This is to certify that the

thesis entitled
AN INVESTIGATION OF THE LOCATION, AVAILABILITY, AND USE OF AGENCY TRAINING PROGRAMS IN INDUSTRIAL EDUCATION

presented by

David Lickteig

has been accepted towards fulfillment
of the requirements for

Ed.D. degree in Education

Major professor

Date 8-5-80

AN INVESTIGATION OF THE LOCATION, AVAILABILITY, AND USE OF AGENCY TRAINING PROGRAMS IN INDUSTRIAL EDUCATION

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A DISSERTATION

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

DOCTOR OF EDUCATION

Department of Secondary Education and Curriculum

1980

ABSTRACT

AN INVESTIGATION OF THE LOCATION, AVAILABILITY, AND USE OF AGENCY TRAINING PROGRAMS IN INDUSTRIAL EDUCATION

By

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Attempts to improve the quality of instruction through the use of individualized learning systems have been a significant focus of American education in recent years. Individualized learning systems permit students to pursue educational goals in a manner that is most conducive to their specific needs and abilities. Several variations of this approach have been used by educators in an effort to increase the options for each student to realize his or her individual potential. One such variation has been the use of educational experiences external to the traditional school environment, which for this study were identified as agency training programs.

The problem, however, becomes: How are college and university Industrial Education departments to access such agency training programs and how might they best be used in Industrial Education? Thus the purpose of this study was two-fold. First, it attempted to identify the types of agency training programs currently available. Second, the study attempted to determine the manner in which agency training programs might be used by teaching and nonteaching degree programs of Industrial Education.

Two research instruments were used to conduct the study. A telephone survey of randomly selected Michigan businesses and industries was conducted using focused, semi-stratified questions with open-ended alternated questions. One hundred percent of the sample was contacted. A mailed grid matrix questionnaire was sent to 77 Industrial Education department heads. Fifty-six department heads completed the questionnaire (73%).

Two general hypotheses were formulated, from which a series of research questions were generated.

Hypothesis I: Agency training programs that can be located and identified are available.

Hypothesis II: Industrial Education personnel who deem agency training programs as appropriate educational experiences for Industrial Education programs can be located and identified.

The investigation yielded the following results with an error tolerance factor of .10.

1. Businesses and industries offered agency training programs for use in Industrial Education programs. Seventeen of the 112 Michigan businesses and industries surveyed had some type of agency training program available.

2. Agency training programs occurred in five homogeneous categories: technical sales training, technical training for production, management seminars, proprietary schools, open short courses and seminars.

3. Some Industrial Education department heads were currently using agency training programs. Depending upon the category, from 3 to 13 percent of the department heads responding were using agency training programs in some form.

4. A number (about one-third of the respondents) felt that the use of agency training programs was appropriate for Industrial Education but were not currently using them.

5. Department heads rejecting the use of agency training programs did so at a higher rate for teacher education areas than they did for nonteaching areas.

6. Technical training for production and open short courses and seminars were the most frequently used agency training programs.

7. Little difference was noted between the number of semester credits allowed for teacher education versus nonteaching programs. The range through the various categories was 2.3 to 8.1 semester hours when averaged.

To Sweetpea

ACKNOWLEDGMENTS

To my parents, Helen and Ted, who allowed me, through their guidance, to acquire the insight, stubbornness, and independence needed to accomplish a task.

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THE PROBLEM AND BACKGROUND INFORMATION

Attempts to improve the quality of instruction through the use of individualized learning systems have been a significant focus of American education in recent years. Individualized learning systems permit students to pursue educational goals in a manner that is most conducive to their specific needs and abilities. Several variations of this approach have been used by educators in an effort to increase the options for each student to realize his or her individual potential. One such variation has been the use of educational experiences external to the traditional school environment, which for this study were identified as agency training programs.

The Educational Testing Service has reported the use of some individualized programs outside the traditional school setting.[1] The 1972 Educational Testing Service report indicated that some innovative colleges and universities have accepted this type of learning experience for college credit in degree-granting programs. The ETS report also delineated various possibilities for external learning experiences, such as internships, field study, and apprenticeships.

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[1] U.S., Department of Health, Education, and Welfare, Increasing the Options. Recent Developments in College and University Degree Programs, by John R. Valley. Education Resources Information Center (Princeton, N.J.: Educational Testing Service, 1972).

