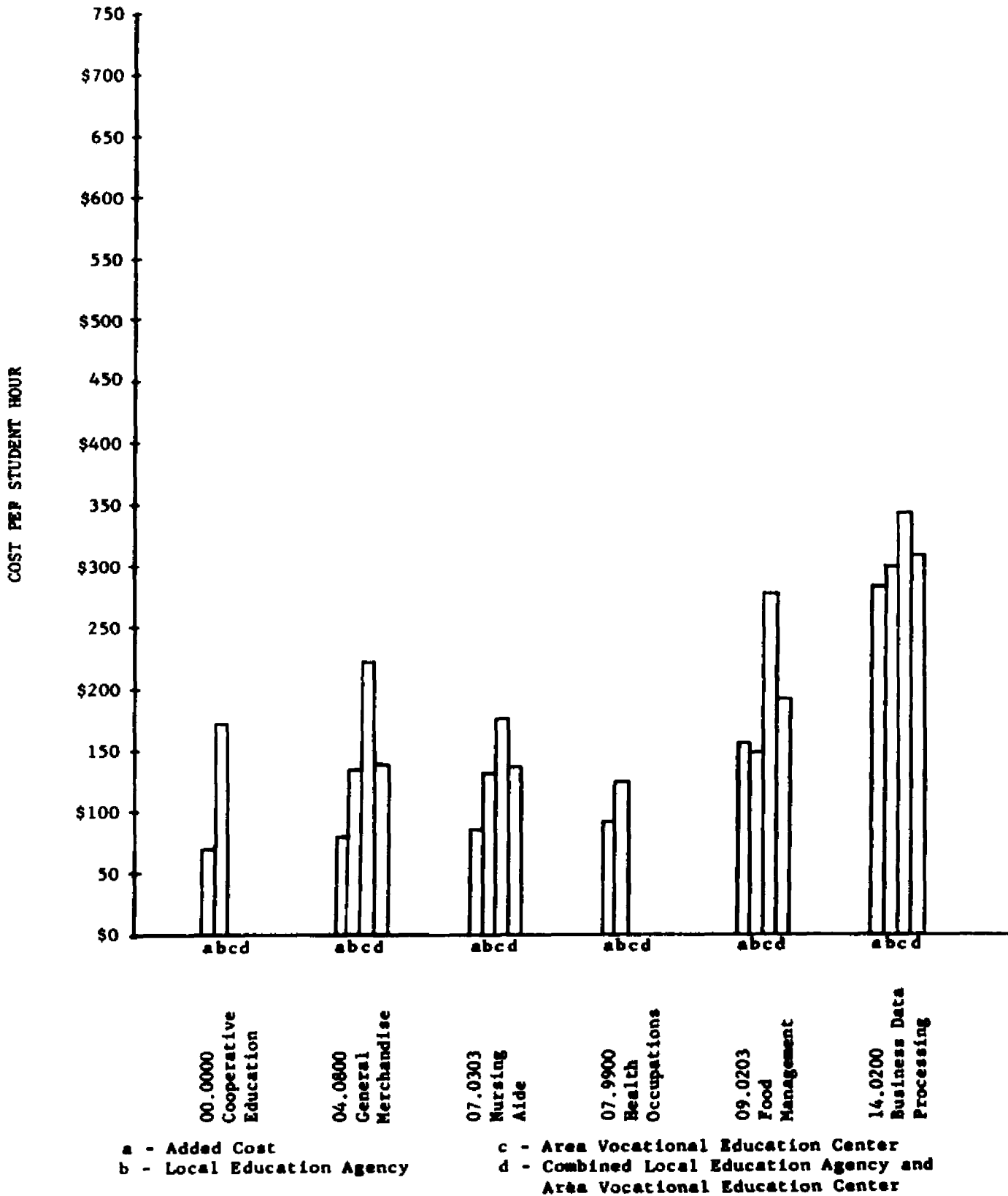
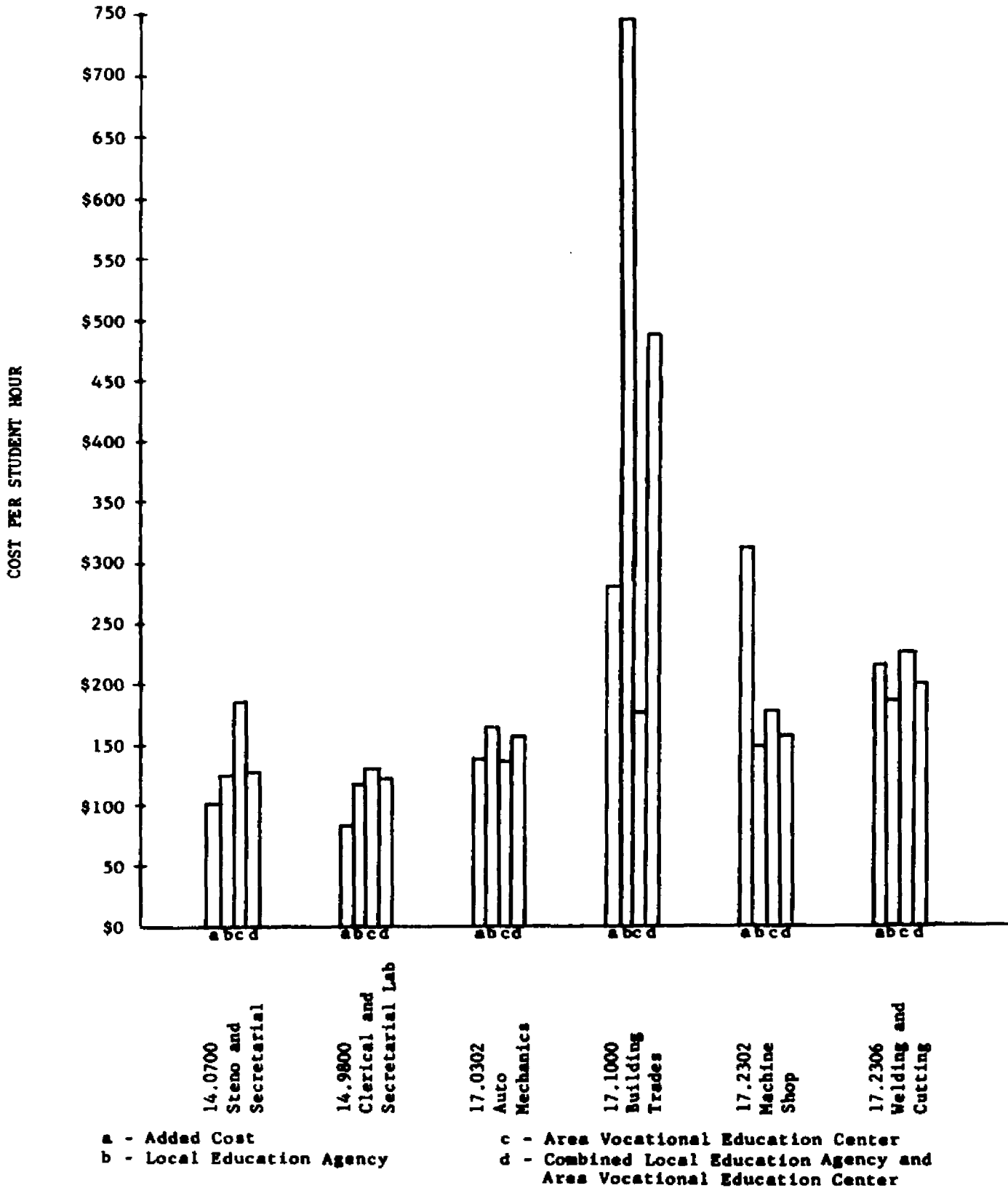


TABLE XIII (continued)

COMPARISON OF "ADDED COST" TO ACTUAL COST



CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Four major topics are discussed in the final chapter: a summary of the investigation, conclusions, implications of the study, and recommendations for further research.

