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HOWELL, HERBERT LEWIS
A COMPARATIVE ANALYSIS OF MICHIGAN COMMUNITY
COLLEGE ADJUNCT AND SKILL CENTER ANNUAL
AUTHORIZED INDUSTRIAL TEACHERS IN TERMS OF
PERCEIVED TEACHER COMPETENCIES.

MICHIGAN STATE UNIVERSITY, PH.D., 1978

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**A COMPARATIVE ANALYSIS OF MICHIGAN COMMUNITY
COLLEGE ADJUNCT AND SKILL CENTER ANNUAL
AUTHORIZED INDUSTRIAL TEACHERS IN TERMS
OF PERCEIVED TEACHER COMPETENCIES**

By

Herbert L. Howell

A DISSERTATION

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

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ABSTRACT

A COMPARATIVE ANALYSIS OF MICHIGAN COMMUNITY COLLEGE ADJUNCT AND SKILL CENTER ANNUAL AUTHORIZED INDUSTRIAL TEACHERS IN TERMS OF PERCEIVED TEACHER COMPETENCIES

By

Herbert L. Howell

The Problem

The purpose of this investigation was to compare annual authorized skill center and community college adjunct industrial teachers in terms of perceived teacher competencies, and to determine if certain selected variables influenced those competencies. Because of the increasing numbers of adjunct and annual authorized teachers being needed and utilized by the community colleges and career centers in the State of Michigan, this study was undertaken to ascertain professional development needs, using teacher input as a basis for possible compatible groupings for in-service training programs.

Procedure

The population for this study consisted of 105 adjunct community college and 42 annual authorized skill center industrial teachers, as submitted by their respective deans and principals.

The data-gathering instrument was developed and pilot tested, and resulted in 9 major categories of 51 teaching competencies, which was submitted to the population.

The data were processed, and analyzed by use of the multivariate analysis of variance, univariate analysis of variance, and examination of means, in order to compensate for imbalance between the two teacher groups, and to test the data with different variables, and the interaction among the variables.

Findings

Demographic Data

A demographic comparison of annual authorized and adjunct industrial teachers showed that: (1) a higher percentage of skill center teachers were vocationally certified than were community college adjunct teachers; (2) a higher percentage of community college adjunct teachers had teaching certificates than did skill center teachers; (3) the majority of the community college adjunct teachers had B.S. or higher educational degrees whereas the majority of the skill center teachers held associate degrees or lower; (4) in terms of compatible years work experience, there was less than 7 percent difference between the skill center and the community college teachers having five or more years experience, with the skill center teachers having more work experience; and (5) the skill center teachers had a higher percentage of teachers having more than five years of teaching experience than did the community college teachers.

Hypotheses

The hypotheses were tested by position, and further tested by using three independent variables: (1) education, (2) compatible years of work experience, and (3) years of teaching experience. The results of testing for position indicated compatibility between the two teacher groups in all categories except two--Instructional Management and Professional Role and Development.

Further testing using education as the independent variable indicated that B.A. teachers needed help in Developing a Course of Study. All teachers needed help in Planning a Unit of Instruction. High school degreed teachers needed help in Stimulating Learning Through Brainstorming, Buzz Groups, and Question Box Techniques; Introducing a Lesson; and Summarizing a Lesson. Two teacher groups, those possessing a high school diploma and those with a B.A. degree, needed help in Selecting, Obtaining, and Maintaining a Teaching Position in Keeping with Their Professional Qualifications.

Using work experience as the independent variable, it was found that those teachers having five or less years of experience felt need for help in Managing and Maintaining the Vocational Laboratory.

When using teaching experience as the independent variable, it was discovered that those teachers having three or fewer years of experience needed help in the areas of Developing Vocational Education Programs, Goals, and Objectives; Developing a Course of Study; Planning a Unit of Instruction; Writing a Lesson Plan; Summarizing

Herbert L. Howell

a Lesson; Employing Oral Questioning Techniques; Determining Student Grades in a Vocational Program; Evaluating Instructional Effectiveness; and Managing and Maintaining the Vocational Laboratory.

ACKNOWLEDGMENTS

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Special appreciation and gratitude are extended to Dr. Rex E. Ray, chairman of the doctoral committee, who unselfishly donated innumerable hours of patient guidance during this study. Further, to the other members of the doctoral committee--Dr. Frank Bobbitt, Dr. Donald Burke, and Dr. Max Raines--I extend a sincere thank-you. Your suggestions and assistance made the experience most meaningful.

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Finally to my family, who gave up time that rightfully belonged to them, Karen, Judy, Chuck, Debbie, Denise, and Donna, thank you all. But most especially to my wife, Lola, whose patience,

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TABLE OF CONTENTS

	Page
LIST OF TABLES	vi
LIST OF APPENDICES	ix
 Chapter	
I. INTRODUCTION	1
The Purpose of the Study	8
Delimitations	9
Limitations	10
Definition of Terms	10
Organization of the Study	11
Summary	12
II. REVIEW OF THE LITERATURE	14
Introduction	14
Background	15
Characteristics of Effective Teachers	18
Community College Teachers	29
Characteristics of Vocational Teachers	34
In-Service Training Needs of Teachers	42
Summary	49
III. METHODOLOGY	51
Data Collection	51
Data Collection Instrument	51
Demographic Data	53
Field Testing of Instrument	54
Population	54
Data Processing and Classification	55
Processing	55
Data Analysis	56
Demographic Data	56
Hypotheses to Be Tested	57
Statistical Analysis of the Hypotheses	58
Test Justification	59
Summary	60

Chapter	Page
IV. ANALYSIS AND PRESENTATION OF DATA	62
A Descriptive, Comparative Analysis of Annual Authorized Skill Center Industrial Teachers and Adjunct Community College Industrial Teachers . . .	62
Certification	62
Educational Background	63
Work Experience	64
Teaching Experience	65
Test of Hypotheses	65
Introduction	65
Testing Methods	67
Hypothesis 1	68
Hypothesis 2	70
Hypothesis 3	76
Hypothesis 4	80
Hypothesis 5	83
Hypothesis 6	87
Hypothesis 7	88
Hypothesis 8	89
Hypothesis 9	89
Other Observations From Examination of the Data . .	95
Summary	96
V. SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS	98
Summary	98
Introduction	98
Purpose of the Study	99
Data Collection	102
Procedures for Data Processing	103
Procedure for Analyzing the Data	104
Conclusions	104
Descriptive Comparison of Annual Authorized Skill Center Industrial Teachers and Adjunct Community College Industrial Teachers	104
Results of Hypotheses Tested	107
Implications of the Study	112
Recommendations for Further Study	113
APPENDICES	116
BIBLIOGRAPHY	145

LIST OF TABLES

Table	Page
1. Vocational and Teacher Certification	63
2. Educational Background	64
3. Years Work Experience	66
4. Years Teaching Experience	66
5. Multivariate Test of Significance by Education, Years Work Experience, and Years Teaching Experience, Relating to Program Planning, Development, and Evaluation	69
6. Univariate Test of Significance by Education, Years Work Experience, and Years Teaching Experience, Relating to Program Planning, Development, and Evaluation	70
7. Table of Means for Significant Items Relating to Program Planning, Development, and Evaluation by Education	71
8. Table of Means for Significant Items Relating to Program Planning, Development, and Evaluation by Years Teaching Experience	71
9. Multivariate Test of Significance by Education, Years Work Experience, and Years Teaching Experience, Relating to Instructional Planning	72
10. Univariate Test of Significance Relating to Instructional Planning by Education, Years Work Experience, and Years Teaching Experience	74
11. Table of Means for Significant Items Relating to Instructional Planning by Education	75
12. Table of Means for Significant Items Relating to Instructional Planning by Years Teaching Experience .	76

Table	Page
13. Multivariate Test of Significance Relating to Instructional Execution by Education, Years Work Experience, and Years Teaching Experience	77
14. Significant Items (Group and Individual) Relating to Instructional Execution by Education, Years Work Experience, and Years Teaching Experience	79
15. Table of Means for Significant Items Relating to Instructional Execution by Education	80
16. Table of Means for Significant Items Relating to Instructional Execution by Years Teaching Experience	80
17. Multivariate Test of Significance of Items of Instructional Evaluation by Education, Years Work Experience, and Years Teaching Experience	81
18. Univariate Test of Significance of Items of Instructional Evaluation by Education, Years Work Experience, and Years Teaching Experience	82
19. Table of Means of Significant Items of Instructional Evaluation by Years Teaching Experience	83
20. Multivariate Test of Significance of Items of Instructional Management by Education, Years Work Experience, and Years Teaching Experience	84
21. Univariate Test of Significance of Items of Instructional Management by Years Work Experience and Years Teaching Experience	86
22. Table of Means for Significant Items of Instructional Management by Years Work Experience	87
23. Table of Means for Significant Items of Instructional Management by Years Teaching Experience	87
24. Analysis of Variance of the Item Guidance by Education, Years Work Experience, and Years Teaching Experience	88
25. Analysis of Variance of Item School-Community Relations by Education, Years Work Experience, and Years Teaching Experience	89

Table	Page
26. Analysis of Variance of Item Student Vocational Organization by Education, Years Work Experience, and Years Teaching Experience	90
27. Multivariate Test of Significance of Items of Professional Role and Development by Education, Years Work Experience, and Years Teaching Experience	91
28. Univariate Test of Significance of Items of Professional Role and Development by Education, Years Work Experience, and Years Teaching Experience .	93
29. Table of Means for Significant Items of Professional Role and Development by Education	93
30. Table of Means of Significant Items of Professional Role and Development by Years Work Experience	94
31. Table of Means for Significant Items of Professional Role and Development by Years Teaching Experience . .	95
32. Instruments Sent, Instruments Returned, Participating Institutions	116
33. Ohio State University Vocational Teacher Competency Profile	117
34. Results of Committee of Experts Survey	118
35. Competency Chart From Results of Committee of Experts Survey	121
36. F Score and Significance of Each Item (7-57) of Perceived Competencies	132
37. Means of Items as Affected by Variable Education	134
38. Means of Items as Affected by Variable Years Work Experience	136
39. Means of Items as Affected by Years Teaching Experience	138
40. Comparison Chart by Item of Felt Competencies	140
41. Check List of Items Where Both Teacher Groups May Be Combined, and Where the Two Teacher Groups Should be Separated, for Training Purposes	143

LIST OF APPENDICES

Appendix	Page
A. INSTRUMENTS SENT, INSTRUMENTS RETURNED, PARTICIPATING INSTITUTIONS	116
B. OHIO STATE UNIVERSITY VOCATIONAL TEACHER COMPETENCY PROFILE	117
C. RESULTS OF COMMITTEE OF EXPERTS SURVEY	118
D. COMPETENCY CHART AS VIEWED BY COMMITTEE OF EXPERTS SURVEY	121
E. INSTRUMENT :	124
F. LETTER TO PRINCIPALS	128
G. LETTER TO DEANS	129
H. COVER LETTER	130
I. FOLLOW-UP LETTER	131
J. F SCORE AND SIGNIFICANCE OF EACH ITEM (7-57) OF PERCEIVED COMPETENCIES OF INSTRUMENT BY EDUCATION, BY YEARS OF WORK EXPERIENCE, AND BY YEARS OF TEACHING EXPERIENCE	132
K. TABLE OF MEANS OF ITEMS (7-57) BY EDUCATION LEVEL . . .	134
L. TABLE OF MEANS OF ITEMS (7-57) AS AFFECTED BY VARIABLE YEARS OF WORK EXPERIENCE	136
M. TABLE OF MEANS OF ITEMS (7-57) AS AFFECTED BY YEARS OF TEACHING EXPERIENCE	138
N. COMPARISON CHART BY ITEM (7-57) OF FELT COMPETENCIES .	140
O. CHECK LIST OF ITEMS WHERE BOTH TEACHER GROUPS SHOULD BE SEPARATED, OR MAY BE COMBINED FOR TRAINING PURPOSES	143

CHAPTER I

INTRODUCTION

There are unprecedented demands for new knowledge, skills, insights, and understanding on the part of Americans as a result of the present technological revolution. "By shortening rapidly the time lapse between acquisition of the new knowledge and its application to daily life, progress in the next decade will make that of the past seem small."¹ Glancing back historically, federal stimulation and financial assistance beginning with the Smith-Hughes Act in 1917 and continuing with the George-Reed Act, George-Elsey Act, George-Dean Act, and George-Barden Acts, and the money from federal financing gained from these acts, made the growth of vocational education more palatable to some administrators, and vocational education began to become a more active part of the educational system.²

Post-World War II technology, Sputnik, and the National Defense Education Act made vocational-technical education more firmly entrenched at the community college level, particularly by allocating funds directly for community college use. The Higher Education

¹American Vocational Association, New Designs for the Challenge of the 1970's (Washington, D.C.: American Vocational Association, 1968), p. 6.

²Vocational Education in Michigan: The Final Report of the Michigan Vocational Evaluation Project (East Lansing: College of Education, Michigan State University, 1963), p. 5.

Facilities Act of 1963 and the Vocational Education Act of 1963 combined with the vocational education amendments of 1968, to earmark a percentage of the funds exclusively for community college utilization.

Further, the Vocational Education Act of 1963 states as a goal for the first time in federal legislation: ". . . persons of all ages in all communities."¹ These commitments made vocational-technical education a full partner with general education in the educational programs at both the high school and post-high school level.

In 1963, Dr. Harold T. Smith, in his Upjohn Foundation report, recommended a program for area vocational programs, and their evolution into community colleges.² Although his recommendations were strongly considered, they were never completely accepted. They were modified by the State Department of Education, the State Legislature, and educators, so secondary and post-secondary vocational and technical education were separated into area skill centers and community colleges.

The aforementioned developments have created a need for vocational and technical teachers. This is substantiated by Leightbody, who has indicated if occupational education is to expand as it should in order to meet the needs of most Americans, rather than serving a small minority, it will need many more teachers and

¹U.S. Congress, Vocational Education Act of 1963, Section 1.

²Harold T. Smith, Education and Training for the World of Work (Kalamazoo, Mich.: W. E. Upjohn Institute for Employment Research, 1963).

leaders in the years ahead.¹ For the growth that should and must come, however, a new breed of teachers and a new breed of leaders will have to be developed, and in numbers well beyond what present sources can supply. The passage of the Vocational Education Act of 1963, and its 1968 amendments, combined with evolution from the Upjohn Report whereby the state set up a plan for developing community colleges so education could be made available to all residents of the state. This created a shortage of certified, degreed industrial teachers. The state's establishment of area vocational centers plus the federal government's establishment of manpower development and training (MDT) programs, comprehensive employment training (CETA) programs, and work incentive (WIN) further increased this shortage.

In order to fill the gap created by these situations, schools are using part-time specialists and annual authorized teachers to supplement their full-time teaching staffs.

This fits in with Bader and Hammons' comments on the advantages above and beyond teaching, in using adjunct faculty, such as: their teaching nights and weekends, thereby giving better classroom and laboratory utilization. The fact that they use no office space, are paid by the hour, and receive no fringe benefits enhances the economic desirability. Further, the fact that they bring "real world" experience, and experience not always available in the full-time staff, broadens students' impressions and experiences. Their

¹G. B. Leightbody, Vocational Education in American Schools, Major Issues of the 1970's (Chicago: American Technical Society, 1972), p. 100.

temporary teaching assignment during peak enrollment has the additional value of being utilizable as a tryout period prior to hiring full-time, should a full-time vacancy arise.¹

The community colleges have always taken the advantage of using specially skilled persons on a supplemental basis. The 1974 Junior College Directory indicated 49.6 percent of community college staff in the State of Michigan is made up of supplemental teachers. Of this 49 percent, approximately 34 percent have had little or no teaching experience.² As an example: In 1970, one community college of 3,500 students with which the writer is familiar utilized the services of 103 full-time faculty and filled the overflow with supplementary staff. In 1976, the same institution had only 94 full-time faculty on staff for 8,000 students, with the overflow being handled by supplemental staff. With the State's present fiscal policy for financing community colleges, the proportional number of full-time faculty must, of financial necessity, be even further reduced.

An informal survey of several of the principals of operating secondary area vocational education centers in the southern part of Michigan indicates that from 20 to 70 percent of the staff are non-certified teachers operating under an annual permit.

¹Louis W. Bader and James O. Hammons, "Adjunct Faculty--Forgotten and Neglected," Community and Junior College Journal, November 1973.

²1974 Community, Junior, and Technical College Directory (Washington, D.C.: American Association of Community and Junior Colleges, 1975).

In the trade and industrial area of vocational education, the annual authorization permits were greatly increased from the reporting year 1973-1974 to the 1974-1975 reporting year. The State Department of Education records show the following data relative to types of temporary permits:

<u>Types of Certification</u>	<u>1973-1974</u>	<u>1974-1975</u>
Annual authorization	866	1,057
Temporary	403	238
Full	72	114

The implication is even greater when the State Department explains that the numbers issued in 1973-1974 represent an 18-month time period, and the numbers issued in 1974-1975 represent only a 12-month time period because of time needed to adjust to rules to compensate for a change in the fiscal year reporting of numbers of temporary certificates issued each year.¹

In addition to the cost and availability of full-time teachers, another reason for using supplementals, as suggested by J. P. Parks, is:

Regular staff cannot always provide the services needed in specialized courses. Part-time instructors bring, beside their technical expertise, a considerable prestige along with interpretations essential to the specific applications made of the subject matter.²

¹Michigan Department of Education, Summary of Vocational Authorization Holders for 1973-1974 and 1974-1975 (Teacher Preparation and Professional Development Services, November 1974).

²James P. Parks, "Part-Time Faculty," Junior College Journal January 1963.

These ingredients of prestige, experience, and useful, recent, practical applications of theoretical learning make for a very strong impression on students.

P. L. Dressell in his "Evaluation of Instruction" amplifies this by indicating several additional student needs that should be considered to expand teaching effectiveness:

Good teaching . . . requires not only competence in one's discipline, but also insight into the effects of one's instructional practices in promoting both the quality and quantity of student learning . . . good teaching is a problem, even for experienced persons.¹

Deliberate planning is needed for adjunct faculty because they are usually local people who are not professional educators, who are obtained through personal contacts. For best results, a definite formal systematic system of selection and hiring is needed. Therefore, F. Neil Williams advocates:

Since first-time, part-time teaching develops tremendous insecurities, adequate information, assistance, and assurance is paramount to get maximum benefit from this valuable contributing source.²

Junior community college teaching is different from other college and university teaching and, therefore, the needs and competencies of these teachers must be considered apart from the needs and preparation techniques utilized in preparing or training of most post-high school instructors. This is further pointed out by R. F. Garrison: "Junior college teaching is student oriented more

¹P. L. Dressell, "Evaluation of Instruction," Journal of Farm Economics, 1967.

²F. Neil Williams, "The Neglected Teachers: Part-Time Faculty," Adult Leadership, September 1972.

than discipline oriented. The majority of adjunct teachers need assistance in methods."¹

R. Seay feels that a dual approach to teaching effectiveness is very important. Formal preparation through in-service training programs and compatible work experience are two important ingredients. He, therefore, advocates that:

Regardless of the original source of its staff members, the community college faculty, as any teaching staff, has its deficiencies which must be corrected. Many technical teachers, qualified by experience, lack substantial formal preparation. Thus, in-service education is important.²

Because of the need for technical teachers and the practice of partially satisfying the need with part-time and annual authorized experts, it is important that this valuable supply of teachers be assisted in developing competencies that make them even more proficient as teachers. Worthington and Kokle voiced the concern of many administrators and educators when they quoted Karnes' statement:

The need for teachers of technical subjects is of such great magnitude that if educational institutions of sufficient size and in sufficient number to meet fully the current and projected national need were established, those institutions could not possibly be staffed with a sufficient number of adequately prepared instructors from the current supply.³

¹Roger H. Garrison, "Teaching in a Junior College," American Association of Junior Colleges (Washington, D.C.: American Educational Publishers Institute, 1968).

²R. Seay, "Grants for Technical Education: A New Kellogg Grant Program," Junior College Journal, January 1963.

³M. Karnes, "Teachers Education for Technical Education," paper presented at the AVA Convention, Milwaukee, Wisconsin, December 1962, cited by R. Worthington and R. Kokle, "Developing Industrial Teacher Education Programs," AVA Journal, September 1964, p. 26.

These writers all point out the necessity and desirability for having adjunct and annual authorized teachers and further advocate the need for professional training to make their expertise even more effective and valuable to students. However, a point of concern that has been somewhat overlooked is brought out by C. Schmitt when he says:

Although increasing use is being made of part-time instructors, limited information or evidence is available regarding systematic effort being put forth to establish specific programs for assisting or upgrading part-time instructors in their new educational role.¹

The Purpose of the Study

The purpose of this study was to make a comparative analysis of community college industrial adjunct teachers and skill center annual authorized industrial teachers in the State of Michigan, in terms of self-perceived teacher competency training needs common to both groups. The following questions have been designed and developed to achieve the purpose of this study.

1. What are some of the commonalities and differences between community college adjunct industrial teachers and annual authorized skill center industrial teachers in terms of formal educational background?
2. What are some of the commonalities and differences between community college adjunct industrial teachers

¹Carlos Schmitt, "A Study of the Problems of Part-Time Trade and Industrial Instructors in Selected Community Colleges" (Ph.D. dissertation, Michigan State University, 1971).

and annual authorized skill center industrial teachers in terms of certification?

3. What are some of the commonalities and differences between community college adjunct industrial teachers and annual authorized skill center industrial teachers in terms of vocational background and experience?
4. How does the amount of education influence the perceived degree of training need?
5. How does the amount of compatible work experience influence the perceived degree of training need?
6. How does the amount of teaching experience influence the perceived degree of training needs?
7. What are the commonalities and differences in perceived training needs between skill center annual authorized industrial teachers and community college adjunct industrial teachers?

Delimitations

The group being investigated in this study was limited to only annual authorized teachers in the field of industrial education in the area skill centers in the State of Michigan and the adjunct teachers in the field of industrial education in the community colleges in the State of Michigan. The study was further delimited to include only such areas in the field of industrial education as: (1) machine shop, (2) drafting, (3) metallurgy, (4) hydraulics-pneumatics, (5) welding, (6) auto mechanics, and excluded all other occupational-technical areas.