In addition, the report specifically mentioned the learning experiences available from business and industry, which the report labeled as "agency training programs."[2]

This type of learning experience permits the student to enroll in training programs offered by both public and private agencies in the local community and to receive academic credit for such training. Such a procedure also permits the school system to expand its curriculum at minimal cost, since it uses already existing facilities.

The Problem

The problem becomes how colleges and university Industrial Education departments are most easily to access such training programs and how the programs might best be used in Industrial Education programs. Given that such agency training programs have been available from business and industry for some time, it becomes necessary to consider the possible reasons why post-secondary educators have not as yet taken optimal advantage of this educational resource to enrich their program offerings. This is especially true for those educators in the area of Industrial Education, who conceivably might benefit most from such programs, as the agency training programs offered by business and industry are designed to provide the knowledge and skills necessary for competence in the highly specialized fields of Industrial Education.

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[2]Ibid., p. 23.

Although it was beyond the scope of this study to examine all the possible reasons for the limited use of agency training programs for Industrial Education personnel, it was the assumption of the researcher that agency training programs have not been used by Industrial Education personnel because of a lack of information. The lack of information often constitutes a major obstacle in the adoption of an innovative practice. Everett Rogers supported this observation in his work Diffusion of Innovations.[3]

Two important considerations must be made by Industrial Education personnel before they can access an alternative learning system such as agency training programs: (1) they must determine the degree of availability of such programs in terms of geography, type, and size; and (2) they must determine the extent to which agency training programs can be used in a college-level degree-granting curriculum. This study is an attempt to provide the information necessary to make these two considerations.

It is not that educators have been unaware of the educational offerings of business and industry nor of the potential use for such fields as Industrial Education. For some time, Industrial Education personnel, in particular, have been sensitive to the possibility of using the training programs sponsored by business and industry as instructional vehicles for their programs. Each of the three specialized areas of Industrial Education, namely Industrial Arts, Vocational Trade and Industrial Education, and Technical Education, has expressed

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[3]Everett Rogers, Diffusion of Innovations (New York: The Free Press of Glencoe, 1962).

an interest in the potential use of agency training programs. However, it has not been easy for Industrial Education personnel to access the company systems.

Philosophical Background

Given the recent focus in education with its emphasis on meeting the individual needs of the student, educators are challenged to develop alternative methods of instruction. They seek to tailor instructional methods to fit two important tasks of education: (1) to enable the student to realize his or her individual potential and (2) to provide the knowledge and skills necessary for a smooth transition into the adult society of which the student is expected to become an integral part.

The dual focus of the educational process calls for multiple approaches to meet the needs of students. One approach is to consider various social organizations as potential educational resources. These organizations, such as business and industry, often provide training experiences that are educational in nature but conducted external to the traditional classroom setting. Might not such agency training programs function as viable educational experiences, especially for those enrolled in the Industrial Education curriculums?

In an effort to examine this possibility, it is first necessary to survey the historical and philosophical precedents for the use of educational experiences external to the traditional classroom setting. A survey of educational theories will provide a philosophical basis for the use of educational experiences that are conducted outside the confines of the school environment.

An exploration of educational history indicates the nature of the practical application such theories have realized. Together, the philosophical and historical background provided should supply the theoretical support necessary for the idea proposed by this study--namely, that agency training programs might provide an additional resource for Industrial Education curriculums, a resource that is both economically feasible and educationally beneficial.

Progressive Education Movement

The use of community resources as educational activities, including those that are conducted outside the confines of the traditional school environment, is a practice initiated by educators who favored an experimental approach to education. An innovative approach to the problems of providing an equal educational opportunity for all evolved as a basic tenet of the progressive education movement.[4]

This movement signified a shift of emphasis in American education. Whereas before the mid-1800s the educational system closely paralleled the elitist-based European system, which stressed the intrinsic value of knowledge, the progressive education movement signaled a "shift of emphasis from subject matter to the child."[5] The change of emphasis generated greater experimentation on the part

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[4]Patricia Albjerg Graham, Progressive Education: From Arcady to Academe (New York: Teachers College Press, 1967), p. 13.

[5]Charles C. Chandler and Carl H. Gross, The History of American Education Through Readings (Boston: D. C. Heath and Co., 1964), p. 200.

of educators who began to seek novel answers to the questions posed by the new perspective.

The focus of such experimentation necessarily had its roots in a broader philosophical base. Educators were challenged to reevaluate their beliefs concerning the nature of childhood and its inherent developmental needs, the purpose of education, and how the educational system might address those needs.