Summary

The purpose of this study was to examine the Michigan "Added Cost" method of reimbursing secondary vocational education programs on a county-wide basis. The actual added cost of operating a secondary vocational education program at both the Local Education Agency and Area Vocational Education Center program level was compared with the "Added Cost" reimbursement received from the State of Michigan Department of Education, Vocational-Technical Education Service during the fiscal year 1974-75. Form VE-4559, completed at the Local Education Agency and Area Vocational Education Center program level and submitted to the Michigan Department of Education, Vocational-Technical Education Service was analyzed. The actual fiscal 1974-75 program added costs were compared to the per student/hour reimbursement received in the form of "Added Cost" from the Michigan Department of Education, Vocational-Technical Education Service.

Twenty-eight Local Education Agencies and four Area Vocational Education Centers participated in the investigation. Twelve vocational education program areas were analyzed, namely: Cooperative Education, General Merchandise, Nursing Aide, Health Occupations, Food Management, Business Data Processing, Steno and Secretarial Occupations, Clerical and Secretarial Laboratory, Auto Mechanics, Building Trades, Machine Shop and Welding and Cutting.

In five of the program areas analyzed, the actual program added cost at both the Local Education Agencies and Area Vocational Education Centers exceeded the amounts received under the "Added Cost" reimbursement. The programs where the actual cost exceeded "Added Cost" were: General Merchandise, Nursing Aide, Business Data Processing, Steno and Secretarial, and Clerical and Secretarial Lab.

Analysis of the line item expenditures (Appendix B) indicates that in the General Merchandise programs offered, the areas of instructional supplies and vocational administration costs accounted for the highest proportion of the program costs. In two of the three Area Vocational Education Centers, the per pupil hour cost for placement exceeded the vocational administration cost.

Line item expenditures (Appendix C) indicate that the major costs of the Nursing Aide program are in the areas of instructional salaries and fringe benefits, vocational administration and instructional supplies.

Line item expenditures (Appendix F) indicated the use of aides and para-professionals in the Business Data Processing program. The Area Vocational Education Center had larger amounts spent on

equipment rental than the Local Education Agencies, but the Local Education Agencies programs spent more on equipment maintenance than the Area Vocational Education Centers.

The line item expenditures (Appendix G) indicate that one Area Vocational Education Center expended more funds for para-professionals than instructional salaries in the Steno and Secretarial program. Expenditures for equipment maintenance, vocational administration and instructional salaries accounted for the majority of the program costs.

In the Clerical and Secretarial programs, instructional salaries, instructional supplies and vocational administration costs account for the highest proportion of the costs in this program (Appendix H).

In two of the programs offered by the Local Education Agencies, Cooperative Education and Health Occupations, the actual program added cost exceeded the amounts received under "Added Cost" reimbursement. The Area Vocational Education Centers did not offer Cooperative Education or Health Occupations programs.

Line item expenditures for Cooperative Education (Appendix A) indicated that one item, namely instructional salaries and fringe benefits, accounted for amounts greater than the "Added Cost" received in eighteen of the Local Education Agency's programs. Cooperative Education was not offered by the Area Vocational Education Centers.

Line item expenditures for the Health Occupations programs (Appendix D) indicate that the major costs of this program are in the areas of instructional salaries and fringe benefits, vocational administration and instructional supplies.

In two of the programs analyzed, Food Management and Welding and Cutting, the actual program added cost exceeded the "Added Cost" at the Area Vocational Education Center while the opposite was true for the Local Education Agency programs.

The line item expenditures for Food Management programs (Appendix E) indicate that in two of the Area Vocational Education Centers, the amount expended for instructional supplies exceeded the total actual added costs of the Local Education Agency programs (six of nine districts).

In the Welding and Cutting programs (Appendix L) instructional supplies and instructional salaries are the highest program costs. However, the use of para-professionals in one Area Vocational Education Center and one Local Education Agency program resulted in higher expenditures for para-professional salaries and fringe benefits than for instructional salaries and fringe benefits.

For the Auto Mechanics and Building Trades programs the actual added cost exceeded the "Added Cost" at the Local Education Agencies, while at the Area Vocational Education Centers the "Added Cost" exceeded actual added cost.

Instructional supplies accounted for one of the highest costs of the Auto Mechanics program (Appendix I). As was true of the other programs analyzed on the line item expenditure basis, costs of instructional salaries and vocational administration accounted for a high proportion of the costs.

In the Building Trades program, the instructional supplies costs was generally the highest line item expenditure for the Local Education Agencies. The Area Vocational Education Centers' costs in

instructional supplies were generally considerably lower than those of the Local Education Agencies (Appendix J).

In one of the programs analyzed, Machine Trades, the "Added Cost" exceeded the actual added cost at both the Local Education Agencies and Area Vocational Education Centers.

Instructional salaries and instructional supplies accounted for the major proportion of the costs in the Machine Trades program (Appendix K).

One of the shortcomings which Kaufman noted in his study was the underrepresentation of the metropolitan community types in the sample of Michigan schools which ultimately resulted in the Michigan "Added Cost" reimbursement for vocational education programs. This shortcoming was borne out in this study of vocational education programs in Oakland County in which the costs of programs generally exceeded the state-wide average figure computed for "Added Cost" reimbursement.

To illustrate and clarify the above statement, I will cite one of the programs included in this study; namely, General Merchandise, occupational education code number 04.0800 in which the actual added costs of the program exceeded the "Added Cost" reimbursement received at the Local Education Agency and Area Vocational Education Center (see Table II).

EXAMPLE: A class of 20 students enrolled for the entire school year. The "Added Cost" reimbursement was \$79.00 per pupil hour.

ADDED COST RECEIVED FROM STATE:

20 students X \$79.00 = \$1580.00

ACTUAL PROGRAM ADDED COST:

Local Education Agency:

20 students X \$132.00 = \$2640.00

Area Vocational Education Center:

20 students X \$220.00 = \$4400.00

DISCREPANCY: Added Cost - Actual Cost.

Local Education Agency:

\$1580.00 - \$2640.00 = -\$1060.00

Area Vocational Education Center:

\$1580.00 - \$4400.00 = -\$2820.00

For a class of twenty students enrolled in this program, the actual added cost exceeded the "Added Cost" received by \$1060.00 at the Local Education Agency and \$2820.00 at the Area Vocational Education Center.