Limitations

The study must be, of necessity, limited in its interpretation of data collected because of: (1) it is a perception study and, therefore, influenced by how each participant perceives himself in terms of the questions presented; and (2) how accurately the participants report their perceptions.

Definition of Terms

Adjunct teacher--Any teacher who teaches six or fewer credit hours in a community college.

Annual certified teacher--A skilled person without a formal teaching degree who is given a temporary one-year renewable certificate to teach occupational courses at the secondary level.

Annual authorized teacher--See annual certified teacher.

Part-time teacher--See adjunct teacher.

Supplementary teacher--See adjunct teacher.

Industrial teacher--Vocational and/or technical certified teacher in all technical and industrial areas of non-baccalaureate degree and/or non-apprentice trade areas, such as teachers of auto mechanics, drafting, industrial technology (industrial engineering, metallurgy), machine tool, welding, aviation mechanics.

Community college--A public two-year post-secondary institution that is established under the provisions of Act 331 of the Public Acts of 1966 of the Michigan Legislature.

Technical education--Technical education is concerned with that body of knowledge organized in a planned sequence of classroom

and laboratory experiences to prepare students for a cluster of job opportunities in a specialized field of technology. It prepares for the occupational area between the skilled craftsman and the professional person, such as the doctor, the engineer, and the scientist.¹ For this study, the term will be limited in its focus to concern itself only with high school and community college level education necessary to prepare for occupational competence.

Trade and industrial education--Trade and industrial education is concerned with preparing persons for initial employment in a wide range of trade and industrial occupations. Instruction is provided (1) in basic manipulative skills, safety, judgment, and related occupational information in mathematics, drafting, and science required to perform successfully in the occupation; and (2) through a combination of shop or laboratory experiences simulating those found in industry.²

Organization of the Study

This study is divided and presented in five chapters. Chapter I presents an introduction and brief history of how, through the technological revolution, a need for trained teachers was created, and how the government's desire to aid education in minimizing the time lapse between acquisition and use of that technology

¹U.S. Office of Education, Vocational Education and Occupations (Washington, D.C.: Government Printing Office, O.E. 80061, 1968), p. 3.

²Ibid., p. 103.

expanded that need. The purpose of the study was presented and the limitations and delimitations of the study were set forth. These were followed by a definition of terms, a presentation of how the study was organized, and finally a summary of the chapter.

Chapter II presents a review of the literature, pertinent and relative to the study problem being investigated. It is arranged in five divisions: (1) a brief history of the growth of vocational and technical education, (2) characteristics of effective teachers, (3) characteristics of community college teachers, (4) characteristics of vocational-technical teachers, and (5) professional teacher training.

Chapter III indicates the procedures used in this study to: (1) develop the instrument, (2) collect the data, and (3) process and analyze the data.

Chapter IV presents the findings in terms of the general questions and hypotheses posed in order to accomplish the purpose of the study.

Chapter V presents the summary, conclusions, and recommendations for future additional and supplemental research.

Summary

Chapter I is made up of five sections: (1) introduction and brief history, (2) purpose, (3) questions, (4) definition of terms, and (5) organization of study.

The introduction and brief history indicate how the problem developed, and contains writings of educators that substantiate the need for training of the special group involved.

The purpose of the study was to compare community college adjunct industrial and annual authorized skill center industrial teachers, in terms of self-perceived teacher competencies.

The third section presents the general questions designed to achieve the purpose of the study.

Section four contains the definition of terms.

The last section is a precis of the study by chapters.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

Specific literature pertinent to the adjunct community college industrial teachers and annual authorized skill center industrial teachers is virtually nonexistent. A search of relevant literature through such sources as Educational Resources Information Center and assorted indices, journals, and periodicals reveals a dearth of pertinent literature in this area.

In order to investigate the problem of this study, and in the absence of direct related literature, it became necessary to depend almost entirely upon materials related to the problem of teacher proficiencies in general.

To facilitate presentation, this chapter is divided into five sections: (1) a brief background of the factors making for an industrial teacher shortage, and a few of the special requirements, deficiencies, and problems connected with the attempt to use adjunct and annual authorized teachers to counteract that shortage; (2) characteristics of effective teachers; (3) characteristics of community college teachers; (4) characteristics of vocational-technical teachers; and (5) pre- and in-service training of teachers.

Background

Prior to 1940, vocational education was very limited at the community college level; however, with the emergency demands of World War II, the community colleges joined the adult education programs of the local high schools to provide the necessary training under the vocational education for national defense program, and the war training program for war production workers to supply trained workers for war production. The end of World War II did not stem the need for people having special training and skills. Therefore, a comprehensive national analysis of scientific and technical manpower was initiated in 1956 when the President appointed his Committee on Scientists and Engineers as an action group to cooperate and stimulate the nation's efforts to meet the shortage of scientific and technical manpower. This is exemplified by the following statement by W. G. Torpey:

During its existence, 1956-1958, the committee focused attention on a variety of manpower problems and was instrumental in stimulating "follow through" action related to the education and utilization of technician manpower. Examples of activity traceable to the work of the committee were the passage of the National Defense Education Act, also the revision of the Dictionary of Occupational Titles by the Department of Labor, to include a current concept of technician duties.¹

These were both major accomplishments, and strong foundation stones for forming the base for present technician programs. Prior to this time, community colleges made a token effort to initiate

¹W. G. Torpey, "National Concern for the Role of Technician," Proceedings of the Annual Conference of the American Technical Association, Atlantic City, 1963, p. 25.

technical programs, preferring to remain more active in the more strongly based and less expensive programs of "related apprentice training." With the initiation of the National Defense Education Act, the cost of technician programs was partially subsidized by the federal government, and many community colleges started or expanded their technical divisions. This financial assistance is substantiated in the report of the panel of consultants on vocational education:

Title VIII of the National Defense Education Act, approved the 1958 "Area Vocational Education Programs" that authorized appropriations to support programs limited exclusively to the training of highly skilled technicians in recognized occupations necessary to the national defense. This provision was then incorporated as Title III of the George-Barden Act, which in turn became part of the National Vocational Education Act of 1963.¹

Title VIII of the National Defense Act of 1958 created new demands for technical education instructors at a time when schools were already hard pressed for qualified teachers. Technical instruction requires a greater depth and breadth of specialized subject matter than that generally held by general industrial education teachers; therefore, other sources of supply have to be tapped. Several possible sources are: (1) retirees, (2) teachers from other institutions who are willing to teach part time, (3) supplementals who work full time in industry and who are willing to work part time teaching, and (4) persons who are willing to leave industry and become full-time teachers.

¹"Education for a Changing World of Work," Report of the Panel of Consultants on Vocational Education, Washington, D.C., 1963, p. 25.

Although industry is an excellent source of supply, there are many good reasons why it cannot completely take up the slack in the teacher shortage in the trade and industrial classrooms. Among them are several presented by Carl V. Gorman, such as: (1) qualified, skilled persons are also in demand by industry, so it becomes a duel of salary and benefits; (2) the long-time commitment to training programs to obtain a teacher's certificate scares off some prospects; and (3) craftsmen who possess the potential to be good teachers are limited in number.¹

Regardless of the source from which non-licensed teachers are obtained, when hiring community personnel, certain problems are created. With a little work and understanding, however, a most valuable source of supply can be made available. Under these circumstances, a few items to be considered are: They should be screened to ascertain if they have either the necessary experience in teaching, a skill in a particular vocational-technical area, or preferably both. The health and physical condition of these persons should be looked into very thoroughly to be certain that the extra hours added to their regular daily routine and employment will not be detrimental to their well being. To supplement these points, F. Neil Williams points out: "Part-time teachers rate salary as number two as the motivator for accepting the job. Community service obligation, personal fulfillment, or even prestige share almost

¹Carl V. Gorman, "From Craft to Classroom," American Vocational Journal, January 1971, p. 43.

equally as number one."¹ Any person using these reasons as keys for recruiting teachers from the community should find the supply source greatly enlarged.

Characteristics of Effective Teachers

Recognizing that there are deficiencies and/or weaknesses in the teaching ease and effectiveness of new, inexperienced teachers as well as part-time and non-degreed teachers, it would be well to examine the characteristics and competencies of good teachers to select items that could be of help to new teachers.

Twenty-seven years ago Ordway Tead wrote: "A professor is one who talks in other people's sleep." He went on to say:

Learning, is learning to use. Its results have consequences in changes in how we act. If soon or late there are no behavior consequences, there has been no learning, although there may conceivably have been some impartation of fact. Learning is, therefore, not achieved merely by listening, by being told, or exhorted.²

He expanded this thesis by submitting this supplement:

At its best and most complete, learning combines thinking, feeling, acting, and expressing appropriately in relation to the demands of a confronted situation of need, desire, drive, or aspiration.³

Educators have tried too hard to differentiate between the good and bad characteristics of teachers in search for the right ones.

¹F. Neil Williams, "The Neglected Teachers: The Part-Time Faculty," Adult Leadership, September 1972.

²Ordway Tead, College Teaching and College Learning (New Haven: Yale University Press, 1949), p. 14.

³Ibid., p. 25.

W. J. MacKeachie in his discussion of students' learning and responses to effective teaching subscribes to the philosophy that not only should it be obvious that the right teacher or method for some pupils may be wrong for others, but different approaches may work at different times with the same pupils. We know that student learning and memory are closely tied to motivation. Students usually learn what they want to learn, but they often have great difficulty learning material that does not interest them. Student apathy in a required course may be an irrational expression of resentment at being required to do anything. Grades can be a motivator. Since most students desire passing grades, they will learn whatever is necessary to obtain a passing grade, be it memorization or ability to apply principles. However, grades should only be used as a motivator, not as a motive. Organization is important. Teaching students to develop a framework upon which to fit new information makes learning more effective. Feedback that is immediate is more effective, since the learner can see the results immediately.

He further advocates that all of these specifics of educational psychology may be consolidated under three general headings:

1. Develop interest in students so they want to accomplish and learn.
2. Change attitudes so undesirable habits and ideas can be converted to make learning desirable.

3. Create motivation so learning becomes a natural, self-induced happening.¹

In summarizing, MacKeachie advocates that the teacher's function is to teach, not to confound. A teacher should present his selection of appropriate methods and materials available, and give assistance in making maximum effective use to amplify learning and reduce time and efficiency waste.

In the following discussion, Henry Herge identifies some good characteristics of teachers. The faculty member becomes a teacher when he stands before a class of students. His success in that position can be estimated by and large by certain observable characteristics such as: (1) he must have a contagious enthusiasm for his field of teaching, (2) ability to verbalize and communicate easily with individuals and with large groups, and (3) a sympathetic interest in the individual problems of students. His success in teaching will in large measure be dependent upon: (1) appearance, (2) personality, (3) logical presentation and utilization of modern skills in presentation, (4) ability to organize subject matter into meaningful and related units of instruction, and (5) recognition of the individual differences and needs of his students. His effectiveness in reaching students will be conditioned markedly by his sympathy, helpfulness, sincerity, enthusiasm, and sense of humor.

¹W. J. MacKeachie, "Research in the Characteristics of Effective College Teaching" (Ann Arbor: University of Michigan Press, 1964).

Brown and Thornton feel that college graduates of most varied qualities can become effective college teachers, but their effectiveness will depend fundamentally on their determination to achieve competence through continuous effort. They further feel that a basic responsibility of any teacher is to contribute positively to the intellectual and personal development of his students. This can be accomplished through four phases. The first would extend and increase the student's fund of information and depth of understanding. The second would develop the student's ability to use his new knowledge and understanding. The third would enlarge the student's intellectual curiosity, sense of satisfaction in worthwhile accomplishment, confidence in his own powers and sense of values, and finally, the fourth would develop in the student certain scholarship skills in his discipline.¹

One very important reason why effective or ineffective teachers cannot be described with any assurance is the wide variation that exists in tasks performed by teachers and in value concepts of what constitutes desirable teaching objectives. Adequate descriptions of major teacher characteristics that might provide a basis for studying the relationships of teacher behavior to the varying objectives of teaching and concepts of teaching competence have not been developed.

Since what has been developed is so broad and varied, and dependent upon the researcher and the limitations he has set, David

¹Brown and Thornton, College Teaching--A Systematic Approach (New York: McGraw-Hill, 1971).

Ryans has introduced a proposal that he feels is sufficiently general to cover the bulk and complexity of situations:

One of the concepts of competent teaching must be related to at least two major sets of conditions:

1. The social or cultural group in which the teacher operates, involving social values which frequently differ from person to person, community to community, culture to culture, and time to time, and
2. The grade level and subject matter taught as it relates to the intellectual and personal characteristics of the pupils taught.¹

This appears to tie in with individual differences of both teacher and student, and helps account for the unsatisfactory "laundry list" check offs of the characteristics of good teachers and the qualities to look for when selecting potential teachers. The records are filled with accounts of persons who were excellent students, high on the list with good qualifications and potential, who couldn't make it as teachers. Conversely, some, who by all known measures for potential teachers, should not even have been considered, turned out to be excellent teachers. This in no manner is meant to condemn laundry lists, but is merely to indicate that they, to date, have not been singularly successful as a selection instrument.

There have been volumes of material written on characteristics of a successful teacher, just as there have been as many lists as people making them. Each has added to or reinforced some characteristic, trait, or action that has been shown to be of help in directly or indirectly helping students learn.

¹David G. Ryans, "Characteristics of Teachers," research paper presented at the annual meeting of the National Council on Measurement in Education, Washington, D.C., 1960.

For example, going back several years--Barr suggested a series of items that he felt important and necessary in this endeavor, such as: (1) resourcefulness, the ability to try several approaches to attract students to learning; (2) intelligence, the ability to use as well as collect and comprehend data; (3) emotional stability, the ability to maintain an emotional equilibrium; (4) considerateness, being thoughtful of others' feelings; (5) bouyancy, cheerful of nature; (6) objectivity, being able to present facts without the distortion of personal feelings; (7) drive, the displaying of dynamic qualities; (8) dominance, meaning asserting influence; (9) attractiveness, both in appearance, manner, and dress; (10) refinement, well versed in the social graces and manners; (11) cooperativeness; and (12) reliability.¹

Roy Cochrane concurred with most of Barr's suggestions for characteristics of successful teachers. However, he made several additions to the list that he felt filled in the voids, such as: (1) high moral sense, (2) compulsive orderliness, (3) feeling of mission, (4) favorable I.Q., (5) voice that can be understood, (6) tolerable posture, (7) gentle forcefulness, and (8) a deep understanding of human nature, to name a few.²

To assist new teachers, Mary Lynn Kreuz developed a list of characteristics of a master teacher that she felt might be used as a

¹A. S. Barr, "Characteristics of Successful Teachers," Phi Delta Kappan 39 (1958): 282-84.

²Roy Cochrane, "Who Should Become Teachers?" Phi Delta Kappan, March 1965, pp. 242-45.

checklist. She admonishes that proper balance is necessary between the personal and professional characteristics in order for the user to receive full value from its utilization:

Personal:

- proper grooming
- appropriate dress
- energy
- enthusiasm
- ability to meet awkward situations with ease
- poise
- graciousness
- pleasing, captivating voice
- good emotional health
- wholesome sense of humor
- relaxed relationship with others

Professional:

- assume appropriate role of teacher
- establish good working rapport
- prompt completion of work
- availability of services beyond requirements
- neat, complete, accurate administrative reports
- membership in professional organizations
- respect of fellows
- setting up and use of classroom and materials
- how well works with students
- uses all available information
- improve instructional competence
- self-evaluate
- continued personal development
- improve leadership skills
- continue formal education
- timely materials well directed
- assortment of presentation methods
- evaluation of student progress¹

Franklin Barry felt there were several fundamental requisites that were missing from other lists. He, therefore, suggested several additions: (1) a high degree of intelligence, (2) a capacity for

¹Mary Lynn Kreuz, "Earmarks of a Master Teacher," AV Journal, November 1971, pp. 54-56.

vigorous action, (3) social consciousness, (4) expert knowledge of subject, and (5) the capacity to get along with people.¹ As can be noted, several of these are redundant in the fact that they are merely different methods of interpretation of what was previously stated. This further indicates the complexity of making an all-encompassing satisfactory list of desirable and necessary traits that are encountered when one attempts to make a checklist of the characteristics of good teachers.

French, therefore, went a different direction. His approach was through the consumer. He found that the 10 items contributing the most to students' indicating characteristics of a good teacher were: (1) interprets abstract ideas and theories clearly, (2) gets students interested in subject, (3) has increased my skills in thinking, (4) has helped me broaden my interests, (5) stresses important material, (6) makes good use of examples and illustrations, (7) motivates me to do my best work, (8) inspires class confidence in his knowledge of subject, (9) has given me new viewpoints or appreciations, and (10) is clear and understandable in his explanations.²

He further feels the teacher must see things from the learner's point of view, and must make the learner feel the need of whatever is being taught. Short-term goals are important to the learner, so the short-term goals of the student must take precedence

¹Franklin Barry, "Some Significant Suggestions for Selecting a Successful Teacher," School Executive, July 1959, pp. 21-23.

²G. M. French, "College Students' Concept of Effective Teaching Determined by an Analysis of Teacher Ratings" (Dissertation abstract, 1957).

over the long-term goals of the teacher. The teacher should assist the student in the discovery of personal meaning.

Greenwood validates the use of students as evaluators of good teacher characteristics by using Guthrie's research:

Guthrie (1954) found student judgments more stable than faculty judgments, and that student ratings of teaching quality correlated .87 and .89 between two successive year evaluations. Maslow, Guthrie, et al. found odd item ratings correlated .79 with mean even item. Internal consistency correlated .93.¹

Approaching the matter of characteristics of good teachers from the direction of perceptual psychology, which is defined as "Any item of information will affect an individual's behavior only in the degree to which he has discovered its personal meaning for him," Combs has made a list of perceptions of a good teacher that is somewhat different from those previously mentioned: (1) a teacher should have a rich, extensive, and available perception about his subject field; (2) accurate perceptions about what people are like; (3) accurate perceptions of self, leading to adequacy; (4) accurate perceptions about the purpose and process of learning; and (5) personal perceptions about appropriate method for carrying out his purposes.²

He then goes on to tie this in to the needs of students by saying: "Use yourself as an instrument to effectively and efficiently carry out your own and society's purposes in the education

¹Guthrie as quoted by G. E. Greenwood and others, "Student Evaluation of College Teaching Behaviors," Journal of Higher Education, November 1973.

²A. W. Combs and others, The Professional Education of Teachers (Boston: 1974), p. 22.

of others."¹ He adds, "Affective education is attaching personal meaning to learning, and thus meaningful learning is synonymous with affective education."²

Knowing is not enough. Good teaching without subject depth is wasteful and fruitless, so both knowing and good teaching are needed for satisfactory results. A good teacher is a person, and not all persons behave alike. Good teaching is a personal thing--there is no set way to teach; therefore, methods must fit the goal sought, adjusting to fit situations, purposes, and people.

Heitzmann and Starpoli feel the whole subject of good teaching can be reduced to a dichotomy they feel blankets the whole subject. Specifically, two personality traits appear consistently with good teaching--flexibility and warmth. Teachers who are able to adapt to a range of roles are the most successful. Authoritarian, democratic, or laissez-faire as the need arises is consistent with good teaching and resulting student achievement. Healthy, well-rounded and specifically flexible teachers are successful, as measured by student achievement. Friendly, helpful, and warm are characteristics of teachers that are almost certain indicators for student success. These personality characteristics are probably as important as proper methodology or test construction.³

¹Ibid., p. 9.

²A. Combs, "Self-Concept and Affective Education," paper presented at the National Conference on Affective Education, Chicago, 1971.

³W. M. R. Heitzmann and Charles Starpoli, "Teacher Characteristics and Successful Teaching," Education, Spring 1975, pp. 298-99.

A study of University of Florida students indicates that good instructors are identified by students according to their caring, communicating, adapting instruction to students' needs, making goals clear, enthusiasm, knowledge of subject, and developing student self-learning attitudes.¹

When it comes to classroom behavior, interaction patterns, and teaching styles, good or effective teachers seem to reflect behaviors that are pointed up by characteristics such as: the willingness to be flexible, to be direct or indirect as the situation demands; have the ability to perceive the world from the student's point of view; have the ability to "personalize" their teaching; be willing to experiment, to try out new things; have skill in asking questions (as opposed to seeing self as a kind of answering service); have a keen knowledge of subject matter and related areas; make provision for well-established examination procedures; make provision of definite study helps; give the reflection of an appreciative attitude (evidenced by smiles, nods, comments, etc.); and use a conversational manner in teaching--an informal, easy style.²

Taking the thoughts of all these people's writings into account, then, there appears to be one central theme weaving its way through the whole pattern of characteristics of good teachers. Be

¹Terry O'Banion, Teachers for Tomorrow (Tucson: University of Arizona Press, 1972), p. 61, from Lefforge, "U.S. In-Service Training as an Instrument for Change" (Gainesville, Florida, 1971).

²Don Hamachek, "Characteristics of Good Teachers and Implications for Teacher Education," Phi Delta Kappan, February 1969, p. 342.

they suggested by teacher educators, teachers, or students, traits that make up a "good" teacher are all critical in terms of how they assist the learner.