Dewey, Washburne, and Rugg

Dewey, Washburne, and Rugg were leaders in the progressive education movement, and each supported a methodology to be found in contemporary education systems. Although the three agreed that the emphasis in education should center on the needs of the learner rather than on subject matter, they differed greatly with respect to their interpretations of the learner's needs and how education might best be designed to meet those needs.

John Dewey, the acknowledged "prophet and elder statesman" of the progressive movement, viewed the school as "primarily a social institution."[6] Thus he supported the integration of education with community activities. Since, according to Dewey, one primary function of education is to facilitate the integration of the child into adult society, he advocated the use of community resources by the school as an effective and efficient method of preparing the student for entrance into the larger social community. The implementation of this idea allowed schools to expand their curriculum to include

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[6]Graham, p. 10.

learning activities that promoted the active participation of the student in the learning process as well as providing him/her with an experience-based education.[7]

Not all of those involved in the evolution of the progressive education movement agreed with Dewey's emphasis on the interrelationship of the school and the community. Washburne, for example, preferred to focus on the learning process itself.[8] While serving as the administrator for the Illinois school system at Winnetka, Washburne explored the possibility of tailoring instructional methods to fit the individual needs of students.

Under the Winnetka Plan, later to be identified with Washburne, individualized instruction gained the partial acceptance of the educational community as an alternate method of instruction. This method of instruction recognized that the child's needs and abilities should function as a determining factor in the pace and style of instruction.

Although Washburne's approach to education had its philosophical origins in the works of John Stuart Mills,[9] which stressed the "sovereignty of the individual," he later conceded that education should also further the principles of democracy.[10] Such an acknowledgment more closely aligned him to Dewey's position that the schools

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[7]John Dewey and Evelyn Dewey, Schools of Tomorrow (New York: E. P. Dutton and Co., 1962).

[8]Graham, p. 10.

[9]Roger J. Havighurst, ed., Leaders in American Education, Pt. 2 (Chicago: University of Chicago Press, for the National Society for the Study of Education, 1971), p. 459.

[10]Graham, p. 109.

should offer an experience-based education that allowed for the full development of individual potential. In doing so, the school also prepared the student to function in the broader social community of which the school was but a microcosm.

Another facet of the progressive education movement directed its attention to the child involved in the educational process. The child-centered approach, supported by Harold Rugg, explored the natural development of the child. This approach suggested that the educational experience should be one of drawing out the innate potential of the individual rather than the molding and shaping of the individual to conform to the dictates of society, as was the case in the traditional approach to education.[11] Child-centered education adhered to Dewey's principles of experience-based education and active versus passive learning techniques. Despite his greater emphasis on the creative capacities of the individual, Rugg was also in agreement with Dewey and others in the movement who voiced a concern for a more effective and organic relationship between school and society.[12]

Seven Principles of Progressive Education

One important result emerged from the controversy that characterized the early stages of development of the progressive education movement. In 1920, the Progressive Education Association adopted a list of seven principles that delineated the basic fundamentals of

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[11] Harold Rugg and Ann Shumaker, The Child-Centered School (New York: World Book Co., 1928).

[12] Chandler and Gross, p. 340.

progressive education. Although the generality of the statement was instrumental in promoting the acceptance of these principles by all factions of the movement, it also elicited reservations on the part of many. Nonetheless, all chose to support the document as it exemplified the freedom characteristic of the movement. The first item, "Freedom to develop naturally," reflected the attitude of the movement toward itself as well as expressing the Association's aim in education. Other goals expressed included:

2. Interest, the motive of all work
3. The teacher a guide, not a taskmaster
4. Scientific study of pupil development
5. Greater attention to all that affects the child's physical development
6. Co-operation between school and home to meet the needs of child-life
7. The progressive school--a leader in educational movements[12]

Although the document supported no specific doctrine of any of the leaders of the movement, influences of each can be seen, particularly in the first four principles listed. Although each leader of the movement mentioned in this study--Dewey, Washburne, and Rugg--might well interpret the developmental freedom stated in Item 1 differently, each could also find support for his position. The only limitation imposed on the child's freedom to develop naturally--his responsibility to society--reflects Dewey's emphasis on the socialization idea of education. He might also find support for his idea of an expanded curriculum, one that allows the student to follow his natural inclinations in terms of vocation, thereby preparing him to become an effective member of society.

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[12]Graham, pp. 29-30.

Washburne could justify the use of individualized instruction as a learning technique that permits the student to learn in a style in accordance with his nature in terms of time and method of instruction. Rugg might suggest that the child-centered school provides the optimal environment for the natural development of the child with its lack of physical restraints and its positive attitude toward enhancing emotional awareness and encouraging intellectual curiosity.