Conclusions

Within the limitations of the study, the following conclusions seem reasonable, based on the findings:

1. The present allocation of funds through the "Added Cost" concept is not consistently meeting the actual added costs of vocational programs in Oakland County. For example, the average cost in eight programs offered by both the Local Education Agencies and Area Vocational Education Centers exceeded the "Added Cost" reimbursement received from the state. In the case of two programs offered by only the Local Education Agency, the same result occurred, namely, that the actual costs exceeded the state reimbursement received.
2. The present "Added Cost" allocation of funds is resulting in a very high proportion of the costs being assumed by the Local Education Agencies and Area Vocational Education Centers, instead of being assumed by the Michigan Department of Education through the Vocational-Technical Education Service as "Added Cost" is supposed to provide. As a result of the disproportionately high costs incurred locally, the "Added Cost" concept does not encourage the development of new vocational education programs.

3. The Area Vocational Education Centers programs generally cost more to operate than did the Local Education Agencies programs. In eight of the ten programs offered by both the Local Education Agencies and Area Vocational Education Centers, the Centers' costs exceeded those of the Local Education Agencies.
4. There is a noticeable lack of expenditures in both the Local Education Agencies and Area Vocational Education Centers in the categories of contracted instruction and in-service training line item expenditures.
5. The study supports the findings of previous studies, that vocational program costs are concentrated in the areas of instructional salaries and fringe benefits, and instructional supplies. It further identifies an additional finding, that vocational administration costs are also a high factor in vocational program cost.
6. There is a need to develop a formula or a standard of comparison upon which to measure expenditures, both on a line item basis within program levels as well as on a regional or county basis.
7. There is not a high usage of para-professionals in either the Local Education Agencies or the Area Vocational Education Centers and when these line item expenditures were evidenced in two programs (one at the Area Vocational Education Center and one at the Local Education Agency), these costs exceeded the line expenditures for regular instructional salaries and fringe benefits (see Appendix H and Appendix L).
8. The placement component of the Area Vocational Education Centers generally increased the program actual added costs when compared to the Local Education Agencies programs. Expenditures for placement and follow-up were made in all of the Area Vocational Education Center programs but in less than 60% of the programs offered at the Local Education Agency.

Implications

The investigation of the actual program level added costs on a county basis offers a new dimension to the study of reimbursement of secondary vocational education program costs. The findings of

this study suggest that the present "Added Cost" method of reimbursing vocational education programs is not sensitive to the variations of program costs in the allocation of funds to either the Local Education Agency programs or the Area Vocational Education Center programs. The findings of this study suggest a variance among certain program costs between the Local Education Agency as compared to the Area Vocational Education Center programs.

Ancillary services provided by the Area Vocational Education Center account for the higher cost of their programs. The Area Vocational Education Centers provide services to the students in the areas of placement, remediation in English and Math subject areas, the use of para-professionals for classroom instruction and vocational programming in subject areas not generally offered at the local district level. The level of instruction at the Area Vocational Education Centers, because of the philosophy, tends to be a "capstone experience". The "capstone" philosophy of the Area Vocational Education Center lends itself to more individualized instruction which would include the use of para-professionals in the classroom. When comparisons are made, consideration must be given to the skilled training the students from the Area Vocational Education Center have acquired. To date the end product of the Area Vocational Education Centers, as compared to the Local Education Agencies has not been evaluated. Although there is no basis in fact, further study may show that there is a qualitative difference in the programs offered at the Area Vocational Education Center when comparison is made to those programs of a similar occupational education code and program descriptor at the Local Education Agency

level. A standard of comparison should accomodate the qualitative differences in programs that exist in the Area Vocational Education Centers and the Local Education Agencies.

While the study did not include specific unique programs offered at the Area Vocational Education Centers, it is the responsibility of an Area Vocational Education Center to provide programs in areas where:

1. the costs would be too prohibitive for the program to be offered at the Local Education Agency level.
2. low student enrollments and limited job opportunities prohibit local school districts from offering an advanced speciality.

Enrollments in approved vocational programs in Oakland County have increased from 21,993 in 1973-74 to 24,002 in 1974-75. In 1974-75, the total amount of "Added Cost" funds available was \$20,000,000.00 and Oakland County received \$2,586,031.00.¹ In 1975-76, the enrollments in approved vocational programs increased to 26,272 students. But, while the vocational enrollments in Oakland County have increased, it appears, based on my experience, that the major reason is increased local support. The added cost concept, which was designed to encourage a development of new programs is falling far short of the 100% support of costs exceeding "general education" programs. The local support for vocational

¹Form X1019, "1974-75 CEPD Summary", 09-03-75, Michigan Department of Education, Vocational-Technical Education Service.

education in Michigan has increased from 37.5% or \$19,734,504 in 1969-70 to 54.7% or \$42,611,397 in 1974-75. The State of Michigan's share has dropped from 32.0% or \$16,810,874 in 1969-70 to 30.0% or \$23,449,410 in 1974-75.²

Reimbursement based upon a state-wide average is inconsistent with the actual program added costs at both the Local Education Agency level and that of the Area Vocational Education Center. There is a need for actual program level added cost information to be translated to legislators who determine the categorical levels of funding vocational education in the State of Michigan.

If vocational education programs are to maintain or raise their present standards of quality, vocational education funds received within Local Education Agencies must be returned to the vocational programs and not be placed in the general fund of the operating school district. Vocational education revenues generated by specific vocational programs should be returned to these programs to enable them to achieve relevant business and industry training standards. In the majority of the programs studied, the vocational "Added Cost" funds were returned to the program. In a few cases the funds were diverted into the general fund of the school district.

Recommendations

This study was designed to determine whether, in Oakland County, Michigan, in fiscal year 1974-75, the "Added Cost" method

²Michigan Descriptive Report for Vocational Education 1974-75, Michigan Department of Education.

of reimbursing Local Education Agencies and Area Vocational Education Centers did in fact meet the actual program added costs in operating selected "reimbursed vocational education programs". In order to obtain additional information relating to this study, the following recommendations are made:

1. Increased understanding of the cost factors which influence programs at the local program level is necessary to determine if programs offered in a "metropolitan" area are the same as in smaller districts.
2. Further investigation of succeeding fiscal year program added costs is needed to determine if there is a shift in amounts actually expended within vocational education programs by line item expenditures.
3. The costs of student placement upon completion of training should be considered closely in relation to the other factors of costs in the operation of vocational education programs with studies in the Local Education Agency and Area Vocational Education Centers.
4. There is a need to study the individual program costs to determine if there is a consistency in the actual program added costs across instructional areas or if certain programs, by their nature of instruction, need additional or lesser amounts expended.
5. Research analyzing reimbursement of vocational education programs on an actual added cost basis which would be based upon expenditures not on a state-wide average is needed. Research based upon expenditures may result in a change in categorical funding and this would have implication for a State Department of Education and State Legislature.
6. Further research at a local or regional level should be done to determine the qualitative differences between vocational education graduates of Local Education Agencies programs and those at the Area Vocational Education Centers.