Community College Teachers

There is no formula for the art of community junior college instruction. However, some descriptions of qualities and techniques that emerge most frequently in successful teaching can be presented. Certain teachers and professors whose teaching combined quality with popularity appear to be best remembered. Those who stand out tend to have several characteristics in common, as indicated by Kelley and Wilbur: They were keenly and obviously interested in and enthusiastic about their subject matter and they were thoroughly prepared. Most of them worked from notes rather than from manuscript, a practice that indicated their mastery of subject matter; further, they were organized. Material was presented in segments that moved forward to an integrated whole; in other words, they communicated. They spoke clearly, forcefully, and logically--listeners could hear and follow the thread of the material, yet they changed pace. They provided variety in communication to hold attention and to avoid restlessness and boredom as they presented live, vital facts that stimulated and motivated the students. They emphasized instruction rather than persuasion, so students were free to decide for themselves in a controversy. They took a personal interest in each student, they had exciting and interesting personalities, and they had character that could be admired by students. Of course,

outstanding teachers do not necessarily possess all these characteristics, but those that they do possess, however, are invariably so outstanding that their shortcomings can be ignored.¹

A dean of instruction at one community college describes teacher qualities he looks for when hiring new staff as:

There must be a basic articulateness: an ability to speak clearly and directly to a point at issue. Of equal importance, is a capacity to explain, to illustrate, to interpret a point, and a willingness to work with student questions, no matter how elementary they might sometimes be. The teacher needs a kind of "command presence," meaning a sufficient force of personality to convince students on early meeting that here is a teacher who not only knows what he is talking about, but is willing and even eager to communicate it. He must know his subject so well that he can simplify without either distorting or diluting his material.²

One community college instructor, a veteran of 14 years of university teaching, now instructing at a community college as a matter of choice, in a way summed it up by saying:

What a bunch of pragmatists these guys are! Their philosophy is: "If it works, use it; if it doesn't, throw it out." I find it tremendously refreshing. Nobody really blames the students for being "dumb." They just say, "this kid has had terrible preparation," and then they go to work to remedy the deficiencies as best they can. When they can't, they wash the student out.³

Monroe seems to precis all the preceding materials into one simple yet profound statement: "But underlying all successful teachers is one common trait; he places the interests and concerns

¹W. Kelley and L. Wilbur, Teaching in the Community Junior College (New York: Appleton-Century-Crofts, 1970), p. 136.

²R. H. Garrison, "Junior College Faculty: Issues and Problems," AAJC (Washington, D.C., 1967), p. 17.

³Ibid., p. 19.

of students above his field of study or his outside-of-college activities."¹

Community college faculties, unlike many other higher education faculties, have the advantages of being relatively free from pressure of research and publication, tenure, and salary increases, so major energies can be infused in teaching, teaching improvement, methods variation and change, updating subject matter, and helping students.

Thornton quotes Langsdorf: "Many descriptions have been written of the ideal personality and preparation of the junior college instructor." To mention several, Langsdorf suggests four characteristics of the good academic teacher:

The academic teacher must love his subject and knowledge in general . . . ; the academic teacher should have a fondness for people . . . ; the academic teacher must have an awareness of his times . . . ; the academic teacher must have sufficient depth of preparation to avoid the superficiality of hasty and inaccurate syntheses and the breadth to avoid the sterility and boredom of overspecialization.²

A survey of three community colleges by Boris Blai, Jr., Director of Research at Harcum Junior College, rank ordered the following 14 item characteristics of what makes a good junior college teacher:

1. Gives most of time to students
2. Is student oriented

¹C. R. Monroe, Profile for a Community College (San Francisco: Jossey-Bass, 1972), p. 278.

²Langsdorf as quoted by J. W. Thornton, Jr., The Community Junior College (New York: John Wiley & Sons, Inc., 1966), p. 141.

3. Is admired by students
4. Allows student self-direction
5. Leaves class attendance optional
6. Allows student participation
7. Lectures primarily from supplementary materials
8. Considers student input when reorganizing course
9. Derives background material from direct experience
10. Strives for personal relationship with students
11. In response to a question, gives a direct answer
12. Is average teacher, but gives grades higher than average of other professors
13. Is involved primarily in own field
14. Uses case studies as illustrations¹

The executive director of the American Association of Junior-Community Colleges, E. J. Gleazer, has noted that a comprehensive community college will employ many instructors who combine their occupational work in the professions or business or the trades with teaching. There is great potential benefit to the college program in their up-to-date knowledge of occupational field requirements and their own demonstrated occupational competence. However, for them, as for all of its faculty members, the college has an inescapable obligation to provide in-service training opportunities which enable any teacher to overcome whatever deficiencies he may have--in understanding the learning process for example, or perceiving the

¹Boris Blai, Jr., "What Makes a Good Junior College Teacher," Improving College and University Teaching, Summer 1975, p. 187.

characteristics of his students, or following current developments in his field.¹

Regardless of the original source of its staff members, the community college faculty, as any teaching staff, has its deficiencies which must be corrected. Many technical teachers, qualified by experience, lack substantial formal preparation. Thus, in-service education is important.

To paraphrase Garrison, Parks, and Williams, junior college teaching is student oriented more than discipline oriented. Since regular staff cannot always provide the services needed in specialized courses, part-time instructors are hired who bring, besides their technical expertise, a considerable prestige along with interpretations essential to the specific applications made of the special subject matter.¹

Although the community-junior college teacher appears to be a hybrid between university and public school teachers, he needs the best attributes of both. His needs and characteristics are somewhat unique in the fact that community college student needs are, in the main, somewhat unique. The industrial-technical teacher merely magnifies this situation, because, in addition to being a specialist in the industrial area, he needs all the attributes of the general education teacher.

¹Roger H. Garrison, "Teaching in a Junior College," American Association of Junior Colleges (American Educational Publishing Institute, 1968); James P. Parks, "Part-Time Faculty," Junior College Journal, January 1963; F. Neil Williams, "The Neglected Teachers: The Part-Time Faculty," Adult Leadership, September 1972.

Characteristics of Vocational Teachers

Teaching industrial education is far more than "showing someone how to make something." This requires resourceful teachers who understand the problems of learning, the organization and function of contemporary American industry, the technical skills and "know how" of teaching, and the ability to relate to students.¹

Jerry Dobrovolsky, a national figure in technical education, explains his findings regarding vocational-technical teachers as:

Teaching in the vocational-technical education areas requires high skill levels and the ability to communicate with students. It has been difficult to establish a national standard to measure the competency of the staff teaching in the two year, post high school, technical programs because of the newness and continual changing of programs. There is no consistent pattern of training that has been followed by those teachers involved in technical programs.²

Ronald Baird has discovered that research has indicated many attributes but few specific answers on what makes an outstanding industrial education teacher, but several attributes that make learning a more palatable experience are: (1) enthusiasm--the teacher who is enthusiastic and excited about his subject matter and teaching methods will usually convey these traits to the student; (2) patience--he gives students a chance. The reward in observing a student finally master a complex mental or manipulative skill is well worth extra effort and waiting; (3) resourcefulness--is the teacher's ability to adapt to various learning situations, make

¹Ronald J. Baird, Contemporary Industrial Teaching (Goodheart-Wilcox, 1972), p. 7.

²Jerry Dobrovolsky, "Preparation of Junior College Teachers of Technical Subjects," Junior College Journal, December 1964.

innovations in teaching presentations, revise learning activities that did not work, and to have at his fingertips sources of information which will continually upgrade his teaching. He does not just teach, he gives students an opportunity to learn; (4) sincerity--he must provide the best in preparation and teaching--don't bluff or give busy-work activities. Provide what the student really needs.¹

It is generally accepted that good teachers are not born with innate abilities. They are educated through the complex process of studying the nature of the teaching-learning process. A balance between technical skills and knowledge, and the ability to become an outstanding teacher by growing responsibly, must be interwoven. Each depends heavily on the other.

Gerald Leightbody carried this premise one step further. He felt that knowledge of subject matter and technical skills is very important, but equally important is the ability to inspire student growth and development.

Teachers can no longer think of themselves as simply transmitters of skills and facts which they themselves have acquired. Learning how to learn will be the most important lesson that students of the future can master and the student whose learning is limited only to what his teacher knows will be unable to cope with the world beyond the school room.²

The Vocational Education Act of 1963 shifted the instructional emphasis from specific occupations to job clusters. This trend

¹Baird, Contemporary Industrial Teaching, p. 17.

²Gerald B. Leightbody, Vocational Education in America's Schools--Major Issues of the 1970's (Chicago: American Technical Society, 1972), p. 141.

was further strengthened by the amendments of 1968. Today, although depth skills are still of vital importance, the emphasis on narrow preparation for job entry with a priority on high-level skill proficiency is being changed to the development of versatility and flexibility. In order to teach in such programs, it will be necessary that vocational-industrial teachers of the future be broadly based. In addition to skill depth, a person must for educational parity with other teachers have: a broad liberal education, full professional development, and a baccalaureate degree. Without these three strong components added to the technical proficiency, a person, in more cases than not, becomes a job trainer instead of an educator.

H. P. Adams agrees with this premise when he says:

Teachers of technical subjects need not be engineers. However, they do need a thorough understanding of the subject in relation to the applications the students must make after graduation. This would include a complete foundation in the field of specialization, proficiency in the application of physical science principles, and the ability to use mathematics as a tool in the development of ideas that make use of scientific and engineering principles.¹

He also believes that professional competency is necessary to plan, promote, put into operation, and evaluate an effective program of technical education. Further, the technical teacher should possess a sound philosophy of technical education. He went on further to say: "Specialists in the field who are utilized without further academic and technical preparation could lead to a static program."²

¹U.S. Office of Education, Division of Vocational Education, Area Vocational Education Branch, "Conference Report on Technical Teacher Education" (Washington, D.C.: November 1961), p. 3.

²Ibid., pp. 100-146.

Dale Messerschmidt in his unpublished dissertation points out the needs and values of acquiring teachers from industry to teach in community junior colleges.

A survey on experience indicates: recently hired community college teachers who have come from the industrial or professional field generally develop into better teachers than those not, however, in-service training is necessary to correct deficiencies in the teaching and counseling techniques. In-service education can be useful, but only after an instructor has been hired.¹

He later magnifies this by saying:

It is mandatory that in-service programs assist new community college instructors to make the necessary adjustments in their work habits and outlooks. Therefore, an in-service training program must fulfill three purposes:

1. Must provide instruction when knowledge is deficient or non-existent
2. Must reawaken skills which have been dormant
3. Must change behavior patterns which are not desirable in the new environment.²

Technical and industrial teachers who are non-degreed need immediate information to reduce and/or eliminate problems developing from lack of teaching expertise. "The average college level course generally covers a rather limited and specific area of instruction."³ That does not answer all the immediate questions that arise with the new teacher. The teacher educator should, therefore, adapt much of the teacher education programs to each active industrial

¹Dale Messerschmidt, "A Study of Part-Time Instructors in Vocational and Technical Education Among Community Colleges in Michigan" (Ph.D. dissertation, Michigan State University, 1967).

²Ibid.

³Ralph Orr and Robert Reese, "Technical and Industrial Teacher Education: Competencies Without Delay or Frills," American Vocational Journal, November 1971, pp. 61-65.

teacher on an individual basis, rather than requiring his attendance in a formal college course. To illustrate the why of this, what are some of the personal characteristics that contribute to these different needs?

First, and perhaps one of the most important, is that the trade and industrial teacher is much more mature. Second, he has a wide variety of work experience, usually of considerable depth in one occupation. This generally makes it possible for him to more readily understand and accept professional information and teaching methodology. Third, because of his maturity, he usually has family obligations which make it financially impossible for him to leave his employment and spend four or more years in preparing himself professionally as a teacher.¹

Technical and industrial teachers are practical minded--they want help when they have a need. The historical method of using long-term employment for developing competency skills before becoming a vocational-technical teacher is basically sound. Leightbody, however, feels that deep traditional commitment to this one device has left alternatives not only unexplored, but even frowned upon. He feels that present and future demands dictate that new ways be found and considered to produce the competent, broadly educated vocational-technical teacher to satisfy these demands.²

In order to have some guidelines that would be of help in developing successful trade teachers, John Walsh of the Office of Education undertook a study to determine only those characteristics and competencies exhibited by a person as a teacher, as opposed to his personal characteristics. Information was supplied by 514

¹ Ibid.

² Leightbody, Vocational Education in America's Schools, pp. 100-146.

successful teachers, 228 state and local supervisors, and 120 technical and industrial teacher educators. The data, when compiled, described the knowledge, understanding, concepts, skills, and abilities identified as essential to technical and industrial teachers in seven general areas:

1. Orientation to public education
2. Interpersonal and group relations
3. Understanding the student and the learning situation
4. Developing functional curriculums
5. Selecting, developing, and using instructional materials
6. Teaching methods
7. Shop and classroom organization and management¹

In 1973, Ramp and Reider paraphrased the competency list of the Walsh study. They felt the competencies found to be most important to technical and industrial teaching success were listed under two major groupings: those derived from teacher education courses and those acquired through direct experience. In those two categories, nine areas of competency were identified which were deemed to be needed by trade and industrial teachers. They were: (1) trade analysis, (2) course analysis and construction, (3) methods of teaching industrial subjects, (4) preparation and use of instructional materials, (5) principles and philosophy of vocational education,

¹John Walsh, "Teacher Competencies in Technical and Industrial Education, OE 84006" (1960), p. 3.

(6) tests and measurements, (7) pre-service teacher training, (8) journeyman work experience, and (9) practice teaching.¹

Gene Bottoms recognized the similarities, differences, and extensiveness of all the different competency lists, so to effect a pigeonhole system in which to categorize them, he suggests three categories of competencies in which to group them:

1. Structuring competencies--are those competencies necessary to establish an instructional system
2. Process competencies--are the technical skills that maintain the quality of the instructional system
3. Supportive competencies--are those that add the human or personal element to the classroom or laboratory.²

In addition to all of the competencies previously pointed out, Barlow and Jackey think a list of relationships that, although not personal or classroom characteristics, are very important and should be cultivated to assist the craftsman when he becomes a teacher is: (1) he represents the school to the public. Therefore, his conduct, attitude, ideals, and morale should be high and in harmony with the purposes and objectives of the school; (2) he also represents the school to students--by teaching, discipline, and conduct--and should influence the students' attitudes toward school; (3) he should help build and maintain the professional approval of

¹John Walsh as cited by Wayne S. Ramp and Ronald Reider, "Teacher Competencies and Certification," AVAJ, March 1973, pp. 33-34.

²Gene Bottoms, "Teacher Competencies That Open the Way," AVAJ, November 1975, pp. 41-42.

the lay public; (4) he should establish and maintain a good attitude and relationship with supervisors as well as a good attitude and relationship with fellow teachers; (5) he should foster a good attitude toward self-improvement; (6) he should exercise care, accuracy, punctuality, and neatness in all necessary reports; (7) he should maintain trade contacts to maintain up-to-date information and techniques and check on effectiveness of instruction; and (8) he should keep informed concerning special rules and regulations on use of buildings, grounds, and school policy.¹

After all is said and done, however, the keystone for quality lies in the realm of the teacher's professional concerns. Do his standards and characteristics match realistically the standards set by the using agency? The vocational teacher and his program must be synonymous with the occupational community. Further, he must be able to adjust the method, content, and materials of his program to fit the needs of an extreme range in the kinds of students with whom he will come in contact. He must take a concerned interest in happenings outside his immediate classroom. Most vocational-technical teachers have a bad habit of sticking their noses in the shop or laboratory to such a degree that they help impede progress in their particular areas. Elizabeth Ray very ably expounds this, when she says:

Vocational educators have a great tendency to let legislation shape the field, rather than uniting in their beliefs to shape the legislation. Individuals must become actors

¹Barlow and Jackey, The Craftsman Prepares to Teach (New York: Macmillan Co., 1944), pp. 160-65.

as well as reactors. Humans ensure their immortality by living full and creative lives. They buy time and a voice in the next generation by passing on their knowledge, insights, and values.¹

Continued continuing education in the form of in-service training is one of the tools to help reduce, if not eliminate, some of the problems that propagate lethargy, outdatedness, and stagnation of materials and techniques of teaching, and make for better prepared teachers and students.

In-Service Training Needs of Teachers

Sara Devine defines in-service education as any activity toward self-education in which one engages after becoming a teacher, that takes place as people on the job work on problems relating to their employment.²

L. A. Rubin feels that "In the making of a teacher, it is highly probable that in-service training is infinitely more important than pre-service training."³

Roy Edelfelt was also concerned with this when he said: "In-service education has been the neglected stepchild of teacher training. Most resources have gone into pre-service preparation."⁴

¹Elizabeth Ray, "From Staff Development to Professional Development," AVA Journal, April 1975, pp. 27-28.

²Sara Devine, "A State Department's Role in In-Service Education," Educational Leadership, March 1960, p. 356.

³L. A. Rubin, "A Study on the Continuing of Teachers," unpublished material, University of California, Center for Coordinated Education (1969).

⁴Roy A. Edelfelt, "In-Service Education of Teachers: Priority for the Next Decade," Journal of Teacher Education, Summer 1974, p. 250.

John Moffitt expressed the feelings of many practitioners when he voiced the remark: "Regardless of the quantity and quality of academic education received in a college or university, a teacher new to any school system needs in-service education."¹

Specific teaching assignments cannot be foreseen, and even if they were, it would be almost impossible to prepare each individual to fit each assignment. This situation is even more magnified in the case of those persons who enter the teaching field without the benefit of teacher preparation programs.

Beginning, part-time teaching develops tremendous insecurities; therefore, adequate information, assistance, and assurance is paramount to get maximum benefit from this valuable contributing source. The majority of adjunct teachers need assistance in methods. To reduce these insecurities, J. Moss, as quoted by Evans and Terry, sums up the usual induction of new teachers by saying:

The prospective teacher after 12 to 24 hours of instruction, has seen the facilities, been issued his students, and wished god speed. Very little on-the-job supervision has usually been available. And surprisingly, most teachers prepared in this manner have not turned out to be poorer teachers than those who hold degrees.²

¹John Clifton Moffitt, "In-Service Education for Teachers" (Washington, D.C.: The Center for Applied Research in Education, Inc., 1963), p. 6.

²J. Moss, "Assumptions Underlying Pre-Service Programs for Beginning Level Vocational Teachers," Changing the Role of Vocational Teacher Education, quoted by E. Evans and P. Terry (McKnight and McKnight, 1971), p. 71.

In-service education could be an excellent bridge to modify, if not eliminate, some of the problems that new and inexperienced teachers are encountering.

It is a generally accepted fact that a person is more comfortable doing something he is familiar with than working in a strange area. Using this fact, then, a person should be encouraged to use what he does know well, to accomplish something he does not know how to do. For example: Since all vocational teachers must, at present, have industrial experience and backgrounds, it might be well to draw on their expertise and experience in using the systems approach for initial instructional pattern in the classroom.

There is some evidence that a systems approach to vocational instruction substantially improves effectiveness. It consists of three steps:

1. Precise specification of the behavior expected of students
2. Carefully planned instructional procedures aimed explicitly at those objectives
3. Measurement of the results of the training in terms of the objectives with immediate feedback to students

Regardless of what method is utilized, the learning activities must relate to the objectives in such a way that students see the relevance of their activities to their goals. This means that teachers must select learning activities and materials that are directly related to the learning objective, organize the learning

activities into small steps, and make sure that students recognize the relationship between a learning activity and the objectives.¹

In order to develop many of these desirable traits, some effective manner of pre-service training or in-service training must be accomplished. By using self-evaluation, peer evaluation, student evaluation, or supervisor examination or different combinations of these, a teacher, either beginning or experienced, can determine needs, then do something to improve that particular area.

As Barlow points out:

Foundations for quality related to teacher qualifications place emphasis upon four elements:

1. Highly developed subject matter requirements
2. Pre-service (or early service) professional teacher training
3. A highly variable concern about personal qualifications
4. In-service teacher education continuing throughout a teacher's career.²

Some teachers colleges are recognizing the importance of in-service education. As a result, a meeting of the minds of the top echelon of administrators from four midwestern teacher-preparation institutions came up with four areas of responsibility for their institutions: (1) develop performance criteria for quality teaching, (2) develop and implement imaginative approaches to assist teachers in meeting those criteria, (3) help teachers to recognize areas in their teaching that are wanting in development, (4) provide

¹Bottoms, "Teacher Competencies That Open the Way," pp. 41-44.

²Melvin L. Barlow, "Professional Development in Vocational Teacher Education," AVA Journal, November 1971, pp. 28-31.

time and resources necessary for professional development via an orderly career-long process.¹

To encourage greater efficiency for those teachers who are not fully trained but come with a skill specialty, Thornton makes the following statement:

Helpful supervision, well-planned programs of in-service training during the college year, and salary schedule provisions that encourage teachers to use their summers to improve their instructional competence can all combine to keep the faculty moving toward ideal competence.²

This statement could very well be utilized for all teachers at all levels of education in order to keep education viable. It also ties in very well with and supplements the NEA philosophy of in-service training as quoted by William O'Keefe:

The philosophy behind teacher-centered in-service education, as defined by the NEA, is to serve the needs of the teacher so that the teacher can respond effectively to the educational demands of the student and society. To do this, the teachers must have sufficient control over their own training, development, and professional performance to make each school an optimum operation in its time and place.³

Stanley Kleiman came up with several suggestions, which if combined with the thinking of both the NEA and the administrators group, might add even more value to in-service programs: (1) have as simple an organizational structure as possible, (2) don't attempt

¹Ernest Minelli, "Portrait of the New Breed," AVA Journal, February 1972, p. 73.

²J. W. Thornton, Jr., The Community Junior College (New York: John Wiley & Sons, Inc., 1966), p. 142.

³William J. O'Keefe, "Some Teacher-Centered In-Service Training Programs," Today's Education, March-April 1974.

to solve all problems at once, (3) concentrate on a program that can accomplish goals, (4) identify faculty needs (faculty self-identification increases success possibility), (5) analyze problems and direct program thereto, (6) activities selected to meet needs and objectives, and (7) evaluation of experience by both instructor and participants.¹

Roger Garrison supplemented this by suggesting several other guidelines: A college should be a learning place for its teachers as well as its students. Therefore, in-service training should be a very important part of its make up. To be most effective, in-service training should be geared to change, should be faculty originated, faculty developed, and when and where possible, faculty administered. This can be partially accomplished by using a teacher coordinator, informally surveying teachers, setting up priorities, and using consultants. The cost should be absorbed by the institution, including pay without classes so teachers can attend the programs. The value received will more than compensate for the cost because in-service training keeps institution and staff current.²

To date, in-service training has been primarily planned by administrators and teacher educators rather than by classroom teachers themselves, and has not entirely met teacher needs. Self-involvement in the improvement process will reduce resistance to

¹Stanley Kleiman, A Guide for Effective In-Service Education (Clearing House, February 1974).