APPENDICES

APPENDIX A
COOPERATIVE COORDINATION

APPENDIX A

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 00.COOP

Descriptor Coop Coordination (Distributive Education,
Health, Home Economics, Office, Trade and
Industrial)

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	10	11	12	13	14	15	16	17	18	19
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 0	\$149	\$ 57	\$ 92	\$ 13	\$123	\$145	\$129	\$118	\$ 61
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	0	0	0	0	0	0
3. Instructional Travel (For 1 and 2 Above)	8	8	0	2	4	12	18	12	7	5
4. Contracted Instruction	4	0	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	0	2	0	0	2	0	0	0	0	1
6. Equipment Rental	0	0	0	0	0	0	0	0	0	0
7. Equipment Maintenance	0	0	0	0	0	0	0	0	0	0
8. Vocational Transportation	0	0	0	0	0	0	0	0	0	0
9. In-Service Training	0	6	0	0	0	1	0	0	4	4
10. Vocational Administration	39	35	0	20	32	35	4	29	39	17
11. Placement and Follow-up	0	0	0	0	5	1	0	2	0	5
12. Other Direct Costs	0	3	0	0	3	136	0	38	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	51	203	57	114	59	308	167	210	168	93
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	7	0	11	16	9	46	34	0	31	16
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$ 58	\$203	\$ 68	\$130	\$ 68	\$354	\$201	\$210	\$199	\$109

APPENDIX A (continued)

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 00.COOP

Descriptor Coop Coordination (Distributive Education,
Health, Home Economics, Office, Trade and
Industrial

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	22	24	25	28	29	30	31	32	33	34
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 74	\$ 0	\$ 97	\$ 75	\$ 4	\$ 0	\$ 219	\$ 73	\$ 96	\$ 160
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	0	0	0	0	0	0
3. Instructional Travel (For 1 and 2 Above)	14	1	3	0	6	2	3	0	2	3
4. Contracted Instruction	0	0	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	0	0	4	0	0	0	1	0	0	0
6. Equipment Rental	0	0	0	0	0	0	0	0	0	0
7. Equipment Maintenance	0	0	0	0	0	0	0	0	0	0
8. Vocational Transportation	0	0	0	1	0	0	0	0	0	0
9. In-Service Training	0	1	0	0	0	2	0	1	0	1
10. Vocational Administration	39	112	79	0	44	59	46	18	59	15
11. Placement and Follow-up	1	1	0	0	0	0	7	8	15	3
12. Other Direct Costs	0	0	0	0	1	0	0	0	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	128	115	183	76	55	63	276	100	172	182
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	18	20	38	12	7	8	35	15	31	34
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$146	\$135	\$221	\$ 88	\$ 62	\$ 71	\$311	\$115	\$203	\$216

APPENDIX A (continued)

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 00.COOP

Descriptor Coop Coordination (Distributive Education,
Health, Home Economics, Office, Trade and
Industrial)

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers					
	35	36	37	38	40	41
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$130	\$365	\$ 22	\$126	\$119	\$ 86
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	8	0
3. Instructional Travel (For 1 and 2 Above)	8	14	4	8	10	16
4. Contracted Instruction	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	0	0	0	0	7	13
6. Equipment Rental	0	0	0	0	0	0
7. Equipment Maintenance	0	0	0	0	0	0
8. Vocational Transportation	0	0	0	0	0	0
9. In-Service Training	0	0	0	0	0	2
10. Vocational Administration	34	16	34	144	29	63
11. Placement and Follow-up	0	0	0	0	16	1
12. Other Direct Costs	15	0	30	0	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	187	395	90	278	189	181
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	38	0	17	34	24	25
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$225	\$395	\$107	\$312	\$213	\$206

APPENDIX B
GENERAL MERCHANDISE

APPENDIX B

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 04.0800

Descriptor General Merchandise

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	10	12	13	14	15	17	18	19	*20	21
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 0	\$ 0	\$ 11	\$ 16	\$ 15	\$ 0	\$ 43	\$ 36	\$ 85	\$ 32
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	6	0	0	12	0	0
3. Instructional Travel (For 1 and 2 Above)	9	0	0	0	0	0	4	3	0	0
4. Contracted Instruction	0	0	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	124	34	7	105	71	265	21	6	127	5
6. Equipment Rental	0	0	0	0	0	0	0	0	0	0
7. Equipment Maintenance	0	0	4	0	0	0	3	2	0	0
8. Vocational Transportation	0	0	0	0	0	0	0	0	0	0
9. In-Service Training	0	0	0	0	0	0	2	1	0	0
10. Vocational Administration	31	0	31	39	35	32	33	16	0	54
11. Placement and Follow-up	0	0	0	7	0	3	0	5	32	20
12. Other Direct Costs	0	0	0	0	0	42	0	0	9	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	164	34	53	167	127	342	106	81	253	111
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	22	7	7	25	19	48	20	14	39	17
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$186	\$ 41	\$ 60	\$192	\$146	\$390	\$126	\$ 95	\$292	\$128

APPENDIX B (continued)

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 04.0800

Descriptor General Merchandise

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	22	23	24	25	*27	28	29	30	31	32
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 42	\$ 28	\$105	\$ 25	\$ 65	\$ 15	\$ 47	\$ 2	\$ 27	\$ 0
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	0	0	0	0	0	0
3. Instructional Travel (For 1 and 2 Above)	0	0	0	0	1	0	0	1	6	2
4. Contracted Instruction	0	0	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	63	0	16	74	9	1	3	91	0	8
6. Equipment Rental	0	0	0	0	3	0	0	0	0	0
7. Equipment Maintenance	0	0	0	0	3	0	0	1	0	1
8. Vocational Transportation	0	0	0	0	0	0	0	0	0	0
9. In-Service Training	3	0	0	0	3	0	0	0	0	2
10. Vocational Administration	43	14	103	87	40	0	32	49	53	70
11. Placement and Follow-up	1	26	0	1	43	0	0	0	8	31
12. Other Direct Costs	6	0	1	0	7	0	0	8	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	158	68	225	187	174	16	82	152	94	114
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	23	13	39	39	26	3	11	19	12	17
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$181	\$ 81	\$264	\$226	\$200	\$ 19	\$ 93	\$171	\$106	\$131

APPENDIX B (continued)

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 04.0800

Descriptor General Merchandise

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers							
	33	34	35	36	37	*39	40	41
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 0	\$ 0	\$ 24	\$ 0	\$ 24	\$ 21	\$ 16	\$ 14
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	0	0	12	0
3. Instructional Travel (For 1 and 2 Above)	0	0	0	0	0	1	0	0
4. Contracted Instruction	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	22	5	1	88	12	98	123	19
6. Equipment Rental	0	0	0	0	0	0	0	0
7. Equipment Maintenance	15	0	1	0	0	6	2	0
8. Vocational Transportation	0	0	0	0	0	0	0	0
9. In-Service Training	0	12	0	0	2	0	0	2
10. Vocational Administration	65	15	36	10	75	9	32	70
11. Placement and Follow-up	17	3	0	0	0	4	17	0
12. Other Direct Costs	0	0	0	0	11	40	0	4
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	119	35	62	98	124	179	202	109
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	22	6	13	14	24	27	26	16
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$141	\$ 41	\$ 75	\$112	\$148	\$206	\$228	\$125