²Roger Garrison, "A Mini Manual on In-Service," Community and Junior College Journal, June 1975.

external direction. However, to depend on the initiative of teachers to become involved in upgrading experiences is an inadequate formula for raising the quality of education. A professional climate where the desire to excel motivates the teacher to embark on self-directed upgrading of skills and expansion of perspective is necessary. The problem area the teacher identifies rather than the one proposed by an administrator may be where improvement is needed for the teacher to function more effectively. Better yet, a cooperative effort between teachers and administrators in proposing areas where improvement is needed and then proposing directions and methods to follow in order to eliminate deficiencies and bolster strengths would be more advantageous to both. Cooperative planning would also undoubtedly be less problematical to either, and most beneficial to those most concerned--the students.

Many educators seem to feel a community college industrial teacher and skill center industrial teachers must be broadly prepared in general education, to bring out the best possible attributes in the student, and also be broadly prepared in industrial backgrounds, to develop the student's potential for success in the area of industry that he, the student, chooses. It, therefore, becomes necessary for all teachers to become active in in-service training programs to eliminate deficiencies, update information, and become a catalyst to insure a satisfactory student transition from school to work. Adjunct and annual authorized teachers should be very strongly encouraged, if not required, to partake of in-service training offerings to make what they have to offer in terms

of skills and expertise more easily presented and more valuable and effective for students' use.

Summary

This chapter has reviewed the literature the investigator feels pertinent and related to the problem, and divided it into five sections: (1) a brief history of the growth of vocational and technical education indicating the need for part-time and non-degreed teachers, (2) characteristics of effective teachers, (3) characteristics of community college teachers, (4) characteristics of vocational-technical teachers, and (5) in-service training for teachers.

The first section substantiates the need for part-time and non-degreed industrial-technical teachers by pointing out that a series of historical events generated vacancies in these areas faster than educational institutions were able to prepare people to fill those vacancies.

The emergency of World War II pressured schools to prepare and train war production workers. The President's Committee on Scientists and Engineers focused attention on manpower problems and was instrumental in the passage of the National Defense Education Act, which added to technical teacher shortage, as did the National Vocational Education Act of 1963.

Section two explores the characteristics of effective teachers as researched by teachers, teacher educators, and psychologists, to assist in helping the new teacher use examples to set standards

or goals to strive for, in order to eliminate deficiencies and/or weaknesses in teaching ease or effectiveness.

The third section reviews the characteristics of community college teachers. The literature generally agrees that community college faculties place their primary energies in the area of teaching, since they are relatively free from the pressures of research and publication.

The fourth section searches out the characteristics of vocational teachers. Although a vocational-technical teacher should display all the characteristics of a general education teacher, there are special characteristics inherent to the vocational-technical instructor. The Vocational Education Act of 1963 shifted vocational instruction emphasis from specific occupations to job clusters, which opened many new questions in terms of competencies.

The last section strongly suggests that in-service education be given top priority, since most beginning teachers already have a baccalaureate degree. Continued in-service training, then, should be used to develop and/or improve teacher competencies and update the skills and methods of long-term teachers, as well as assisting non-degreed and adjunct teachers become more efficient in their jobs of helping students learn.

CHAPTER III

METHODOLOGY

This chapter presents the methods used to collect, process, and analyze the data. It consists of four sections: (1) data collection, (2) data processing, (3) data analysis, and (4) summary.

Data Collection

Data Collection Instrument

Since the primary focus of this study was to investigate the in-service education needs of annual authorized skill center industrial teachers and adjunct community college industrial teachers, it was essential that the instrument developed be one that would identify competencies considered essential for effective performance as a vocational education instructor. A review of the literature revealed a number of lists that have been used in assessing vocational teacher performance. The competency list that appeared to have undergone the most extensive nationwide testing and acceptance was developed through a study conducted by Calvin Cottrell at the Center for Vocational and Technical Education, The Ohio State University.

An additional factor that influenced the researcher in selecting this particular competency listing as a basis for developing the instrumentation for this study was the fact that these competencies

have been developed into performance-based teacher education modules that are being used nationwide for both pre-service and in-service instruction of vocational education.

The competency list was developed by Calvin Cottrell and others as a result of a nationwide study conducted at the Center for Vocational and Technical Education at Ohio State University. The study was begun in October 1967 by making a career analysis of vocational teaching. A 21-member task force of state supervisors, teacher educators, and mature teachers reviewed a representative national study involving 750 vocational teachers. Interviews and introspection of occupational analysis were utilized, and 237 performance elements were identified. A national critical incident study by 700 teachers verified 140 of these, and established 30 more. The importance of these performance elements was evaluated by sending instruments to a 300-member national task force randomly selected. Factor analysis of the responses helped establish 82 clusters of elements. A 28-member task force refined the 82 clusters to 50, and realignment and refinement to date has resulted in a vocational teacher competency profile that includes 100 competencies categorized under 10 major headings.¹

Using the Ohio State research as a basis, the instrument for this research was developed. First the tenth category (J--Coordination) was eliminated because it was not applicable to either

¹Calvin Cottrell, Model Curricula for Vocational and Teacher Education (Center for Vocational and Technical Education, The Ohio State University, August 1972).

of the teacher groups being investigated. The remaining 90 items from the competency chart were then submitted to a committee of experts consisting of five community college deans and five principals from area skill centers, who were instructed to accept the competencies they felt were necessary and reject those they felt were not absolutely necessary for teachers to be effective in the roles in which they are performing. A predetermined cut line of seven or more of the ten experts being in favor of an item retained it for the instrument.

Appendix C gives a tabulation of the survey which resulted in 51 of the 90 items being accepted. These 51 items became part II of the instrument. In order to obtain a flavor of relevancy of the perceived needs, each question was supplemented with a yes-no answer of past training in that particular competency. These data, when added to the perceived competency data, were computed to give a relationship of felt needs to past training.

Demographic Data

Supplementing these items were six questions made up to collect the data necessary to make comparisons between the two teacher groups in terms of: certification, educational background, vocational experience, and teaching experience.

These six demographic questions were combined with the 51 competencies to make up the completed instrument.

Field Testing of Instrument

Prior to dissemination, the instrument was tested with a group of several adjunct community college and skill center teachers to determine the clarity and understandability of the questions and to gather the comments and suggestions to make the instrument more acceptable and palatable. The questionnaire in its final form as utilized in this study is included in Appendix E.

Population

Before the study could be initiated, certain information regarding the number of industrial adjunct and annual authorized teachers who are utilized in the State of Michigan had to be obtained. Therefore, a letter was sent to the occupational deans of the 29 community colleges and the principals of the 24 active area skill centers, requesting faculty lists for adjunct and annual authorized industrial teachers. See Appendices F and G.

Twenty-three community college deans and 12 skill center principals gave participative permission to their staffs. Six community colleges and 12 skill centers either refused to participate or did not have staff members who fit in the eligible category of community college industrial adjunct or skill center annual authorized industrial teachers. The population consisted of the 208 part-time industrial community college teachers and the annual authorized industrial skill center teachers as listed and submitted by the 19 community college deans and the 11 skill center principals who actively participated in the study.

Three community colleges and one skill center were personally visited by the researcher to give the instruments, cover letters, and instructions to the administrators who had agreed to participate, but required that they distribute the instruments to their own staffs. The remainder of the participants, as listed by their respective administrators, were directly contacted by mail through their institutions. This was accomplished between the period early October 1976 through December 1976. The intention of the investigator was to utilize 100 percent of the names submitted and persons selected by the deans and principals participating in the study. However, of the 208 instruments sent out and 2 follow ups made, only 161 were returned for a 77.4 percent rate. Of these, 14 had to be eliminated because 9 persons had terminated employment leaving no forwarding address, and 5 returned the instrument with notes of refusal to participate, leaving 147 persons in the study. These 14 eliminations also reduced the number of participating institutions to 19 community colleges with 105 participants and 11 skill centers with 42 participants. Appendix A itemizes the population by institution, number of instruments sent out, and number of instruments returned.

Data Processing and Classification

Processing

This section points out the methods used in coding and classifying the data. It indicates the manner utilized to provide a basis for answering the several questions proposed in the investigation.

The data were categorized dichotomously: A--demographically: (1) formal educational background of participants, (2) vocational and/or teacher certification of participants, (3) vocational background and experience of participants; B--response of participants in terms of perceived training needs as influenced by: (1) work experience, (2) educational background, and (3) teaching experience.

The data from the returned questionnaires were transferred manually to machine-scored answer sheets, which in turn were transferred to IBM cards in preparation for computer analysis.

The program used was developed through use of the January 1977 updated version of the Statistical Package for the Social Sciences as developed at Northwestern University.¹

Analysis of the data was then handled by Michigan State University's CDC 6500 computer.

Data Analysis

Demographic Data

The data collected from part I (demographic data) of the instrument were categorized by using percentages of the two variables (skill center teacher--community college teacher) in the areas of: amount of education, types of certification, number of years of compatible work experience, and number of years of teaching experience.

¹Nie, Hull, Jenkins, Steinbrenner, and Bent, Statistical Package for the Social Sciences (New York: McGraw-Hill Book Company, 1975).

Hypotheses to Be Tested

In order to answer certain specific research questions posed for the study, the following hypotheses were developed. Each of the hypotheses posed relates to a major category of teacher competence and is stated in the null form to facilitate acceptance or rejection, as determined by utilizing the statistical test of hypotheses.

Hypothesis 1: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to program planning, development, and evaluation.

Hypothesis 2: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to instructional planning.

Hypothesis 3: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to instructional execution.

Hypothesis 4: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to instructional evaluation.

Hypothesis 5: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to instructional management.

Hypothesis 6: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to guidance.

Hypothesis 7: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to school-community relations.

Hypothesis 8: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to student vocational organization.

Hypothesis 9: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to professional role and development.

Statistical Analysis of the Hypotheses

Through a series of meetings between the researcher and consultants from the Office of Research Consultation at Michigan State University, it was agreed that the most appropriate method for analysis of the data would be to use a multivariate analysis statistic to test each hypothesis. To differentiate further, a univariate analysis would be done on each individual item within the categories. In order to refine the data still further, an analysis of means would be utilized. These methods of data handling are designed not only to indicate differences between annual authorized skill center industrial teachers and adjunct community college industrial teachers as affected by the independent variables of education, years work experience, and years teaching experience, but also to compensate for the difference in numbers between skill center (42) and community college (105) participants.

Test Justification

The multivariate analysis of variance was selected because it can be performed when two or more observations per cell are made. This makes it possible to compute the error sum of squares, or to estimate the error variance, and thus separate the interaction effect from the random error.¹ The univariate analysis of variance was utilized because it is a procedure used to analyze measurements which have been made on several items. The univariate analysis of variance adjusts the means for uncontrolled variables and makes necessary modification in the sample error. The corrected sample error is then used to test for significance of differences among adjusted means. The means data were drawn from the computer printout as developed when testing for analysis of variance.

The "F" test of significance was used to test the null hypothesis of no difference between teacher groups when tested by different independent variables. The .05 level of probability was used as a criterion for the acceptance or rejection of the null hypotheses. When a hypothesis was rejected, the data were further analyzed by an examination of means to give a more detailed understanding of the influencing factor. Where the adjusted group level of probability was not significant, but individual items making up the group were significant to the $\alpha < .05$ level, those significant items were included in the tables and discussion because the researcher felt they were of great importance to the value of

¹Lincoln L. Chaco, Statistics: Methods and Analysis (New York: McGraw-Hill Book Company, 1967), p. 123.

information for combining or separating teacher groups in training programs.

Summary

This chapter indicates the methods utilized in this study, including the development of the instrument, data collection, data processing, and data analysis.

The data-collection instrument is based upon a vocational teacher competency profile developed by Ohio State University. The instrument was disseminated among a total of 208 industrial teachers, classified as adjunct community college teachers and annual authorized skill center teachers. These were identified by 19 community college deans and 11 skill center principals who agreed to participate in the study. A total of 147 usable returns provided for the study.

Data from the completed questionnaires were transferred to machine-scored answer sheets. These data were then transferred to cards by the data-processing department of Jackson Community College. The Michigan State University computer services assisted in data analysis by computing the necessary frequencies, means, and rating scores.

The data were analyzed to determine if there were any significant differences between community college adjunct industrial teachers and annual authorized skill center industrial teachers in terms of perceived needs relating to program and instructional

planning, development, evaluation, management, guidance, school-community relations, student vocational organizations, and professional role and development.

CHAPTER IV

ANALYSIS AND PRESENTATION OF DATA

This chapter contains a description of the similarities and differences between skill center annual authorized industrial teachers and community college adjunct industrial teachers. The presentation is divided into three sections. Section I compares both groups in terms of descriptive demographic data. Section II presents the data generated in the testing of the hypotheses and conclusions drawn therefrom, and Section III is a summary of the chapter.

A Descriptive, Comparative Analysis of Annual Authorized Skill Center Industrial Teachers and Adjunct Community College Industrial Teachers

Certification

In terms of vocational certification between the two groups, there was a higher percentage of skill center teachers certified than there were community college adjunct teachers. Thirty-eight of the 42 (90.5%) skill center respondents were vocationally certified, as compared with community college adjunct teachers, where only 55 of the 103 (53.4%) respondents were vocationally certified. In terms of teacher certificates, 11 of the 42 (26.2%) skill center respondents had teaching certificates and 34 of 103 community college

adjunct respondents (33.0%) held teaching certificates. This is noted in Table 1.

Table 1.--Vocational and teacher certification.

	No. of Respon- dents	Vocational Certification				Teacher Certification			
		Yes	%	No	%	Yes	%	No	%
Skill center teachers	42	38	90.5	4	9.5	11	26.2	31	73.8
Community college teachers	103	55	53.4	48	46.6	34	33.0	69	67.0

Educational Background

The data showed that 28 (70%) of the skill center teachers had high school or associate degrees, whereas 36 (34.6%) of the community college teachers possessed similar educational qualifications. A further examination of the data revealed that 7 (17.5%) of the skill center teachers possessed a bachelor's degree as compared with 38 (36.5%) community college teachers with the same educational attainment. A similar pattern existed with regard to advanced degrees, with only 5 (12.5%) of the skill center teachers having earned a masters degree and/or beyond, whereas 30 (28.9%) of the community college teachers had pursued graduate work to this level. Only 12 (30%) of the skill center teachers had earned a bachelors degree or beyond as compared with 68 (65.4%) of the

community college teachers who held bachelors degrees or beyond. This is significant in the fact that a bachelors degree is generally considered minimal qualification for entry into the teaching profession. All these data, as shown in Table 2, indicate that community college teachers, as a group, possess a considerably higher level of educational qualifications than do skill center teachers.

Table 2.--Educational background.

	No. of Respon- dents	High School	Assoc. Degree	B.S.	M.A.	Beyond
		Yes %	Yes %	Yes %	Yes %	Yes %
Skill center teachers	40	11 27.5	17 42.5	7 17.5	3 7.5	2 5.0
Community college teachers	104	15 14.4	21 20.2	38 36.5	19 18.3	11 10.6

Work Experience

An examination of the data revealed that the majority of teachers in both groups had worked more than five years in the occupational field in which they were teaching, with a larger percentage of skill center teachers (76.2%) having had more than five years experience as compared with community college teachers with 63.8% having more than five years in the related occupation.

When combining five years of work experience and more than five years of work experience, the difference between the two teaching

groups was reduced. This was revealed by the fact that 38 (90.9%) of the skill center teachers have had five or more years of work experience as compared with 87 (82.8%) of the community college teachers possessing a similar amount of experience. Please see Table 3.

Teaching Experience

There is a greater range in the amount of teaching experience in the ranks of community college teachers than the experience range of skill center teachers. Twenty-two (52.4%) skill center teachers have five or more years of teaching experience, as compared with 32 (30.7%) community college teachers who have five or more years of teaching experience. On the other end of the scale, only 7 (16.6%) of the skill center teachers had less than three years of teaching experience, as contrasted with 40 (38.4%) community college teachers with similar experience. In the intermediate range of three to four years experience, there was only two-tenths of a percentage point difference between the two teacher groups in terms of teaching experience. They registered 31.0 and 30.8%, respectively. The data in Table 4, then, appear to indicate that the skill center teachers as a group had more teaching experience than did community college teachers.

Test of Hypotheses

Introduction

There were nine hypotheses used in this investigation, one for each group of perceived competencies. Their purpose was to

Table 3.--Years work experience.

	No. of Respon- dents	1		2		3		4		5		More Than 5	
		Yes	%	Yes	%	Yes	%	Yes	%	Yes	%	Yes	%
Skill center teachers	42	0	0.0	3	7.1	0	0.0	1	2.4	6	14.3	32	76.2
Community college teachers	105	2	1.9	2	1.9	8	7.6	6	5.7	20	19.0	67	63.8

Table 4.--Years teaching experience.

	No. of Respon- dents	0		1		2		3		4		5		More Than 5	
		Yes	%	Yes	%	Yes	%	Yes	%	Yes	%	Yes	%	Yes	%
Skill center teachers	42	0	0.0	3	7.1	4	9.5	6	14.3	7	16.7	7	16.7	15	35.7
Community college teachers	104	4	3.8	19	18.3	17	16.3	11	10.6	21	20.2	15	14.4	17	16.3

test for significant differences between skill center annual authorized industrial teachers and community college adjunct industrial teachers in terms of perceived competencies as related to the nine competency groups: (a) Program Planning, Development, and Evaluation; (b) Instructional Planning; (c) Instructional Execution; (d) Instructional Evaluation; (e) Instructional Management; (f) Guidance; (g) School-Community Relations; (h) Student Vocational Organization; and (i) Professional Role and Development, as taken from the established Ohio State competency studies (See Appendix B) and used in this study.

Testing Methods

It was decided the multivariate (three-way, two-way) analysis of variance would be utilized to determine the significance of main and interacting effects, because it can be performed when two or more observations per cell are made. This makes it possible to compute the error sum of squares, or to estimate the error variance and thus separate the interaction effect from the random error.

Upon completion of the multivariate testing of the hypotheses, the skill center and community college teachers were combined and retested using the univariate (one-way) analysis of variance to test for a significant difference between single independent variables. An analysis of variance was also accomplished to discern the difference of means of the education, work experience, and teaching experience cells, when using different variables.

Each hypothesis was further tested using education, number of years work experience, and number of years teaching experience as an independent variable, to determine the possible influence each might have had upon the perceived competencies.

Hypothesis 1

H₀: There is no significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to program planning, development, and evaluation.

Instrument items 7 and 8 (Appendix D) combined to make up group A--Program Planning, Development, and Evaluation--of the competency scales.

The null hypothesis was accepted because there is no significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to Program Planning, Development, and Evaluation. However, when acted upon by the independent variables education and years teaching experience, the multivariate analysis showed significance for both variables: Education with an F of 3.96 and a P (α) of .0008, and years teaching with an F of 6.457 and a P (α) of .00006. Years work experience, on the other hand, was not significant in influencing the perceived competencies relating to group A. These data are shown in Table 5. Since the probabilities of the variables education and years teaching experience were both below the $\alpha < .05$ level of rejection, they both

appeared to be very important in affecting the perceived training needs of the two teacher groups.

Table 5.--Multivariate test of significance by education, years work experience, and years teaching experience, relating to Program Planning, Development, and Evaluation.

Source	Education		Work Experience		Teaching Experience	
	F	P (α)	F	P (α)	F	P (α)
Position	1.773	.174	2.122	.123	2.162	.119
Variable	3.960	.0008*	.032	.968	6.457	.00006*
Position by variable	.255	.957	.570	.566	.091	.9850

*Significant at $\alpha < .05$.

The data were further analyzed by univariate test of significance in order to determine which items of category A were significant. Item 8--Developing a Course of Study--with an F of 6.779 and a P (α) of .0003 appeared to be the critical item when tested by the variable education. Both item 7--Developing Vocational Education Program Goals and Objectives--with an F of 6.188 and a P (α) of .0026 and item 8--Developing a Course of Study--with an F of 13.486 and a P (α) of .00001 were the critical items when tested by the variable number of years of teaching experience. These data are shown in Table 6. The number of years work experience was not tested as a variable since the multivariate test did not indicate it as being significant.

Table 6.--Univariate test of significance by education, years work experience, and years teaching experience, relating to Program Planning, Development, and Evaluation.

Item	Education		Work Experience		Teaching Experience	
	F	P (α)	F	P (α)	F	P (α)
7	2.275	.083	---	--	6.188	.0026*
8	6.779	.0003*	---	--	13.486	.00001*

*Significant at $\alpha < \frac{.05}{2} = .025$.

Testing further and using education as the variable, an examination of means of significant items showed that in item 8, those teachers having a bachelor's degree (mean of 2.1) indicated the most need. When using the variable of the number of years teaching experience, the data suggested that those teachers with three or fewer years of teaching experience showed the strongest need, and were the influencing factor in the rejection of the hypothesis, with means of 2.40 for item 7 and 2.31 for item 8. These data, then, suggest that the less the teaching experience, the more the felt need for help in group A competencies. These data are shown in Tables 7 and 8.

Hypothesis 2

H₀: There is no significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to instructional planning.

Table 7.--Table of means for significant items relating to Program Planning, Development, and Evaluation by education.

Education	Item 8	
	Number of Respondents	Mean
High school	25	1.92
Associate degree	37	1.94
B.A.	45	2.13
M.A. and beyond	34	1.44

Table 8.--Table of means for significant items relating to Program Planning, Development, and Evaluation by years teaching experience.

Years Teaching Experience	Item 7		Item 8	
	Number of Respondents	Mean	Number of Respondents	Mean
3 or less years teaching	45	2.40	45	2.31
4 to 5 years teaching	43	2.00	44	1.73
6 or more years teaching	54	1.89	54	1.63

Instrument items 9 through 14 (Appendix D) make up group B--Instructional Planning--of the competency scales.

The null hypothesis was accepted, since there was no significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of

self-perceived competencies relating to Instructional Planning. However, the multivariate analysis of this group of items, using education as the independent variable, indicated an F of 2.253 with a P of .002 for the variable education. Since this was below the $\alpha .05$ level of rejection, it indicated that the amount of education was a significant factor when used as an independent variable, as is shown in Table 9.

Table 9.--Multivariate test of significance by education, years work experience, and years teaching experience, relating to Instructional Planning.

Source	Education		Work Experience		Teaching Experience	
	F	P (α)	F	P (α)	F	P (α)
Position	1.110	.360	1.109	.360	1.056	.392
Variable	2.253	.0027*	1.113	.358	1.918	.032*
Position by variable	.974	.489	.506	.756	.847	.601

*Significant at $\alpha < .05$.

Null Hypothesis 2 was then tested using the number of years of work experience as the independent variable. The results of multivariate testing showed that this did not reach the $\alpha < .05$ level of rejection; therefore, no further testing was done using this variable. The supporting data are illustrated in Table 9.

Further testing of Null Hypothesis 2, using years teaching experience as the independent variable, showed multivariate test

score of years of teaching effect ($F = 1.918$, $P = .032$). Since the $P .032$ of years of teaching was within the $\alpha < .05$ rejection range, it appeared that the influence of the number of years of teaching experience was significant as a variable, as shown in Table 9.

The data were further analyzed by univariate test of significance for items 9 through 14. Using education as the independent variable, item 11--Planning a Unit of Instruction--had an F score of 6.303 with a probability of $\alpha .0005$, and item 12--Writing a Lesson Plan--had an F score of 8.244 with a probability of $\alpha .00005$, indicating they were the items that were important, and as being affected by this variable.

Further testing, using teaching experience as the independent variable, again indicated that item 11 with an F of 7.211 and a P (α) of .001, and item 12 with an F of 5.133 and a P (α) of .007, both had an α less than the .008 level of significance and were the items that were influenced when using this variable. Item 10--Develop Student Performance Objectives--although not group significant, was individually significant with an F of 3.129 and a P of .047 when acted upon by this variable, and as such is worth mentioning at this time for future reference. Using work experience as the independent variable showed none of the items as significant; consequently, the variable work experience received no further testing. These data are found in Table 10.

Items 10, 11, and 12 were further tested by submitting them to analysis of variance. Again, using education as the independent variable indicated that for item 10, the associate degree holders,

with a mean of 2.289, and the B.A. degree teachers, with a mean of 2.272, appeared to be equal in their feelings of need for help with this item. This is shown in Table 11.

Table 10.--Univariate test of significance relating to Instructional Planning by education, years work experience, and years teaching experience.

Item	Education		Work Experience		Teaching Experience	
	F	P (α)	F	P (α)	F	P (α)
9	1.599	.1929	.006	.937	.968	.382
10	2.214	.0897	.090	.764	3.129	.047**
11	6.303	.0005*	.056	.419	7.211	.001*
12	8.244	.00005*	1.288	.258	5.113	.007*
13	2.564	.0576	.283	.595	1.714	.184
14	3.318	.0787	.374	.541	2.417	.093

*Significant at $\alpha < \frac{.05}{6} = .008$ for group level of rejection.

**Significant at $\alpha < .5$ for individual item level of rejection.

An examination of item 11 revealed that teachers with only a high school diploma (mean 2.04) appear to have the greatest need for assistance. However, the relatively small difference in means between those with only high school diplomas and those with associate degrees (mean 1.97) and B.A. degrees (mean 1.93) indicates that all these teacher groups indicated need for help. Teachers with an M.A. degree appear to have the least need for assistance in planning a unit of instruction. The same relationship existed when considering item 12--Writing a Lesson Plan. Again, the teachers

possessing only a high school diploma (mean 2.16) appeared to have the greatest need for assistance and those with an M.A. degree (mean 1.41) appeared to have the least need. Please see Table 11.

Table 11.--Table of means for significant items relating to Instructional Planning by education.

Education	Item 10		Item 11		Item 12	
	No. of Respondents	Mean	No. of Respondents	Mean	No. of Respondents	Mean
High school	25	2.240	25	2.040	25	2.160
Associate degree	38	2.289	38	1.973	38	1.973
B.A.	44	2.272	45	1.933	44	2.000
M.A. and beyond	35	1.971	35	1.485	34	1.411

When using years of teaching experience as the independent variable, it was found that teachers having three or fewer years of teaching experience appeared to have the greatest need for assistance as it relates to items 10, 11, and 12, which had means of 2.425, 2.148, and 2.106, respectively. The data suggest that the need for assistance in these areas tends to decrease as the years of teaching experience increases. Refer to Table 12.

Table 12.--Table of means for significant items relating to Instructional Planning by years teaching experience.

Years Teaching Experience	Item 10		Item 11		Item 12	
	No. of Respondents	Mean	No. of Respondents	Mean	No. of Respondents	Mean
3 or less	47	2.425	47	2.148	47	2.106
4 or 5	44	2.1136	44	1.681	44	1.863
6 or more	53	2.018	54	1.722	52	1.673

Hypothesis 3

H_0 : There is no significant difference between adjunct community college industrial teachers and annual authorized skill center teachers in terms of self-perceived competencies relating to instructional execution.

Instrument items 15 through 41 (see Appendix D) make up group C--Instructional Execution--of the competency scales. The null hypothesis was accepted because none of the three variables--education, years work experience, or years teaching experience--developed any significance when tested against position.

In further testing of Null Hypothesis 3, using years of work experience as the independent variable, the results of multivariate tests showed none of the resulting scores were under the $\alpha < .05$ level of rejection, indicating that the number of years of work experience did not, to any great measure, influence the perceived needs of the two teacher groups in the category Instructional Execution, when used as a variable.

Continuing the testing of Null Hypothesis 3 using years of teaching experience as the independent variable, the multivariate tests showed there was no significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in their perceived competencies relating to Instructional Execution. This is indicated by the data in Table 13.

Table 13.--Multivariate test of significance relating to Instructional Execution by education, years work experience, and years teaching experience.

Source	Education		Work Experience		Teaching Experience	
	F	P (α)	F	P (α)	F	P (α)
Position	1.444	.1108	1.350	.1548	1.376	.1419
Variable	1.145	.2203	.709	.8402	1.128	.28293
Position by variable	1.354	.0442*	1.122	.3381	1.207	.1887

*Significant at $\alpha < .05$.

Because of the large number of items making up Group C, a univariate test was made of all items to ascertain those items which were individually significant as well as those which were group significant in influencing the perceived needs of the two teacher groups. The results showed that item 24--Introducing a Lesson--with an F of 6.487 and a P of .0005 and item 25--Summarizing a Lesson--with an F of 5.727 and a P of .001, and item 26--Employing Oral Questioning Techniques--with an F of 8.941 and a P of .0002,

were most influential in affecting the perceived needs, as shown in Table 14. Upon further examination of these data, it will be noted that only 5 of the 27 items were not individually significant. Therefore, there were 22 items that, when interacted upon by the independent variables individually and collectively, influenced the perceived needs of the teacher groups.

Further testing by analysis of variance, using education as a variable, pointed out that the teachers with only a high school diploma (mean 2.16) appeared to have the most need for assistance in Introducing a Lesson (item 24) and in Summarizing a Lesson (item 25). These data suggest that the teachers holding only a high school diploma had the greatest need for assistance in these two areas, whereas teachers holding the M.A. and beyond (mean 1.457 and 1.514, respectively) had the least. The data are in Table 15.

When years of teaching experience was used as the independent variable, the data seemed to indicate that in both items 25 (mean 2.111) and 26 (mean 2.222) the teachers who had the least (three or fewer) years of teaching experience needed the greatest amount of assistance in the areas of Summarizing a Lesson (item 25) and Employing Oral Questioning Techniques (item 26). Further, as teaching experience increased, the need became less. The data are shown in Table 16.

Table 14.--Significant items (group and individual) relating to Instructional Execution by education, years work experience, and years teaching experience.

Item	Education		Work Experience		Teaching Experience					
	F	P (α)	F	P (α)	F	P (α)				
15	3.458	.0194**	5.161	.025**	3.921	.650**				
16	5.372	.022**								
17	3.024	.0333**								
18	3.847	.0416**								
19	4.733	.0040**								
20	3.600	.0162**								
21	4.188	.0078**								
22	2.441	.0689								
23	4.544	.0050**								
24	6.487	.0005*			5.731	.004**				
25	5.727	.0011*			6.752	.001*				
26	4.810	.0035**			8.940	.0002*				
27	3.421	.0203**			3.674	.028**				
28	1.539	.2091			4.990	.008**				
29	2.088	.1067			4.862	.009**				
30	1.140	.3366			4.189	.043**	4.520	.013**		
31	4.854	.003**								
32	1.563	.2031								
33	3.779	.0129**								
34	4.104	.0086**	3.639	.029**						
35	1.315	.2736	5.515	.020**			3.674	.028**		
36	2.785	.0448**								
37	3.705	.0142**	3.746	.055**					4.175	.018**
38	2.404	.0721							4.240	.017**
39	.626	.5995	4.464	.037**					5.368	.006**
40	2.120	.1026								
41	.948	.4203								

*Significant at $\alpha < \frac{.05}{27} = .0018$ group level of rejection.

**Significant at $\alpha < .05$ individual item level of rejection.

Table 15.--Table of means for significant items relating to Instructional Execution by education.

Education	Item 24		Item 25	
	No. of Respondents	Mean	No. of Respondents	Mean
High school	25	2.160	24	2.083
Associate degree	38	1.895	38	1.895
B.A.	42	1.928	42	1.976
M.A. and beyond	35	1.457	35	1.514

Table 16.--Table of means for significant items relating to Instructional Execution by years teaching experience.

Years Teaching Experience	Item 25		Item 26	
	No. of Respondents	Mean	No. of Respondents	Mean
3 or less	45	2.111	45	2.222
4 or 5	43	1.837	44	1.772
6 or more	53	1.660	53	1.754

Hypothesis 4

H_0 : There is no significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to instructional evaluation.

Instrument items 42 through 44 (see Appendix D) make up Group D--Instructional Evaluation--of the competency scales. The

null hypothesis was accepted because position, when acted upon by the variables education, years work experience, and years teaching experience, did not reach the $\alpha < .05$ level of significance.

The multivariate analysis of group D by the independent variable education resulted in an F of .900 and P of .525 for education effect. Similar results were encountered when years of work experience was utilized as the independent variable, with an F of 1.482 and a P (α) of .222. Since both were above the $\alpha < .05$ level of rejection, they had little significant impact on the perceived needs of teachers for this category. This was not the case, however, when years of teaching experience was used as the independent variable, which resulted in an F of 4.097 with a P (α) of .0006, which was considerably lower than the $\alpha < .05$ level of rejection. The data showing these statistics may be found in Table 17.

Table 17.--Multivariate test of significance of items of Instructional Evaluation by education, years work experience, and years teaching experience.

Source	Education		Work Experience		Teaching Experience	
	F	P (α)	F	P (α)	F	P (α)
Position	.067	.9772	.119	.9483	.099	.9599
Variable	.900	.5250	1.482	.2220	4.097	.0006*
Position by variable	1.655	.0988	1.001	.3942	1.798	.0995

*Significant at $\alpha < .05$.

Since the multivariate test indicated no significant difference when education and years of work experience were used as the independent variables, both the univariate test and the analysis of variance were eliminated and no further testing was done using these variables.

However, when the data were further analyzed using years of teaching experience as the independent variable, it produced an F score of 4.097 with a P (α) of .0006, which being considerably lower than the $\alpha < .05$ level of rejection, was shown as the factor influencing the perceived needs of the teachers.

Anova testing showed item 44--Evaluating Instructional Effectiveness--with an F of 12.908 and a P of .00001, which was rejectable both on the item and group level by being lower in P value than either of the required minimum alpha levels ($\alpha = .05$, $\alpha = .018$), as being the most influential item in affecting the perceived needs. The data are shown in Table 18.

Table 18.--Univariate test of significance of items of Instructional Evaluation by education, years work experience, and years teaching experience.

Items	Education		Work Experience		Teaching Experience	
	F	P (α)	F	P (α)	F	P (α)
42	1.312	.273	.007	.929	2.875	.059
43	.884	.450	.803	.371	3.148	.028**
44	2.176	.093	.927	.337	12.908	.00001*

*Significant to $\alpha < .018$ group level of rejection.

**Significant to $\alpha < .05$ individual item level of rejection.

Further investigation by analysis of variance indicated that teachers having three or fewer years of teaching experience (mean 2.695) appeared to have the greatest need for assistance in evaluating instructional effectiveness (item 44), and thereby were the primary influencers on the item. This is shown in Table 19. Item 43--Determine Student Grades in a Vocational Program--with an α of .028 was not group rejectable because it was over the $\alpha < .018$ level, but was individually rejectable by being under the $\alpha < .05$ level of rejection, and as such, exerted some influence on the perceived needs.

Table 19.--Table of means of significant items of Instructional Evaluation by years teaching experience.

Years Teaching Experience	Item 43		Item 44	
	No. of Respondents	Mean	No. of Respondents	Mean
3 or less	46	2.304	46	2.695
4 or 5	44	1.954	44	2.113
6 or more	54	1.888	54	2.037

Hypothesis 5

H_0 : There is no significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to instructional management.

Instrument items 45 through 49 (see Appendix D) make up group E--Instructional Management--of the competency scales. The null hypothesis was rejected because there is a significant difference

between the two teacher groups in terms of self-perceived competencies in Instructional Management when acted upon by the independent variables years of work experience and years of teaching experience, as indicated by the comparison of means for group E, which pointed out a mean of 10.967 for the skill center teachers and a mean of 9.825 for the community college adjunct teachers. The testing was continued to establish influencing factors.

Using position and education as the independent variables, the multivariate analysis of this group of items for position effect, for education effect, and for the interaction of position and education was completed. The results showed none with any significance, since none of the probabilities reached the $\alpha < .05$ level of rejection, as shown in Table 20.

Table 20.--Multivariate test of significance of items of Instructional Management by education, years work experience, and years teaching experience.

Source	Education		Work Experience		Teaching Experience	
	F	P (α)	F	P (α)	F	P (α)
Position	1.929	.0946	2.350	.0441*	2.294	.0495*
Variable	1.463	.1173	.833	.5279	1.770	.3070
Position by by variable	.568	.8979	1.896	.0996	.667	.7543

*Significant to $\alpha < .05$.

Further testing of Hypothesis 5, using years of work experience and position as independent variables, revealed the position effect ($F = 2.350$, $P = .044$), indicating that position was below the $\alpha < .05$ level of rejection and that the two populations, skill center and community college teachers, differed significantly on their perceived competencies for Group E when years of work experience is an influencing factor.

When tested further, using years of teaching experience and position as variables, the multivariate test of significance revealed scores of position effect ($F = 2.294$, $P = .049$), which was also within the $\alpha < .05$ level of rejection. Thus, there is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers relating to Instructional Management as affected by years of teaching experience. Table 20 substantiates this.

In order to determine which items influenced the rejection of the hypothesis, the univariate test was used to determine significant items. The variable education was not used, since the multivariate test had already shown it as having no statistical significance. When using years work experience as the variable, the results showed item 49--Manage and Maintain the Vocational Laboratory--having an F score of 7.091 with a probability of .0087, that indicated the number of years of work experience had a significant impact upon the perceived competencies relating to Instructional Management.

Further testing using years of teaching experience as the variable indicated that years of teaching experience also had a

significant impact upon the perceived competencies relating to Instructional Management (item 49), with an F of 6.839 and a probability of .0100, with a resulting significance level of $\alpha = .01$. These data are found in Table 21.

Table 21.--Univariate test of significance of items of Instructional Management by years work experience and years teaching experience.

Item	Work Experience		Teaching Experience	
	F	P (α)	F	P (α)
45	5.020	.0267**	4.946	.0279**
49	7.091	.0087*	6.839	.0100*

*Significant to $\alpha < .01$ group level of rejection.

**Significant to $\alpha < .05$ individual item level of rejection.

Item 49--Managing and Maintaining the Vocational Laboratory--was further checked by analysis of variance, which showed that those teachers having five or less years of work experience (mean 2.473) felt the most need for help and more strongly influenced the rejection of the hypothesis than did those teachers with six or more years of work experience (mean 1.989). These data are shown in Table 22. Further examination of Item 49 disclosed that teachers having three or fewer years of teaching experience (mean 2.155) appear to have the greatest need for help in this competency. The data in Table 23 further show that the greater the number of years of teaching

experience, the less the felt need for assistance in the area of instructional management.

Table 22.--Table of means for significant items of Instructional Management by years work experience.

Years Work Experience	Item 49	
	No. of Respondents	Mean
5 or less	48	2.473
6 or more	93	1.989

Table 23.--Table of means for significant items of Instructional Management by years teaching experience.

Years Teaching Experience	Item 49	
	No. of Respondents	Mean
3 or less	45	2.155
4 or 5	44	1.931
6 or more	51	1.882

Hypothesis 6

H₀: There is no significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to guidance.

Group F, Guidance, is a single-item group, made up of item 50--Provide Information on Educational and Career Opportunities-- which when tested by analysis of variance using education and position, years work experience, and years teaching experience as variables, were all above the $\alpha < .05$ level of rejection. Therefore, the null hypothesis was accepted and no further testing was done. The data are in Table 24.

Table 24.--Analysis of variance of the item Guidance by education, years work experience, and years teaching experience.

Source	F	P (α)
Education	1.729	.165
Years work experience	.178	.674
Years teaching experience	2.739	.068

Hypothesis 7

H_0 : There is no significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to school-community relations.

Group G, School-Community Relations, is a single-item group made up of item 51--Cooperate with State and Local Educators-- (Appendix D) which, when tested by analysis of variance using education, years work experience, and years of teaching experience as variables, were above the $\alpha < .05$ level of significance. Therefore, the null hypothesis was accepted and no further testing was done. The data are shown in Table 25.

Table 25.--Analysis of variance of item School-Community Relations by education, years work experience, and years teaching experience.

Source	F	P (α)
Education	1.729	.165
Years work experience	1.476	.227
Years teaching experience	.887	.414

Hypothesis 8

H_0 : There is no significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to student vocational organization.

Group H, Student Vocational Organization, is a single-item group made up of Item 52--Prepare Students for Leadership Roles in the Student Vocational Organization--(Appendix D) which, when tested by analysis of variance using education, years work experience, and years teaching experience as variables, indicated that those areas tested did not attain the $\alpha < .05$ level of significance. Therefore, the null hypothesis was accepted and no further testing was done. The data are in Table 26.

Hypothesis 9

H_0 : There is no significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to professional role and development.

Table 26.--Analysis of variance of item Student Vocational Organization by education, years work experience, and years teaching experience.

Source	F	P (α)
Education	2.379	.073
Years work experience	.439	.509
Years teaching experience	1.837	.164

Instrument items 53 through 57 make up group I--Professional Role and Development--of the competency scale (Appendix D). The null hypothesis was rejected since all three variables--education, years work experience, and years teaching experience--were found to be significant, as indicated by the comparison of means for group I, which pointed out a mean of 9.489 for the skill center teachers and a mean of 9.950 for the community college adjunct teachers. The testing was continued to establish influencing factors.

Using position and education as the independent variables, the multivariate analysis of these items resulted in position effect with an F score of 3.051, P .012, and education with an F of 2.499, P .0017. The probabilities of both were below the $\alpha < .05$ rejection level, thereby indicating a significant difference between annual authorized skill center industrial teachers and community college adjunct industrial teachers in terms of perceived needs relating to Professional Role and Development when tested by the variable, education.

Continuing the testing of the hypothesis, using years of work and position as the independent variables, position effect had an F score of 2.824, P .019 which was below the $\alpha < .05$ level of rejection, indicating the amount of work experience was an influencing factor in the rejection of the null hypothesis.

Using position and years of teaching experience as independent variables, it was found that position effect had an F score of 2.857, P .018 which, being less than the $\alpha < .05$ level of rejection, also influenced the rejection of the null hypothesis. Refer to Table 27.

Table 27.--Multivariate test of significance of items of Professional Role and Development by education, years work experience, and years teaching experience.

Source	Education		Work Experience		Teaching Experience	
	F	P (α)	F	P (α)	F	P (α)
Position	3.051	.01267*	2.824	.0189*	2.857	.0179*
Variable	2.499	.00168*	.742	.5928	1.679	.0861
Position by variable	1.667	.0562	.624	.6817	.691	.7316

*Significant at $\alpha < .05$.

The data were further analyzed by univariate test of significance for items 53 through 57. This indicated that, when using education as the variable, item 57--Select and Maintain a Teaching Position in Keeping with Your Professional Qualifications--had an

F score of 4.826 with a probability of .003. Four of the five items in group I were individually significant, having an $\alpha < .05$, and if each had been separate would have rejected the null hypothesis, but when combined as a group, could not satisfy the group $\alpha < .01$ level of significance, so in spite of their influence, only item 57 with the $\alpha = .003$ could be considered sufficiently significant to reject the null hypothesis.

A univariate test of significance showed none of the individual items making up group I to be significant to the $\alpha < .01$ level of rejection, when the variables years of work experience and years of teaching experience were used. Item 53--Keep Up to Date in Your Professional and Your Occupational Specialty--($F = 6.548$, $P = .001$, work experience; $F = 6.004$, $P = .001$, teaching experience) was significant on the individual ($\alpha < .05$) item level of rejection. All these data are shown in Table 28.

Item 57, when examined using education as the variable, suggested that high-school-diploma-holding teachers (mean 1.916) and teachers with a B.A. (mean 1.930) both had a stronger need for help in the area of--How to Select, Obtain, and Maintain a Teaching Position in Keeping with His Professional Qualifications--than did those teachers with an associate degree (mean 1.729) and M.A. and beyond teachers (mean 1.424). See Table 29.

In the perusal of test results of Item 53, it appeared that those teachers having five or less years of work experience (mean 1.872) had a stronger need for help in the area of keeping up to date

Table 28.--Univariate test of significance of items of Professional Role and Development by education, years work experience, and years teaching experience.

Items	Education		Work Experience		Teaching Experience	
	F	P (α)	F	P (α)	F	P (α)
53	1.162	.3270	6.548	.0116**	6.004	.0115**
54	2.898	.0379**				
55	3.317	.0223**				
56	2.895	.0381**				
57	4.826	.0033*				

*Significant at $\alpha < \frac{.05}{5} = .01$ group level of rejection.