APPENDIX C
NURSING AIDE

APPENDIX C

ACTUAL 1974-75 PROGRAM COSTS (rounded off to the nearest dollar)

O.E. Code 07.0303

Descriptor Nursing Aide

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	15	16	17	19	*20	29	30	31	32	40
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 19	\$ 13	\$ 28	\$ 35	\$ 72	\$ 27	\$221	\$ 68	\$ 60	\$ 20
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	19	0	0	0	0	12	0
3. Instructional Travel (For 1 and 2 Above)	0	0	0	8	0	0	0	0	0	0
4. Contracted Instruction	0	0	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	14	8	6	19	40	2	43	0	8	15
6. Equipment Rental	0	0	0	0	0	0	0	0	0	0
7. Equipment Maintenance	0	0	0	1	0	0	0	0	0	0
8. Vocational Transportation	38	0	0	0	0	0	0	43	0	0
9. In-Service Training	0	0	3	8	0	0	0	0	0	0
10. Vocational Administration	35	14	33	29	32	22	62	47	19	32
11. Placement and Follow-up	0	0	3	10	9	0	1	7	8	17
12. Other Direct Costs	0	0	0	0	0	0	0	0	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	106	35	73	129	153	51	327	165	107	84
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	16	7	10	22	23	7	41	21	16	11
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$122	\$ 42	\$ 83	\$151	\$176	\$ 58	\$368	\$186	\$123	\$ 95

APPENDIX D
HEALTH OCCUPATIONS

APPENDIX D

ACTUAL 1974-75 PROGRAM COSTS (rounded off to the nearest dollar)

O.E. Code 07.9900

Descriptor Health Occupations

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers						
	13	17	19	28	29	30	33
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 44	\$ 21	\$ 39	\$ 5	\$ 54	\$305	\$ 56
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	16	0	0	0	0
3. Instructional Travel (For 1 and 2 Above)	0	0	7	0	0	0	0
4. Contracted Instruction	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	26	11	16	18	0	6	25
6. Equipment Rental	0	0	0	0	0	0	0
7. Equipment Maintenance	9	0	0	0	0	0	0
8. Vocational Transportation	0	0	0	0	0	0	0
9. In-Service Training	0	0	7	0	0	2	4
10. Vocational Administration	22	66	31	0	44	59	66
11. Placement and Follow-up	0	6	11	0	0	5	18
12. Other Direct Costs	0	0	0	0	0	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	101	104	127	23	98	377	169
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	14	15	22	4	14	47	31
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$115	\$119	\$149	\$ 27	\$112	\$424	\$200

APPENDIX E
FOOD MANAGEMENT

APPENDIX E

ACTUAL 1974-75 PROGRAM COSTS (rounded off to the nearest dollar)

O.E. Code 09.0203

Descriptor Food Management

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	10	*20	23	24	*26	*27	28	29	31	32
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 0	\$ 48	\$ 48	\$ 76	\$ 25	\$ 29	\$ 10	\$ 55	\$114	\$ 19
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	22	24	0	74	47	0	0	7	23
3. Instructional Travel (For 1 and 2 Above)	0	0	0	0	0	0	0	0	0	1
4. Contracted Instruction	0	0	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	87	181	18	17	198	11	5	7	5	14
6. Equipment Rental	0	0	0	0	0	1	0	0	0	0
7. Equipment Maintenance	0	0	0	0	7	1	0	0	0	2
8. Vocational Transportation	0	0	0	0	0	0	0	0	24	0
9. In-Service Training	0	0	0	0	0	1	0	0	0	1
10. Vocational Administration	23	32	6	141	48	14	0	22	18	43
11. Placement and Follow-up	0	9	10	0	9	16	0	0	3	19
12. Other Direct Costs	0	0	18	0	0	3	0	0	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	110	292	124	234	361	123	15	84	171	122
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	15	45	23	40	55	19	2	12	22	18
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$125	\$337	\$147	\$274	\$416	\$142	\$ 17	\$ 96	\$193	\$140

APPENDIX E (continued)

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 09.0203

Descriptor Food Management

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers	
	34	40
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 32	\$ 27
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	5
3. Instructional Travel (For 1 and 2 Above)	0	0
4. Contracted Instruction	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	120	67
6. Equipment Rental	0	0
7. Equipment Maintenance	0	2
8. Vocational Transportation	0	0
9. In-Service Training	0	0
10. Vocational Administration	8	32
11. Placement and Follow-up	2	17
12. Other Direct Costs	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	162	150
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	30	19
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$192	\$169

APPENDIX F
BUSINESS DATA PROCESSING

APPENDIX F

ACTUAL 1974-75 PROGRAM COSTS (rounded off to the nearest dollar)

O.E. Code 14.0200

Descriptor Business Data Processing

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers							
	19	*20	23	*26	30	32	37	
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 32	\$ 17	\$ 23	\$ 12	\$ 56	**	\$ 59	**Program not eligible for Added Cost funding.
2. Salaries and Fringe Benefits of Aides & Para-Professionals	14	46	50	46	0		0	
3. Instructional Travel (For 1 and 2 Above)	1	0	1	0	0		0	
4. Contracted Instruction	0	0	0	0	0		0	
5. Instructional Supplies (Including Audio-visual and Resource Materials)	27	144	13	24	12		42	
6. Equipment Rental	0	75	46	50	0		0	
7. Equipment Maintenance	155	0	5	79	167		100	
8. Vocational Transportation	21	0	0	0	55		0	
9. In-Service Training	4	0	0	0	1		0	
10. Vocational Administration	26	32	9	48	80		57	
11. Placement and Follow-up	9	9	17	9	3		0	
12. Other Direct Costs	0	0	10	0	0		0	
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	289	323	174	268	374		258	
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	50	50	32	41	47		49	
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$339	\$373	\$206	\$309	\$421		\$307	

APPENDIX G
STENO AND SECRETARIAL

APPENDIX G

ACTUAL 1974-75 PROGRAM COSTS (rounded off to the nearest dollar)

O.E. Code 14.0700

Descriptor Steno and Secretarial

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	11	12	13	15	21	22	*26	29	31	33
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 41	\$ 4	\$ 31	\$ 18	\$101	\$ 47	\$ 8	\$ 94	\$375	\$ 0
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	0	5	48	0	0	0
3. Instructional Travel (For 1 and 2 Above)	0	0	0	0	0	0	0	0	0	0
4. Contracted Instruction	0	0	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	40	18	4	31	15	48	28	5	9	19
6. Equipment Rental	0	22	0	0	0	14	0	0	0	0
7. Equipment Maintenance	0	10	5	3	11	11	19	0	29	50
8. Vocational Transportation	0	0	0	0	0	0	0	0	0	0
9. In-Service Training	3	0	0	0	2	9	4	1	0	1
10. Vocational Administration	20	0	24	19	26	22	43	22	28	31
11. Placement and Follow-up	0	0	0	0	10	0	9	0	4	0
12. Other Direct Costs	6	0	0	0	0	3	0	0	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	110	54	64	71	165	159	159	122	445	101
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	16	11	9	11	25	23	24	17	57	20
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$126	\$ 65	\$ 73	\$ 82	\$190	\$182	\$183	\$139	\$502	\$121