**Significant at $\alpha < .05$ individual item level of rejection.

Table 29.--Table of means for significant items of Professional Role and Development by education.

Education	Item 57	
	No. of Respondents	Mean
High school	24	1.916
Associate degree	37	1.729
B.A.	43	1.930
M.A. and beyond	33	1.424

in their professional and occupational specialty than did those teachers having six or more years of work experience, as is shown in Table 30.

Table 30.--Table of means of significant items of Professional Role and Development by years work experience.

Years Work Experience	Item 53	
	No. of Respondents	Mean
5 or less years work experience	47	1.872
6 or more years work experience	98	1.765

The variable of years teaching experience produced data that suggested a similarity of those teachers having three or fewer years of teaching experience (mean 1.847) and those with six or more years of experience (mean 1.851). Since both experience groups are so close in mean values, it appears they both have need for assistance in the area of Keeping Up to Date in Their Professional and in Their Occupational Specialties (item 53) and together were influential in affecting the rejection of the null hypothesis. Please note Table 31.

Question 8 posed in the study was to determine commonalities and differences between annual authorized skill center and community college adjunct teachers in terms of perceived training needs that would be determined through the testing of the nine hypotheses

specified in the study. Based upon the results of the hypotheses testing, it was found that there were only two categories where the two teacher groups differed--Instructional Management and Professional Role and Development--but testing further, using the variables education, years of work experience, and years of teaching experience, it indicated that in most cases they were causal factors for differences, and more critical in effect than the hypotheses.

Table 31.--Table of means for significant items of Professional Role and Development by years teaching experience.

Years Teaching Experience	Item 53	
	No. of Respondents	Mean
3 or less	46	1.847
4 or 5	44	1.681
6 or more	54	1.851

Other Observations From Examination of the Data

The data were further examined as raw data, to obtain a trend in the feelings of the participants. Although the information is not statistically verifiable, it does represent the input of felt competencies and needs expressed by the teachers taking part in the study. If two-thirds of the participants did not express confidence, it was then assumed that one-third showed probable need, and as such,

the competency should be given attention and consideration for possible programming and planning for in-service training.

The expression of need was particularly noted in the competencies: Developing Student Performance Objectives; Conducting Group Discussion, Panel Discussions and Symposiums; Stimulating Learning Through Barnstorming, Buzz Groups, and Question Box Techniques; Employing Simulation Techniques; Directing the Project Method; Employing Reinforcement Techniques; Providing Instructions for Slower and More Capable Students; Conducting Team Teaching; Presenting Information Using a Subject Matter Expert; Directing Programmed Instruction; Establishing Criteria for Student Performance in a Vocational Education Program; Evaluating Instructional Effectiveness; Projecting Instructional Needs; and Assisting Students in Developing Self-Discipline. These raw data indicated a substantial minority as expressing need for help in these competencies, as is shown in Table 40, Appendix N.

Summary

This chapter presented a descriptive comparison of the annual authorized skill center industrial teachers and the adjunct community college industrial teachers using the demographic data submitted by the respondents in the areas of (1) vocational certification, (2) teacher's certification, (3) level of education, (4) years of working experience compatible with teaching area, and (5) years of teaching experience. The hypotheses were tested to compare and/or contrast the skill center teachers and the community

college teachers in terms of the nine competency groups: (A) Program Planning, Development, and Evaluation; (B) Instructional Planning; (C) Instructional Execution; (D) Instructional Evaluation; (E) Instructional Management; (F) Guidance; (G) School-Community Relations; (H) Student-Vocational Organization; and (I) Professional Role and Development, using the independent variables of position, education, and interaction of education and position. They were again tested using the independent variables of position, years of work experience, and interaction of position and years of work, then tested again using the independent variables of years of teaching experience and position, and the interaction of position and years of teaching experience. Additional comparisons and contrasts were investigated by using the raw data to determine the percentage of felt needs above the 33 percent level.

Chapter V will be composed of the summary of this research, a list of conclusions, and a discussion of implications and recommendations for educational practice.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary

Introduction

There are many temporary and part-time teachers utilized in the industrial areas of skill centers and community colleges each year. These people are a valuable asset that can be made more effective in teaching students, through adequate and pertinent training programs, as pointed out by Messerschmidt.¹ These programs should contribute to minimizing or eliminating deficiencies and improving upon the value of this important group. Training programs for this special group will undoubtedly be more usable and effective to the group if they themselves have some input into the development of those training programs. This, then, appears to indicate the need for some research for assessing the needs as perceived by the teachers themselves, weighing these data against certain variables to ascertain a satisfactory criterion for effective program selection and planning which can be fitted to the needs requirements of the individual teachers. These data can further help determine if compatible mixed groupings of skill center and community college

¹Dale Messerschmidt, "A Study of Part-Time Instructors in Vocational and Technical Education Among Community Colleges in Michigan" (Ph.D. dissertation, Michigan State University, 1967).

teachers is possible, or if separated groups of skill center and community college teachers is necessary, or even if individual instruction will be necessary.

As the numbers of non-degreed industrial specialists that are used in teaching are increased, training to assist them to do the best job possible must be made more available. It is, therefore, hoped that this research will assist in making the available training, and methods for grouping and presenting this training, as efficient as possible. It is also hoped that this study will open doors for additional assistance to teachers to help them do a better job as they work with students, and provide new insights for administrators in assisting teachers in reaching that goal.

Purpose of the Study

The purpose of this study was to compare the annual authorized skill center industrial teachers and the adjunct community college industrial teachers in the State of Michigan in terms of self-perceived teacher competency training needs. In order to accomplish this, the following questions were designed to achieve that end:

1. What are some of the commonalities and differences between community college adjunct industrial teachers and annual authorized skill center industrial teachers in terms of certification?
2. What are some of the commonalities and differences between community college adjunct industrial teachers

and annual authorized skill center industrial teachers in terms of formal educational background?

3. What are some of the commonalities and differences between community college adjunct industrial teachers and annual authorized skill center industrial teachers in terms of vocational background and experience?
4. What are some of the commonalities and differences between community college adjunct industrial teachers and annual authorized skill center teachers in terms of teaching experience?
5. How does the amount of education influence the perceived degree of training need?
6. How does the amount of compatible work experience influence the perceived degree of training need?
7. How does the amount of teaching experience influence the perceived degree of training needs?
8. What are the commonalities and differences in perceived training needs between skill center annual authorized industrial teachers and community college adjunct industrial teachers?

In order to answer questions 5, 6, 7, and 8, nine hypotheses were developed that corresponded to the nine categories of the competency scale.

Hypothesis 1: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to program planning, development, and evaluation.

- Hypothesis 2: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to instructional planning.
- Hypothesis 3: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to instructional execution.
- Hypothesis 4: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to instructional evaluation.
- Hypothesis 5: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to instructional management.
- Hypothesis 6: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to guidance.
- Hypothesis 7: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to school-community relations.
- Hypothesis 8: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to student vocational organization.
- Hypothesis 9: There is a significant difference between adjunct community college industrial teachers and annual authorized skill center industrial teachers in terms of self-perceived competencies relating to professional role and development.

Data Collection

Before the study could be initiated, certain information regarding the number of industrial adjunct and annual authorized teachers who are utilized in the State of Michigan had to be obtained. Therefore, a letter was sent to the occupational deans of the 29 community colleges and the principals of the 24 active area skill centers requesting faculty lists. Eighty-one percent of the state's community colleges and skill centers were willing to cooperate in the study. One hundred percent of the teachers who qualified (adjunct industrial in the community colleges and annual authorized industrial in the skill centers) were surveyed. This total was made up of 161 adjunct and 47 annual authorized, as indicated by the deans and principals of the cooperating institutions. These numbers were later revised to 42 annual authorized skill center teachers and 105 community college adjunct teachers as the returns indicated changed status of teachers and refusals on the part of some teachers to cooperate.

The data-gathering instrument contained several questions soliciting demographic data from the participants, plus selected items from Calvin Cottrell's study of vocational teacher competencies, conducted at the Center for Vocational Education, The Ohio State University.¹ The item selection was made by a committee of experts consisting of five community college technical deans and five area

¹Calvin Cottrell, Model Curricula for Vocational and Teacher Education (Center for Vocational and Technical Education, The Ohio State University, August 1972).

skill center principals. Once the instrument was developed, a pilot was conducted to ascertain the need for corrections and revisions. The final form of the instrument with its cover and follow-up letter is found in Appendices E, H, and I.

Except for three deans who required that they have the prerogative of distributing the instruments among their own anonymous staff, the survey was handled by mail during the calendar period October 1976 to December 1976. A questionnaire was distributed to each eligible annual authorized skill center industrial teacher and adjunct community college industrial teacher as listed by the deans and principals of the participating institutions in the State of Michigan. A list of the participating institutions, number of questionnaires sent, and number returned can be found in Appendix A.

Procedures for Data Processing

The data for this investigation were collected through the use of the designed instrument. The demographic data were obtained from questions 1 through 6. The data regarding perceived competencies were obtained by questions 7 through 57. In order to obtain a flavor of the possible validity of the perceived competencies, a yes-no answer of past training was attached to each question, so a comparison or contrast could be made between training background and perceived competencies. See Appendix N. The data were transferred to score sheets and then to punch cards for computer processing.

Procedure for Analyzing the Data

The demographic data were tabulated by frequencies and percentages to act as the basis for comparing the two teacher groups. The perceived competencies were handled by the multivariate (three-way, two-way) analysis of variance, to determine main and interaction effects. The univariate (one-way) analysis of variance was performed to test for significant difference between single independent variables. The examination of means was used to compare subgroups.

Conclusions

The conclusions drawn from these investigative data are based on the results from data processing as they relate to the purposes stated in this study and the limitations previously imposed. The presentation will be divided into two segments: (1) descriptive comparison of annual authorized skill center industrial teachers and adjunct community college industrial teachers in terms of certification, education, years compatible work experience, and years teaching experience; and (2) the results of the hypotheses tested.

The discussion, following the findings related to each question, is not based on empirical data, but is to provide insight and perceptions of the researcher.

Descriptive Comparison of Annual Authorized Skill Center Industrial Teachers and Adjunct Community College Industrial Teachers

Question 1: What are some of the commonalities and differences between community college adjunct industrial teachers and annual authorized skill center industrial teachers in terms of certification?

Findings: A higher percentage of skill center teachers were vocationally certified than were adjunct community college teachers; conversely, a higher percentage of adjunct community college teachers had teaching certificates than did the skill center teachers.

Discussion: Skill center teaching is a full-time, daytime job, and as such requires certification for financial reimbursement and continued employment; community college adjunct teaching, on the other hand, may be a one-time-only but definitely only a part-time experience, and as such does not make it conducive to become certified, and in many cases not even mandatory, for employment. Most skill center teachers are recruited from fields where they have much expertise and longevity but no teaching certificate. Community college adjunct teachers, on the other hand, are frequently recruited from other school systems or mid-management levels of industry where, in addition to the expertise, there is a higher possibility of getting people with degrees and/or teachers certificates.

Question 2: What are some of the commonalities and differences between community college adjunct industrial teachers and annual authorized skill center industrial teachers in terms of formal educational background?

Findings: The highest percentage of skill center teachers were community college graduates followed in descending order by high school graduates, B.S. degree holders, and a low percentage of M.A. and beyond. The community college teachers' highest percentage held the B.S. degree followed in descending order by those holding

M.A. or beyond, then community college degree holders, and finally followed by a small percentage of teachers with only a high school diploma.

Discussion: This contrast in educational patterns of the two teacher groups appears to substantiate the recruiting patterns of the two institutions. The skill center administrators appear to feel skilled artisans should teach skills to students. The community college administrators appear to feel teachers with skills or persons with mid-management experience, who possibly hold degrees, should teach community college students.

Question 3: What are some of the commonalities and differences between community college adjunct industrial teachers and annual authorized skill center industrial teachers in terms of vocational background and experience?

Findings: The majority of both teacher groups had five or more years of compatible work experience, with the major portion of those teaching in the skill centers having the greater longevity--none in the low extreme. The community college adjunct teachers, although relatively comparable to the percentage of skill center teachers who had five or more years of work experience, did have a representative group with minimal work experience.

Discussion: Recruitment aims undoubtedly had much influence on these results. However, the very nature of being a part-time teacher indicates, in most cases, a second job, so unless a person desires an extra income, or is public spirited, desires personal satisfaction, or is treading his way to personal improvement, it is usually the younger person in longevity who accepts the responsibility

of a second part-time job. Another possible reason for the high percentages at the higher level of experience is because of the work experience desired by administrators hiring teachers for teaching in technical and vocational programs.

Question 4: What are some of the commonalities and differences between community college adjunct industrial teachers and annual authorized skill center teachers in terms of teaching experience?

Findings: A larger percentage of skill center teachers had five or more years of teaching experience than did community college teachers, and a larger percentage of community college teachers had little or no experience as compared with the skill center group.

Discussion: The skill center, by being a continuing, full-time, daytime program, would like to maintain its teaching integrity by retaining its best teachers. The community college, on the other hand, by its nature of one-time classes and second-job teachers, would, as a result, have a greater turnover of its teaching staff.

Results of Hypotheses Tested

In order to generate data to adequately measure the influence education, years of work experience, and years of teaching experience had on the perceived needs of the respondents, nine hypotheses were developed that corresponded to the nine categories of the competency scale as noted in Appendix B. These data were then utilized in the answering of questions 5 through 8.

Since the data indicated that both teacher groups had a significant difference in only two of the nine categories--Instructional

Management and Professional Role and Development--it was decided to continue checking using the variables education, years of work experience, and years of teaching experience on all nine categories, to determine their effect, if any, on the questions posed.

Question 5: How does the amount of education influence the perceived degree of training need?

Findings: In Program Planning, Development, and Evaluation, those teachers with a bachelor's degree felt the strongest need for assistance in developing a course of study. In the area of Instructional Planning, there was really no one specific group of degree-holding teachers who influenced the felt need for assistance more than any other group. The statistics were so close it appeared to indicate that teachers with high school diplomas, associate degrees, or bachelor's degrees all had a strong need where developing student performance objectives, planning a unit of instruction, and writing a lesson plan were concerned. It appeared that those teachers with a high school diploma had the strongest perception of need in the category of Instructional Execution, particularly in Introducing a Lesson and Summarizing a Lesson. Those teachers with bachelor's degrees seemed, in Professional Role and Development, to have the strongest need for help in selecting, obtaining, and maintaining a teaching position in keeping with their professional qualifications.

Discussion: It appears at all levels of educational degrees attained that an instructor becomes more aware that his skill and expertise are not sufficient for him to adequately prepare students

to obtain employable skills. He, therefore, becomes interested in programming, methods, and the "how to" of teaching so his information can be more easily and more satisfactorily transferred to students in a better-coordinated and more efficient manner. Those teachers desiring help in obtaining and maintaining a teaching position probably feel the need for full-time rather than part-time employment.

Question 6: How does the amount of compatible work experience influence the perceived degree of training need?

Findings: The length of compatible work experience did influence the respondents in their feelings concerning instructional management, where those teachers having five or fewer years of work experience felt a strong need for help in learning to manage and maintain a vocational laboratory. The same group (five or fewer years of work experience) felt a strong need in the category of Professional Role and Development in terms of keeping up to date in professional and occupational specialty.

Discussion: This appears to be in line with a general reaction--that those people having fewer experiences have had less time to accumulate information and ideas from which to draw or use as a base upon which to build further knowledge.

Question 7: How does the amount of teaching experience influence the perceived degree of training needs?

Findings: Those teachers having three or fewer years of teaching experience were the ones who felt the most need in Program Planning, Development and Evaluation, particularly in the competencies

of developing vocational education goals and objectives and developing a course of study. The same group (three or fewer years of teaching experience) voiced the strongest need feelings in the category of Instructional Planning, with planning a unit of instruction and writing a lesson plan as being the most important. Again, teachers with three or fewer years of experience indicated the most need in the category Instructional Execution, with summarizing a lesson and employing oral questioning techniques as the weakest points. In the category Instructional Evaluation, evaluating instructional effectiveness was the competency in which the most need was felt, and again it was the teacher with three or fewer years of teaching experience who felt the strongest need. In Instructional Management, managing and maintaining a vocational laboratory was the competency area in which the most need for help was expressed, and again by those teachers with fewer than three years of teaching experience. Those teachers with six or more years of teaching experience expressed the most need for assistance in the category of Professional Role and Development, and then in the area of Selecting, Obtaining, and Maintaining a Teaching Position in Keeping with Their Professional Qualifications.

Discussion: As might be expected, those teachers with the least teaching experience appeared to feel the need for the most help in almost all categories of competencies involving methods and techniques in teaching. These competencies appear to have been developed or acquired by those teachers having more teaching

experience. The one competency--Select, Obtain, and Maintain a Teaching Position in Keeping with Professional Qualifications--appears to be the only one where the teachers with greater longevity express the most need and is probably because of the very fact that after years of teaching they are still only part-time teachers, or annual authorized teachers.

Question 8: What are the commonalities and differences in perceived training needs between skill center and annual authorized industrial teachers and community college adjunct industrial teachers?

Findings: During the processing of data it was learned that although few of the categories were shown to reveal differences between the two teacher groups, there were many competencies that, although not group significant, were individually significant as shown in Appendix J, indicating differences between the two teacher groups. As further exemplified by the statistics, the differences do not appear to be between the community college and skill center industrial teachers as individual groups, but more as characteristics of levels of education, work experience, and teaching experience within the combined group.

Discussion: Based on the data generated by the anova testing of the 51 competencies making up the 9 categories, it appeared that 20 were indicated as being satisfactory for both teacher groups to be compatibly merged for training classes in these competency areas. The other 31 competencies showed statistics that suggested the two teacher groups be placed in separated classes in these competency areas. The separate listing by competency number

and title is provided in Appendix O. Appendix J can help refine the separation as affected by education, years work experience, and years teaching experience.

Implications of the Study

1. Should there be a common certification for both annual authorized skill center and adjunct community college teachers?

2. Since the educational level of teachers at the skill center is lower, should the in-service training programs be linked to obtaining degrees?

3. Employers should recognize the need for training those teachers with lesser education and teaching experience prior to those with higher levels of achievement in both areas.

4. There is a need to concentrate the training of those teachers with little or no teaching experience during their first three years of employment, because the teachers with three or fewer years of experience indicated the most needs.

5. Training programs should be diversified and continuous to maintain interest and improve effectiveness of long-termed teachers.

6. Initial training programs should offer assistance in the areas of Program Planning, Development, and Evaluation; Instructional Planning; Instructional Execution; Instructional Evaluation; and Instructional Management.

7. Since it was the community college and skill center administrators who validated the instrument for teacher performance, it

might be well for training directors to utilize the data in Appendices J and O for compatible instructional grouping instead of arbitrarily combining groups on basis of need only. This is particularly true with category B, competency 10; category C, competencies 16, 17, 19, 23, 27, 28, 33, 34, 40; category D, competencies 42, 44; and category E, competencies 45, 47.

8. Training group combinations should be considered by characteristics of levels of education, work experience, and teaching experience within the combined teachers group, since the statistics indicate this is where the major differences were found.

9. Teacher training institutions will probably have to adjust their programs to satisfy the needs, availability, and temperament of these teacher groups.

Recommendations for Further Study

An investigation always discovers more questions than answers. Therefore, the writer hopes this research may be a stepping stone or foundation for continuation, expansion, and utilization of the data generated. This section generates a few possible thoughts that might be considered worthwhile for consideration for future research projects.

1. A five-year time lapse follow-up should be conducted to ascertain if in-service training programs have reduced the perceived needs of annual authorized skill center industrial teachers and adjunct community college industrial teachers in terms of the 51 competencies used in this study.

2. The study should be replicated in other states. Where a dearth of eligible participants occurs, several geographically contiguous and socially compatible states might combine to carry out the project. Where a broader cross-section is desirable, a national sampling should be considered.

3. The study should be expanded to include all annual authorized and adjunct vocational and technical teachers instead of limiting the study to only industrial teachers.

4. The study should be expanded to accommodate and include all adjunct and annual authorized teachers from all subject areas including arts, science, social science, and humanities, to determine areas of training needs.

5. A study should be conducted to determine what in-service training is presently available to satisfy the needs of annual authorized skill center industrial and adjunct community college industrial teachers.

6. A study should be made to determine which in-service training instructional methods and delivery approaches are most satisfactory and palatable to the adjunct and annual authorized teacher.

7. A comparative study of student evaluations of adjunct and annual authorized vs. full-time instructors could prove beneficial to program developers for both in-service training and teacher trainer institutions.

8. A study should be made to determine how the community colleges and skill centers are presently determining needs and

types of in-service training and what is its frequency and duration.

9. Researchers should be made aware of the privacy of information ruling whereby desired research information may be difficult or even impossible to obtain.

10. The possibility of offering and/or requiring pre-training in teaching techniques before hiring should be investigated.

11. It is finally recommended that the instrument from this investigation be made available to any interested party for use in assessing training needs for any group.

. APPENDICES

APPENDIX A

**INSTRUMENTS SENT, INSTRUMENTS RETURNED,
PARTICIPATING INSTITUTIONS**

APPENDIX A

INSTRUMENTS SENT, INSTRUMENTS RETURNED,
PARTICIPATING INSTITUTIONS

Table 32.--Instruments sent, instruments returned, participating institutions.

Community Colleges			Skill Centers		
	Sent	Ret.		Sent	Ret.
Alpena	4	3	Bay-Arenac	10	10 1*
Bay de Noc	5	3	Calhoun	5	4
Delta	10	10 1*	Capital Area	6	4
Glen Oaks	4	3	Gogebic-Ontonogon	1	1
Grand Rapids	4	4 2*	Lansing	2	2
Highland Park	3	2	Adrian	4	2
Kirtland	7	5 1*	Newaygo	4	4
Lake Michigan	6	5	North East Oakland	4	4
Macomb	35	26 1*	Petoskey	3	3
Mid-Michigan	3	3	Wexford	2	2
Monroe	2	1	Jackson	6	6
Muskegon	12	8			
North Central	10	8			
St. Clair Comm.	5	5			
So. West Michigan	1	1			
Westshore	16	10			
Henry Ford	10	6			
Washtenaw	10	8			
Jackson	3	3			

*Returned terminated no forwarding address.