APPENDIX G (continued)

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 14.0700

Descriptor Steno and Secretarial

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers		
	36	38	40
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 0	\$484	\$ 50
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0
3. Instructional Travel (For 1 and 2 Above)	0	0	0
4. Contracted Instruction	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	56	55	20
6. Equipment Rental	0	0	0
7. Equipment Maintenance	0	21	35
8. Vocational Transportation	0	0	0
9. In-Service Training	0	12	0
10. Vocational Administration	10	166	16
11. Placement and Follow-up	0	0	8
12. Other Direct Costs	0	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	66	738	129
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	9	92	16
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$ 75	\$830	\$145

APPENDIX H
CLERICAL AND SECRETARIAL LAB

APPENDIX H

ACTUAL 1974-75 PROGRAM COSTS (rounded off to the nearest dollar)

O.E. Code 14.9800

Descriptor Clerical and Secretarial Lab

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	10	11	12	14	17	19	22	24	25	28
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 0	\$ 9	\$111	\$ 16	\$ 35	\$ 31	\$ 41	\$100	\$ 48	\$ 44
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	0	0	5	0	0	0
3. Instructional Travel (For 1 and 2 Above)	0	0	0	0	0	1	0	0	0	0
4. Contracted Instruction	5	0	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	17	19	39	10	34	10	32	2	16	23
6. Equipment Rental	7	0	35	0	0	0	15	0	0	0
7. Equipment Maintenance	0	1	13	10	14	3	12	0	8	10
8. Vocational Transportation	0	0	0	0	0	0	0	0	0	0
9. In-Service Training	1	3	0	0	2	2	3	0	3	2
10. Vocational Administration	30	19	0	16	16	8	21	86	43	0
11. Placement and Follow-up	0	0	0	3	1	3	0	2	1	0
12. Other Direct Costs	0	5	0	0	0	0	4	0	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	60	56	198	55	102	58	133	190	119	79
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	8	8	39	8	14	10	19	32	25	12
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$ 68	\$ 64	\$237	\$ 63	\$116	\$ 68	\$152	\$222	\$144	\$ 91

APPENDIX H (continued)

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 14.9800

Descriptor Clerical and Secretarial Lab

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers								
	30	31	32	33	34	35	37	*39	41
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 5	\$ 64	\$ 25	\$ 0	\$ 55	\$ 10	\$259	\$ 28	\$ 11
2. Salaries and Fringe Benefits of Aides & Para-Professionals	73	0	16	0	0	0	0	0	6
3. Instructional Travel (For 1 and 2 Above)	0	0	0	0	0	0	0	0	0
4. Contracted Instruction	0	0	9	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	17	17	5	0	24	10	55	19	21
6. Equipment Rental	0	0	41	0	0	0	0	7	0
7. Equipment Maintenance	7	20	5	53	4	5	60	3	27
8. Vocational Transportation	0	0	0	0	0	0	0	0	0
9. In-Service Training	0	0	0	0	1	0	0	0	1
10. Vocational Administration	31	49	41	30	8	21	18	9	36
11. Placement and Follow-up	0	7	18	8	2	0	0	4	1
12. Other Direct Costs	0	0	0	0	0	2	0	41	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	133	157	160	91	94	48	392	111	103
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	17	20	25	16	17	10	75	17	14
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$150	\$177	\$185	\$107	\$111	\$ 58	\$467	\$128	\$117

APPENDIX I
AUTO MECHANICS

APPENDIX I

ACTUAL 1974-75 PROGRAM COSTS (rounded off to the nearest dollar)

O.E. Code 17.0302

Descriptor Auto Mechanics

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	10	11	14	15	17	19	*20	22	23	25
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 0	\$ 9	\$ 28	\$ 52	\$ 37	\$ 71	\$ 24	\$ 24	\$ 28	\$ 35
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	0	0	0	0	98	0
3. Instructional Travel (For 1 and 2 Above)	0	0	0	0	0	2	0	0	0	0
4. Contracted Instruction	0	0	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	57	30	30	71	11	20	44	114	9	27
6. Equipment Rental	0	0	0	0	0	0	0	0	0	0
7. Equipment Maintenance	0	0	21	5	9	4	0	22	0	14
8. Vocational Transportation	0	0	0	0	0	6	0	0	0	0
9. In-Service Training	0	0	0	3	0	1	0	3	0	0
10. Vocational Administration	22	28	16	17	16	9	32	36	9	87
11. Placement and Follow-up	0	0	3	0	1	3	9	1	16	0
12. Other Direct Costs	0	13	0	0	0	0	0	2	8	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	79	80	98	148	74	116	109	202	167	163
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	11	14	15	22	10	20	17	29	31	34
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$ 90	\$ 94	\$113	\$170	\$ 84	\$136	\$126	\$231	\$198	\$197

APPENDIX I (continued)

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 17.0302

Descriptor Auto Mechanics

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers						
	*26	*27	30	31	32	34	35
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 9	\$ 36	\$ 19	\$ 81	\$122	\$ 0	\$ 13
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	4	12	0	0
3. Instructional Travel (For 1 and 2 Above)	0	0	0	0	1	0	0
4. Contracted Instruction	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	72	10	76	56	7	16	39
6. Equipment Rental	0	2	0	0	0	0	0
7. Equipment Maintenance	12	2	0	7	14	0	4
8. Vocational Transportation	0	0	7	5	0	0	0
9. In-Service Training	0	2	0	0	9	0	0
10. Vocational Administration	47	24	34	18	39	8	17
11. Placement and Follow-up	9	27	0	3	17	2	0
12. Other Direct Costs	0	5	1	0	0	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	149	108	137	174	221	26	73
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	23	16	17	22	34	5	14
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$172	\$124	\$154	\$196	\$255	\$ 31	\$ 87

APPENDIX J
BUILDING TRADES

APPENDIX J

ACTUAL 1974-75 PROGRAM COSTS (rounded off to the nearest dollar)

O.E. Code 17.1000

Descriptor Building Trades

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	11	19	*20	21	23	*27	29	30	31	38
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 88	\$ 73	\$ 50	\$101	\$157	\$ 79	\$284	\$163	\$203	\$ 41
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	0	0	0	0	0	0
3. Instructional Travel (For 1 and 2 Above)	0	3	0	0	0	0	4	0	0	9
4. Contracted Instruction	0	0	0	17	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	507	8	90	1102	446	16	596	272	544	120
6. Equipment Rental	0	0	0	0	0	1	0	0	0	0
7. Equipment Maintenance	0	0	0	0	0	1	0	0	0	0
8. Vocational Transportation	0	17	0	0	0	0	0	34	12	0
9. In-Service Training	0	0	0	0	0	1	0	0	0	0
10. Vocational Administration	18	7	32	19	0	20	16	33	19	79
11. Placement and Follow-up	0	2	9	7	10	22	0	1	3	0
12. Other Direct Costs	249	0	0	0	0	4	0	0	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	862	110	181	1246	613	144	900	503	781	249
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	123	19	28	191	114	22	124	63	100	31
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$985	\$129	\$209	\$1437	\$727	\$166	\$1024	\$566	\$881	\$280

APPENDIX J (continued)

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 17.1000

Descriptor Building Trades

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers
	40
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$157
2. Salaries and Fringe Benefits of Aides & Para-Professionals	5
3. Instructional Travel (For 1 and 2 Above)	0
4. Contracted Instruction	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	460
6. Equipment Rental	0
7. Equipment Maintenance	0
8. Vocational Transportation	72
9. In-Service Training	0
10. Vocational Administration	11
11. Placement and Follow-up	6
12. Other Direct Costs	192
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	903
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	115
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$1018

APPENDIX K
MACHINE SHOP

APPENDIX K

ACTUAL 1974-75 PROGRAM COSTS (rounded off to the nearest dollar)

O.E. Code 17.2302

Descriptor Machine Shop

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	10	13	14	15	17	*20	22	23	*26	30
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 0	\$ 18	\$ 15	\$101	\$ 99	\$ 76	\$ 63	\$ 59	\$ 20	\$ 28
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	0	0	0	0	0	0
3. Instructional Travel (For 1 and 2 Above)	0	0	0	0	0	0	0	1	0	2
4. Contracted Instruction	0	0	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	85	11	33	60	27	57	114	17	35	74
6. Equipment Rental	0	0	0	0	0	0	0	0	0	0
7. Equipment Maintenance	0	65	14	27	9	0	7	3	22	1
8. Vocational Transportation	0	0	0	0	0	0	0	0	0	14
9. In-Service Training	0	0	0	0	6	0	3	0	0	3
10. Vocational Administration	23	23	15	17	16	32	25	8	71	34
11. Placement and Follow-up	0	0	3	0	1	9	0	14	14	1
12. Other Direct Costs	0	0	0	0	0	0	3	14	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	108	117	80	205	158	174	215	116	162	157
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	15	16	12	31	22	27	31	21	25	20
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$123	\$133	\$ 92	\$236	\$180	\$201	\$246	\$137	\$187	\$177

APPENDIX K (continued)

**ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)**

O.E. Code 17.2302

Descriptor Machine Shop

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers
	*39
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 17
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0
3. Instructional Travel (For 1 and 2 Above)	1
4. Contracted Instruction	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	47
6. Equipment Rental	0
7. Equipment Maintenance	6
8. Vocational Transportation	0
9. In-Service Training	0
10. Vocational Administration	9
11. Placement and Follow-up	4
12. Other Direct Costs	40
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	124
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	17
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$141

APPENDIX L
WELDING AND CUTTING

APPENDIX L

ACTUAL 1974-75 PROGRAM COSTS (rounded off to the nearest dollar)

O.E. Code 17.2306

Descriptor Welding and Cutting

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers									
	11	12	13	15	19	*20	23	*26	*27	30
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 62	\$135	\$ 86	\$ 37	\$ 23	\$ 36	\$ 33	\$ 24	\$ 50	\$ 58
2. Salaries and Fringe Benefits of Aides & Para-Professionals	0	0	0	0	0	0	0	0	69	0
3. Instructional Travel (For 1 and 2 Above)	1	0	0	0	0	0	0	0	1	0
4. Contracted Instruction	0	0	0	0	0	0	0	0	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	177	96	7	99	40	122	74	43	24	106
6. Equipment Rental	0	0	0	0	0	0	0	0	3	0
7. Equipment Maintenance	0	0	22	19	0	0	0	3	3	0
8. Vocational Transportation	0	0	0	0	17	0	0	0	0	12
9. In-Service Training	0	0	0	0	0	0	0	0	3	0
10. Vocational Administration	19	0	28	17	9	32	10	48	39	30
11. Placement and Follow-up	0	0	0	0	3	9	18	10	42	1
12. Other Direct Costs	2	0	0	0	0	0	36	0	7	
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	261	231	143	172	92	199	171	128	241	207
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	37	45	20	26	16	31	32	20	37	26
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$298	\$276	\$163	\$198	\$108	\$230	\$203	\$148	\$278	\$233

APPENDIX L (continued)

ACTUAL 1974-75 PROGRAM COSTS
(rounded off to the nearest dollar)

O.E. Code 17.2306

Descriptor Welding and Cutting

Line Item Expenditures	Local Educational Agencies and Area Vocational Education Centers	
	32	34
1. Instructional Salaries and Fringe Benefits Eligible Amount	\$ 50	\$ 75
2. Salaries and Fringe Benefits of Aides & Para-Professionals	58	0
3. Instructional Travel (For 1 and 2 Above)	1	0
4. Contracted Instruction	0	0
5. Instructional Supplies (Including Audio-visual and Resource Materials)	35	54
6. Equipment Rental	0	0
7. Equipment Maintenance	6	0
8. Vocational Transportation	0	0
9. In-Service Training	1	1
10. Vocational Administration	40	9
11. Placement and Follow-up	18	2
12. Other Direct Costs	0	0
13. TOTAL DIRECT COSTS (Sum of Lines 1 through 12)	209	141
14. TOTAL INDIRECT COSTS (Unrestricted Indirect Rate Times (x) Total Direct)	32	26
15. TOTAL COSTS (Sum of Lines 13 and 14)	\$241	\$167

BIBLIOGRAPHY

BIBLIOGRAPHY

BOOKS AND MANUALS

- A System for Analyzing the Cost of Operating Vocational Education Programs at the Secondary Level in Ohio - a study of school year 1973-74. Columbus, Ohio: Ohio Department of Education, 1975.
- Aldrich, Daniel G., III. An Analysis of Vocational Program Costs. Los Angeles, California: Graduate School of Education, University of California at Los Angeles, 1972.
- Barlow, Melvin L., et al. The Philosophy for Quality Vocational Education Programs - 4th Yearbook. Washington, D.C.: American Vocational Association, 1974.
- Barsby, Steven L. School Accounting Practices for Occupational Education, an appraisal and suggested revisions for the State of Arizona. Northern Arizona University: Arizona Research Coordinating Unit, 1971.
- Benson, Charles S., Goldfinger, Paul M., Hoachlander, Garth E. and Pers, Jessica S. Planning for Educational Reform - financial and social alternatives. New York: Dodd Mead and Company, 1974.
- Cage, Bob N. Cost Analysis of Selected Educational Programs in the Area Schools of Iowa. Des Moines, Iowa: Department of Education, 1968.
- Carroll, Adger and Ihnen, Loren. Costs and Returns for Investments in Technical Schooling by a Group of North Carolina High School Graduates. Raleigh, North Carolina: North Carolina State University, 1967.
- Cost-Benefit Analysis - Trade and Technical Education: A Final Report. Los Angeles, California: State Department of Education, Division of Vocational Education, 1969.
- Edwards, Judith B. Computer Instruction: Planning and Practice. Portland, Oregon: Northwest Regional Educational Laboratory, 1969.