APPENDIX B

**OHIO STATE UNIVERSITY VOCATIONAL TEACHER
COMPETENCY PROFILE**

PLEASE NOTE:

**Dissertation contains small
and indistinct print.
Filmed as received.**

UNIVERSITY MICROFILMS.

APPENDIX B

Table 33.--Ohio State University Vocational Teacher Competency Profile.

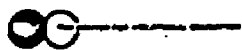
Name _____ Address _____
 Employer _____ City/Town _____
 District/Parish _____

COMPETENCY RATING SCALE

- 4 Excellent The teacher is able to perform the task at the highest level of proficiency.
- 3 Good The teacher is able to perform the task at a high level of proficiency.
- 2 Fair The teacher is able to perform the task at a moderate level of proficiency.
- 1 Limited The teacher is able to perform the task at a limited level of proficiency.



This competency profile was developed by the Ohio State University Vocational Teacher Competency Profile Committee. The profile is based on the Ohio State University Vocational Teacher Competency Profile Committee's research and is intended to be used as a guide for developing and evaluating vocational teachers.



Category	Competencies									
	1.1. Plan Instructional Activities	1.2. Select and Organize Content	1.3. Organize Instructional Materials	1.4. Organize Instructional Resources	1.5. Organize Instructional Activities	1.6. Organize Instructional Resources	1.7. Organize Instructional Activities	1.8. Organize Instructional Resources	1.9. Organize Instructional Activities	1.10. Organize Instructional Resources
A. Organize Instructional Activities										
B. Organize Instructional Resources										
C. Organize Instructional Activities										
D. Organize Instructional Resources										
E. Organize Instructional Activities										
F. Organize Instructional Resources										
G. Organize Instructional Activities										
H. Organize Instructional Resources										
I. Organize Instructional Activities										
J. Organize Instructional Resources										

APPENDIX C

RESULTS OF COMMITTEE OF EXPERTS SURVEY

APPENDIX C

RESULTS OF COMMITTEE OF EXPERTS SURVEY

Table 34.--Results of committee of experts survey.

Question ^a	Accepted		Total Accepted	Question	
	SC	CC		Retained	Eliminated
A- 1	0	0	0		X
A- 2	0	0	0		X
A- 3	0	0	0		X
A- 4	4	1	5		X
A- 5	4	2	6		X
A- 6	4	3	7	X	
A- 7	2	2	4		X
A- 8	4	3	7	X	
A- 9	2	0	2		X
A-10	0	1	1		X
A-11	1	1	2		X
B- 1	5	4	9	X	
B- 2	5	4	9	X	
B- 3	4	5	9	X	
B- 4	5	5	10	X	
B- 5	4	5	9	X	
B- 6	4	5	9	X	
C- 1	2	5	7	X	
C- 2	2	5	7	X	
C- 3	3	4	7	X	
C- 4	4	5	9	X	
C- 5	5	5	10	X	
C- 6	5	4	9	X	
C- 7	5	5	10	X	
C- 8	5	5	10	X	
C- 9	4	5	9	X	
C-10	5	5	10	X	
C-11	5	5	10	X	
C-12	3	5	8	X	
C-13	5	5	10	X	
C-14	5	4	9	X	
C-15	4	4	8	X	
C-16	5	4	9	X	
C-17	5	5	10	X	
C-18	5	4	9	X	
C-19	4	3	7	X	
C-20	3	5	8	X	

Table 34.--Continued.

Question ^a	Accepted		Total Accepted	Question	
	SC	CC		Retained	Eliminated
C-21	3	3	6		X
C-22	4	5	9	X	
C-23	4	5	9	X	
C-24	5	5	10	X	
C-25	4	5	9	X	
C-26	5	4	9	X	
C-27	3	3	6		X
C-28	5	3	8	X	
C-29	5	4	9	X	
D- 1	4	5	9	X	
D- 2	3	3	6		X
D- 3	3	2	5		X
D- 4	3	3	6		X
D- 5	4	5	9	X	
D- 6	5	5	10	X	
E- 1	4	4	8	X	
E- 2	0	2	2		X
E- 3	1	3	4		X
E- 4	3	2	5		X
E- 5	5	5	10	X	
E- 6	1	5	6		X
E- 7	5	4	9	X	
E- 8	4	5	9	X	
E- 9	4	5	9	X	
F- 1	4	2	6		X
F- 2	1	2	3		X
F- 3	0	4	4		X
F- 4	3	4	7	X	
F- 5	2	4	6		X
G- 1	1	0	1		X
G- 2	2	3	5		X
G- 3	1	0	1		X
G- 4	1	2	3		X
G- 5	1	0	1		X
G- 6	1	0	1		X
G- 7	3	2	5		X
G- 8	3	3	6		X
G- 9	4	3	7	X	
G-10	1	0	1		X

Table 34.--Continued.

Question ^a	Accepted		Total Accepted	Question	
	SC	CC		Retained	Eliminated
H- 1	1	4	5		X
H- 2	1	4	5		X
H- 3	2	5	7	X	
H- 4	1	3	4		X
H- 5	1	4	5		X
H- 6	0	3	3		X
I- 1	5	5	10	X	
I- 2	2	5	7	X	
I- 3	4	5	9	X	
I- 4	4	3	7	X	
I- 5	3	4	7	X	
I- 6	1	1	2		X
I- 7	3	3	6		X
I- 8	2	3	5		X

^aRefer to Appendix D for specific competency statement.

APPENDIX D

**COMPETENCY CHART AS VIEWED BY
COMMITTEE OF EXPERTS SURVEY**

APPENDIX D

COMPETENCY CHART AS VIEWED BY COMMITTEE OF EXPERTS SURVEY

Table 35.--Competency chart from results of committee of experts survey.

Category	Competency
A Program Planning, Development, and Evaluation	A- 7--Develop Vocational Education Program Goals & Objectives A- 8--Develop a Course of Study
B Instructional Planning	B- 9--Determine Needs & Interests of Students B-10--Develop Student Performance Objectives B-11--Plan a Unit of Instruction B-12--Write a Lesson Plan B-13--Select & Obtain Student Instructional Materials B-14--Prepare Teacher-Made Instructional Materials
C Instructional Execution	C-15--Direct Individual & Group Field Trips C-16--Conduct Group Discussions, Panel Discussions & Symposiums C-17--Stimulate Learning Through Brain Storming, Buzz Group, & Question Box Techniques C-18--Direct Students in Instructing Other Students C-19--Employ Simulation Techniques C-20--Direct Student Study C-21--Direct Student Laboratory Experience C-22--Direct Students in Applying Problem-Solving Techniques C-23--Direct the Project Method C-24--Introduce a Lesson C-25--Summarize a Lesson C-26--Employ Oral Questioning Techniques

Table 35.--Continued.

Category	Competency
C Instructional Execution (cont'd)	C-27--Employ Reinforcement Techniques C-28--Provide Instruction for Slower & More Capable Students C-29--Present Information Through an Illustrated Talk C-30--Demonstrate a Manipulative Skill C-31--Demonstrate a Concept or Principle C-32--Direct Individualized Instruction C-33--Conduct Team Teaching C-34--Present Information Using a Subject Matter Expert C-35--Illustrate with Models, Real Objects, and Flannel Boards C-36--Present Information with Overhead & Opaque Materials C-37--Present Information with Filmstrips and Slides C-38--Present Information with Films C-39--Present Information with Audio Recordings C-40--Direct Programmed Instruction C-41--Present Information with the Chalkboard & Flip Chart
D Instructional Evaluation	D-42--Establish Criteria for Student Performance in a Vocational Education Program D-43--Determine Student Grades in a Vocational Program D-44--Evaluate Instructional Effectiveness
E Instructional Management	E-45--Project Instructional Resource Needs E-46--Provide for the Safety Needs of Vocational Students E-47--Assist Students in Developing Self-Discipline E-48--Organize the Vocational Laboratory E-49--Manage & Maintain the Vocational Laboratory
F Guidance	F-50--Provide Information on Educational & Career Opportunities

Table 35.--Continued.

Category	Competency
G School-Community Relations	G-51--Cooperate with State & Local Educators
H Student Vocational Organization	H-52--Prepare Students for Leadership Roles in the Student Vocational Organization
I Professional Role and Development	I-53--Keep Up-to-Date in Your Profession & in Your Occupational Specialty
	I-54--Serve Your Teaching Profession
	I-55--Establish & Maintain a Professional Philosophy of Education
	I-56--Serve the School & Community I-57--Select, Obtain, & Maintain a Teaching Position in Keeping with Your Professional Qualifications

APPENDIX E

INSTRUMENT

APPENDIX E

INSTRUMENT

Self-Perceived Competency Rating Chart

Part 1--General Information

1. Present teaching assignment: (1) skill center ☐; (2) community college post high school ☐; (3) community college vocational high school ☐
2. Vocational certificate: (1) Yes ☐; (2) No ☐
3. Teacher's certificate: (1) Yes ☐; (2) No ☐
4. Highest level of formal education: (1) high school ☐; (2) community college ☐; (3) bachelors ☐; (4) masters ☐; (5) beyond ☐
5. Years work experience compatible with teaching area:
(1) 1 ☐; (2) 2 ☐; (3) 3 ☐; (4) 4 ☐; (5) 5 ☐;
(6) more than 5 ☐
6. Years teaching experience: (1) 0 ☐; (2) 1 ☐; (3) 2 ☐;
(4) 3 ☐; (5) 4 ☐; (6) 5 ☐; (7) number of years, if beyond
5 ☐

Part II--Answer Parts A and B of all the following questions. Part A is a personal rating of how you feel in terms of what instruction might be helpful to you in accomplishing your teaching role. Part B is an indicator of whether or not you have had formal instruction in that particular area.

	Helpful Instruction				Training	
	Part A				Part B	
	Feel very competent in this area	Feel competent in this area	Would like some help in this area	Would like much help in this area	Have had some training	
					Yes	No
7. Develop vocational education program goals and objectives						
8. Develop a course of study						
9. Determine needs and interests of students						
10. Develop student performance objectives						
11. Plan a unit of instruction						
12. Write a lesson plan						
13. Select and obtain student instructional materials						
14. Prepare teacher-made instructional materials						
15. Direct individual and group field trips						
16. Conduct group discussions, panel discussions, and symposiums						
17. Stimulate learning through brainstorming, buzz group, & question box techniques						
18. Direct students in instructing other students						
19. Employ simulation techniques						
20. Direct student study						

	Helpful Instruction					
	Part A				Part B	
	Feel very competent in this area	Feel competent in this area	Would like some help in this area	Would like much help in this area	Have had some training	
					Yes	No
21. Direct student laboratory experience						
22. Direct students in applying problem-solving techniques						
23. Direct the project method						
24. Introduce a lesson						
25. Summarize a lesson						
26. Employ oral questioning techniques						
27. Employ reinforcement techniques						
28. Provide instruction for slower & more capable students						
29. Present information through an illustrated talk						
30. Demonstrate a manipulative skill						
31. Demonstrate a concept or principle						
32. Direct individualized instruction						
33. Conduct team teaching						
34. Present information using a subject matter expert						
35. Illustrate with models, real objects, & flannel boards						
36. Present information with overhead & opaque materials						
37. Present information with film-strips and slides						
38. Present information with films						
39. Present information with audio recordings						
40. Direct programmed instruction						
41. Present information with the chalkboard & flip chart						
42. Establish criteria for student performance in a vocational education program						

	Helpful Instruction				Training	
	Part A				Part B	
	Feel very competent in this area	Feel competent in this area	Would like some help in this area	Would like much help in this area	Have had some training	
					Yes	No
43. Determine student grades in a vocational program						
44. Evaluate instructional effectiveness						
45. Project instructional resource needs						
46. Provide for the safety needs of vocational students						
47. Assist students in developing self-discipline						
48. Organize the vocational laboratory						
49. Manage and maintain the vocational laboratory						
50. Provide information on educational and career opportunities						
51. Cooperate with state and local educators						
52. Prepare students for leadership roles in the student vocational organization						
53. Keep up-to-date in your profession and in your occupational specialty						
54. Serve your teaching profession						
55. Establish and maintain a professional philosophy of education						
56. Serve the school and community						
57. Select, obtain, & maintain a teaching position in keeping with your professional qualifications						

APPENDIX F

LETTER TO PRINCIPALS

APPENDIX F

LETTER TO PRINCIPALS

Dear Mr. _____,

In addition to being a full-time teacher at Jackson Community College, I am a Ph.D. candidate at Michigan State University, working on a project that will, I hope, assist in determining possible in-service training programs for degreed and non-degreed industrial teachers at area centers and community colleges in the state.

I am right now in a position where I need help. In order to come up with a legitimate sample, I must have information from all institutions. I, therefore, would really appreciate your sending me a list of names and, if possible, addresses of all your degreed and non-degreed industrial teachers only (not electronic).

Thank you very much for your help.

Sincerely,

Herbert L. Howell

APPENDIX G

LETTER TO DEANS

APPENDIX G

LETTER TO DEANS

Dear Dean _____:

In addition to being a full-time teacher at Jackson Community College, I am a Ph.D. candidate at Michigan State University, working on a project that will, I hope, assist in determining possible in-service training programs for full-time and part-time industrial teachers at community colleges and area centers in the state.

I am right now in a position where I need help. In order to come up with a legitimate sample, I need information from all institutions. I, therefore, would really appreciate your sending me a list of names and, if possible, addresses of all your full-time and part-time technical-industrial teachers only (not apprentice or electronic).

Thank you very much for your help.

Sincerely,

Herbert L. Howell

APPENDIX H

COVER LETTER

APPENDIX H

COVER LETTER

Jackson Community College

2111 EMMONS ROAD ● PHONE 517-787-0800
JACKSON, MICHIGAN 49201

September 17, 1976

For several years, I worked as a part time teacher before leaving industry, getting a degree, and becoming a full time teacher. During that time period, I had problems that could have been reduced, if not eliminated.

In-service training programs have not been as successful as they might because of lack of teacher input. I am, therefore, seeking your expertise to help me determine the degree of interest and desirability of offering appropriate "helps" for trade and industrial instructors who might desire such assistance.

Please think back to when you first started as a teacher, and try to answer in terms of what would have been most helpful to you in your first teaching experience, or what might help you even now, and fill in the questionnaire accordingly. A trial run has indicated the average time is $8\frac{1}{2}$ minutes, with 6 minutes as the time to beat.

Your participation and assistance are very important to the success of the project, so I would appreciate very much, your interrupting your busy schedule to complete and return it to me in the self-addressed return envelope.

Thank you very much.

Very truly yours,

Herbert L. Howell

APPENDIX I

FOLLOW-UP LETTER

APPENDIX I

FOLLOW-UP LETTER

Jackson Community College

2111 EMMONS ROAD

● PHONE 517-787-0800

JACKSON, MICHIGAN 49201

Dear Mr.

Several weeks ago, you were sent an important questionnaire concerning a research study on part time and annual authorized teachers. You may recall the questions dealt with perceived training needs.

Administrators and institutions are often criticized for presenting programs that do not take into consideration the needs and wishes of educators, either full or part time. Perhaps at one time you too have voiced such criticism. If so, we are certain that you will want to assist us in this study. Without your support, our efforts will not be as successful as they could be with your cooperation.

We realize our request is an imposition on your time and this may have hit you at a bad time; however, we hope you too will feel the goal as being worth the effort.

Enclosed please find another questionnaire in case you have misplaced the first one.

Should this have crossed the return in the mail of the original we thank you.

Very truly yours,

Herbert L. Howell

APPENDIX J

**F SCORE AND SIGNIFICANCE OF EACH ITEM (7-57) OF
PERCEIVED COMPETENCIES OF INSTRUMENT BY
EDUCATION, BY YEARS OF WORK EXPERIENCE,
AND BY YEARS OF TEACHING EXPERIENCE**

APPENDIX J

F SCORE AND SIGNIFICANCE OF EACH ITEM (7-57) OF PERCEIVED COMPETENCIES OF INSTRUMENT BY EDUCATION, BY YEARS OF WORK EXPERIENCE, AND BY YEARS OF TEACHING EXPERIENCE

Table 36.--F score and significance of each item (7-57) of perceived competencies.

Item ^a	Education		Work Exp.		Teaching Exp.		Group Item Significance
	F	Signifi- cance of F	F	Signifi- cance of F	F	Signifi- cance of F	
A- 7	2.275	.082	.065	.7988	6.188	.0026*	$\frac{.05}{2} = .025$
A- 8	6.779	.0003*	.027	.8676	13.486	.00001*	
B- 9	1.599	.1928	.018	.8922	.968	.3825	$\frac{.05}{6} = .008$
B-10	2.214	.0897	1.459	.2291	3.129	.0470**	
B-11	6.303	.0005*	.276	.5997	7.211	.0010*	
B-12	8.244	.00005*	.190	.6635	5.113	.0072*	
B-13	2.564	.0567	.0006	.9804	1.714	.1841	
B-14	2.318	.0787	.654	.4201	2.417	.0931	
C-15	3.458	.0194**	.044	.8326	.980	.3787	$\frac{.05}{26} = .001$
C-16	1.286	.2836	.609	.4367	.213	.8078	
C-17	3.024	.0333**	.249	.6183	2.914	.0588	
C-18	2.847	.0416**	.002	.9598	2.587	.0802	
C-19	4.733	.0040**	.239	.6258	2.449	.0915	
C-20	3.600	.0162**	.869	.3532	2.052	.1337	
C-21	4.188	.0078**	.462	.4982	.332	.7178	
C-22	2.441	.0689	1.097	.2973	2.245	.1111	
C-23	4.544	.0050**	.017	.3954	1.745	.1798	
C-24	6.487	.0005*	.431	.5126	5.731	.0044**	
C-25	5.727	.0011*	1.337	.2502	6.752	.0017**	
C-26	4.810	.0036**	.369	.5445	8.940	.0002*	
C-27	3.421	.0203**	.007	.9314	3.674	.0288**	
C-28	1.539	.2091	.739	.3917	4.990	.0085**	
C-29	2.088	.1067	.001	.9685	4.862	.0096**	
C-30	1.140	.3366	.054	.8154	.982	.3778	
C-31	1.933	.1292	.102	.7490	4.530	.0130**	
C-32	1.563	.2031	.903	.3440	1.815	.1681	
C-33	3.779	.0129**	.475	.4919	3.639	.0298**	
C-34	4.104	.0086**	.469	.4946	2.022	.1377	
C-35	1.315	.2736	.451	.5030	1.111	.3331	
C-36	2.785	.0448**	.292	.5897	3.679	.0287**	

Table 36.--Continued.

Item ^a	Education		Work Exp.		Teaching Exp.		Group Item Significance
	F	Significance of F	F	Significance of F	F	Significance of F	
C-37	3.705	.0142**	2.003	.1599	4.175	.0181**	
C-38	2.404	.0721	3.746	.0556	4.240	.0170**	
C-39	.626	.5995	.099	.7534	1.014	.3663	
C-40	2.120	.1026	.007	.9293	5.368	.0061**	
C-41	.948	.4203	1.069	.3035	1.041	.3568	
D-42	1.312	.2730	.007	.9292	1.950	.0598	$\frac{.05}{3} = .016$
D-43	.884	.4509	.803	.3716	2.242	.0286**	
D-44	2.176	.0938	.927	.3373	6.468	.00001*	
E-45	2.635	.0528**	.870	.3525	1.971	.1435	$\frac{.05}{5} = .010$
E-46	1.780	.1546	.597	.4409	1.793	.1706	
E-47	1.668	.1774	.369	.5444	2.743	.0682	
E-48	1.289	.2810	.245	.6208	.590	.5553	
E-49	1.992	.1188	.0142	.9052	.256	.7741	
F-50	NA ^b	NA	NA	NA	NA	NA	.05
G-51	NA	NA	NA	NA	NA	NA	.05
H-52	NA	NA	NA	NA	NA	NA	.05
I-53	1.162	.3070	1.076	.3014	.924	.3995	$\frac{.05}{5} = .01$
I-54	2.898	.0379**	.027	.8688	.493	.6119	
I-55	3.317	.0223**	.534	.4662	.917	.4022	
I-56	2.895	.0381**	.085	.7702	.771	.4646	
I-57	4.826	.0033*	.374	.5419	.002	.9976	

*Group significant.

**Individual significant.

^aRefer to Appendix D for specific competency statement.^bNA = Individual item category ∴ No manova.

APPENDIX K

TABLE OF MEANS OF ITEMS (7-57) BY EDUCATION LEVEL

APPENDIX K

TABLE OF MEANS OF ITEMS (7-57) BY EDUCATION LEVEL

Table 37.--Means of items as affected by variable education.

Item ^a	Skill Center				Community College			
	High School	Associate Degree	B.A.	M.A. & Beyond	High School	Associate Degree	B.A.	M.A. & Beyond
A- 7	1.909	1.941	2.000	1.750	2.153	2.000	2.394	1.962
A- 8	1.909	1.882	1.857	1.250	1.923	2.000	2.184	1.444
B- 9	1.727	1.882	1.833	1.600	1.769	2.100	2.257	1.964
B-10	2.181	2.000	2.000	1.600	2.307	2.550	2.257	2.000
B-11	1.909	1.941	1.666	1.200	2.230	2.000	1.971	1.535
B-12	2.090	1.941	1.833	1.200	2.230	2.050	2.000	1.428
B-13	2.000	2.000	2.166	2.000	2.307	2.350	2.085	1.714
B-14	1.909	1.823	2.500	1.800	2.307	2.150	2.171	1.785
C-15	1.800	2.076	2.000	1.500	2.555	2.000	2.214	1.636
C-16	2.600	2.692	2.750	2.000	2.222	2.235	2.357	1.954
C-17	2.900	2.692	3.000	2.000	2.111	2.411	2.714	2.045
C-18	2.200	2.230	2.000	1.500	1.888	2.117	2.535	2.000
C-19	2.400	2.307	2.250	1.500	2.111	2.176	2.678	1.818
C-20	2.100	2.076	2.500	1.500	2.111	2.117	2.428	1.818
C-21	1.600	1.538	2.000	1.000	2.111	1.941	2.142	1.454
C-22	1.800	1.846	2.250	2.500	1.777	1.941	2.142	1.636
C-23	2.600	2.076	2.250	2.000	2.222	2.411	2.178	1.590
C-24	2.100	1.615	2.000	2.000	2.000	2.000	2.000	1.272
C-25	2.100	1.615	1.750	2.500	2.000	2.000	2.107	1.318
C-26	2.300	1.769	1.750	2.500	1.888	2.000	2.071	1.404
C-27	2.300	2.076	1.750	2.500	2.333	2.176	2.571	1.818
C-28	2.300	1.923	2.250	3.000	2.000	2.117	2.464	1.909

Table 37.--Continued.