- Forgey, George M. Some Selected Economic Benefits and Characteristics of Junior College Programs. Normal, Illinois: Mid-State Educational Consultants, 1971.
- Gallaway, Lowell E. and Ghazalah, Ismail A. The Role of Vocational Education in Improving Skills and Earning Capacity in the State of Ohio - a cost-benefit study. Athens, Ohio: College of Business Administration, Ohio University, 1972.
- Gasior, Albert G., et al. Model for Costs Per Pupil for Vocational Education Programs and Types of Schools. Trenton, New Jersey: State Department of Education, Division of Vocational Education, 1975.
- Harris, George W., et al. Cost Analysis of Secondary School Vocational-Technical Education Programs. Nashville, Tennessee: State Department of Education, Division of Vocational-Technical Education, 1973.
- Harris, Marshall A. Benefit-Cost Comparison of Vocational Education Programs - statewide evaluation of vocational-technical education in Florida, Volume 2. Tallahassee, Florida: Department of Educational Administration, Florida State University, 1972.
- Hicklin, Charles R. and Edwards, Charles W. An Exploratory Analysis of Differential Program Costs of Selected Occupational Curricula in Selected Illinois High Schools: A Final Report. Normal, Illinois: Mid-State Educational Consultants, 1971.
- Kaufman, Jacob J., et al. An Analysis of the Comparative Costs and Benefits of Vocational Versus Academic Education in Secondary Schools. University Park, Pennsylvania: USOE Preliminary Report, Project #512, October, 1967.
- Kaufman, Jacob J., et al. The Costs of Vocational and Nonvocational Programs. A study of Michigan secondary schools. University Park, Pennsylvania: Institute for Research on Human Resources, The Pennsylvania State University.
- Krebs, Alfred H., et al. The Individual and His Education - 2nd Yearbook. Washington, D.C.: American Vocational Association, 1972.
- Law, Gordon F. (editor), et al. Contemporary Concepts in Vocational Education - 1st Yearbook. Washington, D.C.: American Vocational Association, 1971.
- Lindman, Erick L. Financial Support for Vocational Education in the Public Schools - final report. Los Angeles, California: Graduate School of Education, University of California at Los Angeles, 1972.

- Lindman, Erick L. Financing Vocational Education in the Public Schools - national educational finance project special study no. 4. Los Angeles, California: Graduate School of Education, University of California at Los Angeles, 1970.
- Manpower Training in New York State - Legislative Commission on Expenditure Review. Albany, New York: New York State Legislature, 1970.
- Moir, Ronald E. The Implementation Plan for the Uniform Financial Reporting System for Minnesota School Districts. St. Paul, Minnesota: Minnesota State Department of Education, 1974.
- Molnar, Daniel E. Cost Effectiveness of Selected Cooperative Vocational Education Programs as Compared with Vocational Programs Without a Cooperative Component: Final Report. Columbus, Ohio: Battelle Memorial Institute, 1973.
- Ohio Vocational Home Economics: Suggested Space and Equipment Cost for Job Training Programs. Columbus, Ohio: State Department of Education, 1967.
- Review and Synthesis of Research on the Economics of Vocational Education. Columbus, Ohio: The Center for Vocational and Technical Education, 1968.
- Roberts, Roy W. Vocational and Practical Arts Education. New York: Harper and Row Publishers, 1971.
- Schaefer, Carl J. and Kaufman, Jacob J. Occupational Education for Massachusetts. Boston, Massachusetts: Massachusetts Advisory Council on Education, 1968.
- Sisson, Roger L., et al. State Application Funding Procedures - a vocational education planning system for local school districts. Volume IV. Trenton, New Jersey: Division of Vocational Education, New Jersey State Department of Education, 1973.
- Sorenson, Warren. A Proposed System for Predicting Costs of Vocational Education Programs in the California Community Colleges - final report. Sacramento, California: California Coordinating Unit for Occupational Research and Development, 1972.
- Stromsdorfer, Ernst W. Cost-Effectiveness Studies of Vocational and Technical Education. Columbus, Ohio: The Center for Vocational and Technical Education.

Tomlinson, Robert M. and Rzonca, Chester S. An Exploratory Analysis of Differential Program Costs of Selected Occupational Curricula in Selected Illinois Junior Colleges - final report. Springfield, Illinois: Vocational and Technical Education Division, Illinois State Board of Vocational Education and Rehabilitation, 1971.

Vocational Education: State-By-State Analysis of Expenditures, Enrollment, and Completions FY 1973. Washington, D.C.: Bureau of Occupational and Adult Education (DHEW/OE), Division of Vocational and Technical Education, 1974.

Wystrom, Dennis C., et al. Cost Differential Analysis Project: Methods of Research, Data Analyses and Suggested Utilization. Carbondale, Illinois: Department of Occupational Education, 1973.

ARTICLES AND PERIODICALS

Ahern, Don. "Is Your School District Courting a New York-Type Fiscal Disaster?" American School Board Journal (May, 1976), 39-40.

Jennings, John F. "Emerging Issues in Vocational Education," American Vocational Journal (September, 1975), 29-32.

Jordan, K. F. "School Finance in Transition," Education Digest (Fall, 1975), 6-9.

Snyder, Wilbur M. "Vocational Salaries for Vocational Teachers," American Vocational Journal (September, 1975), 33-35.

Sugarman, Michael N. and Linda M. "Accountability and the Systems Approach to Vocational Instruction," American Vocational Journal (January, 1976), 62-63.

Vaelkner, Alvin R. "Analyzing the Costs of Vocational Education," School Shop (October, 1972), 62-63.

Wray, Ralph D. "The Accountor/Accounted Syndrome," American Vocational Journal (March, 1976), 34-35.

UNPUBLISHED MATERIALS

- Bailey, Jesse C. "The Generation of a Model to Synthesize the State of the Art of Accountability in Educational Management." Unpublished Ed.D. dissertation, University of Alabama. Dissertation Abstracts, XXXVI, 1976, p. 7756A.
- Hennessey, James V. "A Comparison of Course Cost Data of Regular Vocational Courses and Cooperative Education Courses Offered in Selected Secondary Schools and Area Vocational Centers in Illinois During the School Year 1970-71." Unpublished Ph.D. dissertation, Southern Illinois University. Dissertation Abstracts, XXXVI, 1976, p. 5246A.
- Seiter, William J. "An Analysis of the Educational Services Provided by Michigan K-12 Public Schools Grouped According to Cost-Related Indicators of Support Potential." Unpublished Ph.D. dissertation, Michigan State University. Dissertation Abstracts, XXXVI, 1976, p. 5721A.
- Sidman, Bernard. "Educational Computer Technology: A Manual/Guide for Effective and Efficient Utilization by School Administrators." Unpublished Ed.D. dissertation, Indiana University. Dissertation Abstracts, XXXVI, 1976, p. 5722A.
- Walters, Leslie D. "An Analysis of the Returns from Investments in Technical Education in South Carolina." Unpublished Ph.D. dissertation, Clemson University. Dissertation Abstracts, XXXVI, 1976, p. 8021A.
- Wilkerson, James F. "The Development of a Guide for Local Vocational Directors in Florida to Use in Conducting Cost-Benefit Analysis." Unpublished Ph.D. dissertation. The Florida State University. Dissertation Abstracts, XXXVI, 1976, p. 5256A.