Item ^a	Skill Center				Community College			
	High School	Associate Degree	B.A.	M.A. & Beyond	High School	Associate Degree	B.A.	M.A. & Beyond
C-29	2.200	1.846	1.750	2.500	2.000	1.882	2.107	1.545
C-30	1.800	1.115	1.500	2.500	2.111	2.000	1.857	1.500
C-31	1.800	1.846	1.750	3.000	2.111	1.941	1.857	1.409
C-32	2.000	2.158	2.250	2.500	1.888	2.176	2.142	1.727
C-33	2.500	2.076	3.000	3.500	2.444	2.588	2.928	2.136
C-34	2.200	2.230	2.250	3.000	2.555	2.529	2.392	1.681
C-35	2.300	2.000	2.000	2.500	2.222	1.941	1.928	1.590
C-36	2.200	2.000	2.250	2.500	2.222	2.058	1.857	1.404
C-37	2.200	1.692	2.000	2.500	2.222	1.882	1.857	1.363
C-38	2.200	1.692	2.000	2.500	2.111	1.882	1.892	1.454
C-39	2.300	1.923	2.250	2.500	2.111	2.235	2.214	1.909
C-40	2.400	2.076	2.500	3.000	2.222	2.470	2.571	2.000
C-41	2.200	1.923	2.000	2.500	1.888	1.823	2.000	1.590
D-42	2.181	2.058	2.142	2.200	2.357	2.285	2.305	1.892
D-43	2.090	2.000	2.285	1.800	2.142	2.190	2.138	1.892
D-44	2.363	2.000	2.428	2.600	2.142	2.571	2.472	1.928
D-45---H-52	Not Printed							
I-53	2.400	1.823	2.142	2.500	1.900	1.705	1.628	1.703
I-54	2.300	1.764	2.428	2.500	2.300	2.529	2.171	1.703
I-55	2.100	1.941	2.285	2.500	2.400	2.235	2.114	1.555
I-56	2.200	1.882	1.857	2.500	2.100	2.352	1.885	1.555
H-57	1.800	1.588	1.857	1.500	2.000	1.882	1.971	1.370

^aRefer to Appendix D for specific competency statement.

APPENDIX L

**TABLE OF MEANS OF ITEMS (7-57) AS AFFECTED BY
VARIABLE YEARS OF WORK EXPERIENCE**

APPENDIX L

TABLE OF MEANS OF ITEMS (7-57) AS AFFECTED BY VARIABLE YEARS OF WORK EXPERIENCE

Table 38.--Means of items as affected by variable years work experience.

Item ^a	Skill Center		Community College	
	5 or Less Years Work	6 or More Years Work	5 or Less Years Work	6 or More Years Work
A- 7	1.700	1.967	2.189	2.145
A- 8	1.700	1.838	1.918	1.903
B- 9	1.800	1.800	2.088	2.063
B-10	1.900	2.000	2.117	2.317
B-11	1.600	1.833	1.882	1.888
B-12	1.700	1.900	1.970	1.825
B-13	1.900	2.033	2.088	2.047
B-14	1.900	1.933	2.176	2.015
C-15	2.000	1.909	2.000	2.068
C-16	2.428	2.681	2.151	2.250
C-17	2.714	2.772	2.333	2.431
C-18	2.142	2.136	2.212	2.204
C-19	2.142	2.318	2.212	2.272
C-20	2.142	2.090	2.030	2.227
C-21	1.285	1.681	1.878	1.909
C-22	1.714	2.000	1.848	1.954
C-23	1.857	2.409	2.151	2.022
C-24	1.428	2.000	1.818	1.772
C-25	1.428	2.000	1.818	1.863
C-26	1.714	2.090	1.848	1.840
C-27	1.857	2.227	2.303	2.181
C-28	2.571	2.045	2.212	2.159
C-29	1.714	2.090	1.939	1.840
C-30	1.571	1.772	1.878	1.772
C-31	1.857	1.909	1.818	1.750
C-32	2.142	2.136	1.909	2.090
C-33	2.428	2.454	2.484	2.636
C-34	2.000	2.363	2.212	2.250
C-35	1.571	2.318	1.909	1.840
C-36	1.571	2.318	1.878	1.772
C-37	1.714	2.045	1.666	1.840
C-38	1.714	2.045	1.636	1.909
C-39	2.000	2.181	2.181	2.068

Table 38.--Continued.

Item ^a	Skill Center		Community College	
	5 or Less Years Work	6 or More Years Work	5 or Less Years Work	6 or More Years Work
C-40	1.857	2.454	2.424	2.272
C-41	1.571	2.227	1.818	1.840
D-42	1.800	2.218	2.297	2.142
D-43	2.000	2.000	2.189	2.115
D-44	2.000	2.312	2.243	2.317
E-45	2.111	2.322	2.514	2.607
E-46	1.888	1.903	2.028	1.875
E-47	2.222	2.129	2.314	2.232
E-48	1.333	1.935	2.257	1.964
E-49	1.333	1.806	2.200	2.071
F-50	NA	NA	NA	NA
G-51	NA	NA	NA	NA
H-52	NA	NA	NA	NA
I-53	2.111	2.064	1.818	1.631
I-54	2.000	2.096	2.151	2.087
I-55	2.111	2.096	1.909	2.052
I-56	2.111	2.000	1.909	1.894
I-57	1.555	1.709	1.878	1.719

^aRefer to Appendix D for specific competency statement.

APPENDIX M

TABLE OF MEANS OF ITEMS (7-57) AS AFFECTED BY YEARS OF TEACHING EXPERIENCE

APPENDIX M

TABLE OF MEANS OF ITEMS (7-57) AS AFFECTED BY YEARS OF TEACHING EXPERIENCE

Table 39.--Means of items as affected by years teaching experience.

Item ^a	Skill Center			Community College		
	3 or Less Years Teaching	4-5 Years Teaching	6 or More Years Teaching	3 or Less Years Teaching	4-5 Years Teaching	6 or More Years Teaching
A- 7	2.333	1.923	1.772	2.432	2.033	1.968
B- 8	2.333	1.846	1.636	2.324	1.700	1.625
B- 9	1.714	1.846	.800	2.184	1.862	2.103
B-10	2.142	2.153	1.800	2.473	2.068	2.103
B-11	2.000	1.769	1.700	2.184	1.655	1.724
B-12	2.142	1.846	1.750	2.105	1.862	1.586
B-13	2.285	2.153	1.800	2.184	2.000	1.965
B-14	2.428	2.000	1.700	2.184	2.034	1.965
C-15	2.000	1.600	2.142	2.192	2.000	1.920
C-16	2.600	2.400	2.785	2.307	2.230	2.080
C-17	2.000	2.800	2.785	2.769	2.307	2.080
C-18	2.000	1.800	2.428	2.461	2.076	2.080
C-19	2.000	2.100	2.500	2.615	2.076	2.040
C-20	2.400	1.800	2.214	2.346	2.076	2.000
C-21	1.000	1.600	1.571	2.000	1.884	1.800
C-22	2.200	1.900	1.857	2.076	1.692	1.960
C-23	2.600	1.900	2.428	2.269	2.115	1.840
C-24	2.400	1.700	1.785	2.038	1.846	1.480
C-25	2.200	1.700	1.857	2.192	1.807	1.520
C-26	2.400	1.900	1.928	2.192	1.769	1.560
C-27	2.400	1.900	2.214	2.538	2.153	2.000
C-28	2.800	1.800	2.214	2.538	2.000	2.000
C-29	2.600	1.900	1.857	2.153	1.807	1.680
C-30	2.200	1.500	1.714	1.923	1.846	1.680
C-31	2.600	1.700	1.785	1.961	1.767	1.600
C-32	2.800	1.800	2.142	2.115	1.961	1.960
C-33	3.000	1.900	2.642	2.846	2.461	2.400
C-34	2.800	1.800	2.428	2.384	2.192	2.120
C-35	2.400	2.200	2.000	2.038	1.730	1.840
C-36	2.600	2.100	2.000	2.038	1.846	1.560
C-37	2.400	1.900	1.857	2.038	1.692	1.560
C-38	2.600	1.800	1.857	2.038	1.653	1.680
C-39	2.800	1.900	2.071	2.153	2.038	2.160

Table 39.--Continued.

Item ^a	Skill Center			Community College		
	3 or Less Years Teaching	4-5 Years Teaching	6 or More Years Teaching	3 or Less Years Teaching	4-5 Years Teaching	6 or More Years Teaching
C-40	3.000	2.000	2.285	2.576	2.115	2.320
C-41	2.400	1.900	2.071	1.961	1.846	1.680
D-42	2.571	2.000	2.045	2.384	2.103	2.032
D-43	2.857	1.923	1.772	2.205	2.000	1.967
D-44	2.857	2.000	2.181	2.666	2.172	1.903
E-45	2.800	2.000	2.318	2.666	2.481	2.518
E-46	2.200	1.615	2.000	2.083	1.851	1.814
E-47	2.800	1.923	2.136	2.416	2.259	2.074
E-48	1.800	1.846	1.772	2.166	2.074	1.925
E-49	1.800	1.615	1.727	2.194	2.111	2.037
F-50	NA	NA	NA	NA	NA	NA
G-51	NA	NA	NA	NA	NA	NA
H-52	NA	NA	NA	NA	NA	NA
I-53	2.428	2.083	1.952	1.735	1.576	1.758
I-54	2.571	1.196	2.000	2.294	2.038	1.165
I-55	2.714	1.916	2.000	2.176	1.884	1.896
I-56	2.285	1.833	2.047	1.941	1.923	1.827
I-57	2.000	1.666	1.571	2.000	1.692	1.586

^aRefer to Appendix D for specific competency statement.

APPENDIX N

COMPARISON CHART BY ITEM (7-57) OF FELT COMPETENCIES

APPENDIX N

COMPARISON CHART BY ITEM (7-57) OF FELT COMPETENCIES

Table 40.--Comparison chart by item of felt competencies.

Item ^a	Skill Center	Comm. College	Feel Competent			Have or Have Not Had Instruction				Need Help		Have or Have Not Had Instruction			
			No. Respondents	Competent	Percent	Have Had Instruction	Percent	No Instruction	Percent	Need Help	Percent	Have Had Instruction	Percent	No Instruction	Percent
A- 7	X	X	42 97	36 70	86 72	31 50	74 52	5 20	12 21	6 27	14 28	3 7	7 7	3 20	7 21
A- 8	X	X	41 100	34 84	83 84	29 53	71 53	5 31	13 31	7 16	17 16	2 5	5 5	5 11	12 11
B- 9	X	X	42 102	37 74	88 73	22 40	52 39	15 34	36 33	5 28	12 28	1 6	2 6	4 22	10 22
B-10	X	X	42 101	33 62	79 61	27 36	64 36	6 26	14 26	9 39	21 39	4 15	10 15	5 24	12 24
B-11	X	X	42 101	37 89	88 88	31 51	74 51	6 38	14 38	5 12	12 12	1 4	2 4	4 8	10 8
B-12	X	X	40 101	33 88	83 87	27 49	68 49	6 39	15 39	7 13	18 13	1 2	3 2	6 11	15 11
B-13	X	X	42 100	32 74	76 74	20 39	48 39	12 35	29 35	10 26	24 26	2 10	5 10	8 16	19 16
B-14	X	X	41 99	34 76	83 77	26 46	63 47	8 30	20 30	7 23	17 23	1 8	2 8	6 15	15 15
C-15	X	X	41 98	34 73	83 75	13 33	32 34	21 40	51 41	7 25	17 26	2 5	5 5	5 20	12 20
C-16	X	X	42 99	20 67	48 68	12 35	29 35	8 32	19 32	22 32	52 32	4 3	10 3	18 29	43 29
C-17	X	X	38 96	13 53	34 55	7 25	18 26	6 28	16 29	25 43	66 45	4 6	10.5 6	21 37	55 38
C-18	X	X	41 92	29 62	71 67	14 27	34 29	15 35	37 38	12 30	29 33	1 4	2 4	11 26	27 28
C-19	X	X	41 101	26 64	63 63	14 31	34 30	12 33	29 33	15 37	37 37	1 8	2 8	14 29	34 29
C-20	X	X	42 100	35 77	83 77	22 34	52 34	13 43	31 43	7 23	17 23	2 7	5 7	5 16	12 16
C-21	X	X	42 97	38 79	91 81	27 46	64 47	11 33	26 34	4 18	10 19	1 5	2 5	3 13	7 13
C-22	No Data														

Table 40.--Continued.

Item ^a	Skill Center	Comm. College	Feel Competent			Have or Have Not Had Instruction				Need Help		Have or Have Not Had Instruction		
			No. Respondents	Competent	Percent	Have Had Instruction	Percent	No Instruction	Percent	Need Help	Percent	Have Had Instruction	Percent	No Instruction
C-23	X	X	40	25	63	18	45	7	18	15	38	3	8	12
			92	65	71	39	42	26	28	27	29	7	8	20
C-24	X	X	42	36	86	28	67	8	19	6	14	1	2	5
			97	87	90	54	56	33	34	10	10	4	4	6
C-25	X	X	42	36	86	28	67	8	19	6	14	2	5	4
			96	87	91	51	53	36	38	9	9	6	6	3
C-26	X	X	42	35	83	23	55	12	29	7	17	4	10	3
			98	87	89	47	48	40	41	11	11	3	3	8
C-27	X	X	41	33	81	17	42	16	39	8	19	5	12	3
			95	62	65	38	40	34	25	33	35	85	8	25
C-28	X	X	42	29	69	17	41	12	29	13	31	4	10	9
			96	61	64	32	33	29	30	35	37	5	5	30
C-29	X	X	41	34	83	24	59	10	24	7	17	2	5	5
			98	83	85	51	52	32	33	15	15	6	6	9
C-30	X	X	42	38	91	28	67	10	24	4	10	2	5	2
			96	78	81	48	50	30	31	18	18	3	3	15
C-31	X	X	42	37	88	22	52	15	35	5	12	2	5	3
			97	89	92	51	53	38	39	8	8	5	5	3
C-32	X	X	42	34	81	21	50	13	31	8	19	4	10	4
			96	75	78	41	43	34	35	21	22	7	7	14
C-33	X	X	40	25	63	9	23	16	40	15	38	5	13	10
			93	36	39	19	20	17	18	57	61	5	5	52
C-34	X	X	39	28	72	12	31	16	41	11	28	4	10	7
			94	61	65	24	26	37	39	33	35	7	7	26
C-35	X	X	39	31	80	25	64	6	15	8	21	2	5	6
			97	82	85	47	49	35	36	15	15	5	5	10
C-36	X	X	42	32	76	26	62	6	14	10	24	3	7	7
			97	83	86	55	57	28	29	14	14	3	3	11
C-37	X	X	42	37	88	27	64	10	24	5	12	2	5	3
			98	85	87	57	58	28	29	13	13	6	6	7
C-38	X	X	41	35	85	27	66	8	20	6	15	2	5	4
			97	84	87	54	56	30	31	13	13	5	5	8
C-39	X	X	40	30	75	25	63	5	13	10	25	3	8	7
			96	72	75	38	40	34	35	24	25	5	5	19
C-40	X	X	40	25	63	18	45	7	18	15	38	2	5	13
			94	57	61	26	28	31	33	37	39	7	7	30

Table 40.--Continued.

Item ^a	Skill Center	Comm. College	Feel Competent			Have or Have Not Had Instruction				Need Help		Have or Have Not Had Instruction			
			No. Respondents	Competent	Percent	Have Had Instruction	Percent	No Instruction	Percent	Need Help	Percent	Have Had Instruction	Percent	No Instruction	Percent
C-41	X		41	31	76	23	56	8	19	10	24	2	5	8	20
		X	98	86	88	52	53	34	35	12	12	5	5	7	7
D-42	X		41	32	78	23	56	9	22	9	22	3	7	6	15
		X	98	63	64	35	35	28	28	35	36	3	3	32	33
D-43	X		41	32	78	19	46	13	31	9	20	2	5	7	17
		X	100	75	75	40	40	35	35	25	25	6	6	19	19
D-44	X		41	28	68	16	39	12	29	13	31	16	15	7	17
		X	100	61	61	38	38	23	23	39	39	7	7	32	32
E-45	X		40	26	65	13	33	13	33	14	35	4	10	10	25
		X	95	45	47	22	23	23	24	50	53	10	10	40	42
E-46	X		41	35	85	25	61	10	24	6	15	4	10	2	5
		X	93	75	81	48	52	27	29	18	19	6	7	12	13
E-47	X		41	28	68	13	32	15	37	13	32	7	17	6	15
		X	95	62	65	38	40	24	25	33	35	7	7	26	27
E-48	X		41	36	88	25	61	2	27	5	12	1	2	4	10
		X	96	66	69	42	44	24	25	30	31	3	3	27	28
E-49	X		41	38	93	24	59	15	34	3	7	1	2	2	5
		X	95	65	68	40	42	25	26	30	32	4	4	26	27
F-50	X		41	29	71	15	37	14	34	12	29	7	17	5	12
		X	97	60	62	29	30	32	32	37	38	6	6	31	32
G-51	X		39	31	80	16	41	15	39	8	21	3	8	5	13
		X	90	54	60	26	29	28	31	36	40	2	2	34	38
H-52	X		40	28	70	15	38	13	32	12	30	2	5	10	25
		X	89	42	47	13	14	29	32	47	53	7	8	40	45
I-53	X		39	29	74	19	49	10	26	10	26	7	18	3	8
		X	98	83	85	57	58	26	26	15	15	7	7	8	8
I-54	X		37	28	76	14	38	14	38	9	24	2	5	7	18
		X	90	65	72	33	37	32	36	25	28	4	4	21	23
I-55	X		38	30	79	16	42	14	36	8	21	2	5	6	16
		X	90	68	76	38	42	30	33	22	24	5	6	17	19
I-56	X		38	31	82	14	37	17	45	7	18	2	5	5	13
		X	93	79	85	44	47	35	38	14	15	4	4	10	11
I-57	X		38	34	90	17	45	17	45	4	11	2	5	2	5
		X	93	80	86	43	46	37	40	13	14	5	5	8	9

Note: Imbalance of items to 100% because of rounding off decimals.

^aRefer to Appendix D for specific competency statement.

APPENDIX O

**CHECK LIST OF ITEMS WHERE BOTH TEACHER GROUPS
SHOULD BE SEPARATED, OR MAY BE COMBINED
FOR TRAINING PURPOSES**

APPENDIX O

CHECK LIST OF ITEMS WHERE BOTH TEACHER GROUPS SHOULD BE SEPARATED, OR MAY BE COMBINED FOR TRAINING PURPOSES

Table 41.--Check list of items where both teacher groups may be combined, and where the two teacher groups should be separated, for training purposes.

Item #	Title	Compat-ible	Sepa-rate
A- 7	Develop vocational education program goals and objectives		X
A- 8	Develop a course of study		X
B- 9	Determine needs and interests of students	X	
B-10	Develop student performance objectives		X
B-11	Plan a unit of instruction		X
B-12	Write a lesson plan		X
B-13	Select & obtain student instructional materials	X	
B-14	Prepare teacher-made instructional materials	X	
C-15	Direct individual & group field trips		X
C-16	Conduct group discussions, panel discussions & symposiums		X
C-17	Simulate learning through brain storming, buzz group, & question box techniques		X
C-18	Direct students in instructing other students		X
C-19	Employ simulation techniques		X
C-20	Direct student study		X
C-21	Direct student laboratory experience		X
C-22	Direct student in applying problem-solving techniques	X	
C-23	Direct the project method		X
C-24	Introduce a lesson		X
C-25	Summarize a lesson		X
C-26	Employ oral questioning techniques		X
C-27	Employ reinforcement techniques		X
C-28	Provide instruction for lower & more capable students	X	
C-29	Present information through an illustrated talk	X	
C-30	Demonstrate a manipulative skill	X	
C-31	Demonstrate a concept or principle		X
C-32	Direct individualized instruction	X	
C-33	Conduct team teaching		X
C-34	Present information using subject matter expert		X

Table 41.--Continued.

Item #	Title	Compat-ible	Sepa-rate
C-35	Illustrate with models, real objects, & flannel boards	X	
C-36	Present information with overhead & opaque materials		X
C-37	Present information with filmstrips & slides		X
C-38	Present information with films	X	
C-39	Present information with audio recordings	X	
C-40	Direct programmed instruction	X	
C-41	Present information with the chalkboard & flip chart	X	
D-42	Establish criteria for student performance in vocational education programs	X	
D-43	Determine student grades in a vocational program		X
D-44	Evaluate instructional effectiveness		X
E-45	Project instructional resource needs		X
E-46	Provide for the safety needs of students	X	
E-47	Assist students in developing self-discipline	X	
E-48	Organize the vocational laboratory	X	
E-49	Manage & maintain the vocational laboratory		X
F-50	Provide information on educational & career opportunities	X	
G-51	Cooperate with state & local educators	X	
H-52	Prepare students for leadership roles in the student vocational organization	X	
I-53	Keep up-to-date in your professional & in your occupational specialty		X
I-54	Serve your teaching profession		X
I-55	Establish & maintain a professional philosophy of education		X
I-56	Serve the school & community		X
I-57	Select, obtain, & maintain a teaching position in keeping with your professional qualifications		X

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