It is the assertion of this study that the developmental freedom sanctioned by the stated principles of progressive education could be logically extended. This extension could include the notion that the learner should be able to take advantage of situations in which learning is most accessible, whether the educational opportunity exists within the traditional school setting or in the community.

The second principle supports the cultivation of interest as a motive for all work through "direct and indirect contact with the world and its activities and the use of the experience thus gained."[13] This cultivation of interest might be realized by a student's perusal of a specific area of interest outside the school setting.

The third principle is rudimentary to progressive education philosophy and was supported by the three leaders mentioned. The idea that the teacher should function as a facilitator of learning is the logical result of shifting the emphasis in education from subject matter to child. Once the teacher is removed as the source of all knowledge, it is only reasonable that the child be permitted the use

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[13]Ibid.

of all his senses in the acquisition of knowledge and that this knowledge be related to actual experience. Thus, the student should have the necessary access to the educational experiences that are best suited to his needs, and that option could include learning experiences external to the traditional school setting.

The scientific study of pupil development constitutes the fourth principle adopted by the Progressive Education Association. This principle has as its impetus the idea that the teacher should consider the needs of the total human being, as human development is interdependent. Rugg, in particular, supported this view and further suggested that educators should draw upon the findings of the new psychology for more information concerning the unilateral development of the child. Out of this dictum, contemporary education has established the criteria for assessment of cognitive, affective, and psychomotor skills in relation to the child's total education.

In this respect, it might be suggested that Industrial Education has made positive contributions since its inception, as it has sought an integrative approach to the problem of educating the whole child. The Industrial Arts curriculum includes those phases of general education that deal with technology and industry and with the problems and benefits of life in a technological society. The student uses cognitive skills in the acquisition of information related to industry and technology. The application of this information draws upon the student's psychomotor abilities, while the study of the problems and benefits of life in a technological society requires value judgments on the part of the student. Such value judgments are under

the jurisdiction of the affective domain. To implement this integrative approach, might not educators be required to draw upon the resources located in the community as a supplement to the traditional curriculum?

Summary

The philosophical support for expanding the educational curriculum to include those educational opportunities external to the traditional school setting is to be found in the principles of the progressive education movement. Dewey specifically encouraged the use of community resources as an efficient and effective method of providing an equal educational opportunity for all.

The problem of meeting individual needs increases in complexity at the higher levels of education, straining the economic and educational resources of a school system. Thus it becomes reasonable to draw upon existing community resources to supplement the educational curriculum. Students at the college and university level might use the advanced training programs of business and industry to fulfill part of their educational needs. This approach would eliminate the duplication of educational activities in a community, as well as expand the educational opportunities of a school system, while keeping the cost of such expansion to a minimum. Although both the school and community would benefit from such an arrangement, the greatest benefit would be derived by the individual student.

Historical Background

Progressive education did not evolve in a vacuum. It, like all other movements, was directly affected by the elements of social change that characterized the second half of the nineteenth century. In a move to make education the tool of an industrialized democracy, legislation was passed that provided for a broader-based general education program, including the tax-supported high school. Leaders of the progressive education movement drew heavily upon the concepts of "learning by doing" and "practical work"[14] in order to meet the challenge presented by such legislation.

The Kalamazoo Case

The legality of the question of whether the public could be required to tax-support an educational system that attempted to provide knowledge and skills that went beyond the basics of reading, writing, and arithmetic was answered by the courts in 1864 with the ruling in the Kalamazoo case. The court maintained that "the state had intended to furnish not only the rudiments of education but also equal opportunity for all to proceed on to higher studies."[15] This ruling guaranteed the development of a general high school education at the taxpayer's expense.

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[14]Melvin L. Barlow, History of Industrial Education in the United States (Peoria, Ill.: Charles A. Bennett Co., 1967), pp. 21-25.

[15]E. Freeman Butts and Lawrence A. Cremin, A History of Education in American Culture (New York: Holt, Rinehart and Winston, 1953), p. 419.

The Kalamazoo ruling gradually altered the nature of general education, particularly at the high school level. No longer was a high school education the option of only a privileged few--the college bound. Now the opportunity existed for the general public, whose needs often differed from those of the college-oriented group. Recognition of those differences was slow in coming, however. Despite the fact that the courts had ruled in favor of tax-supported high schools in Michigan, Iowa, and other states, the high schools evidenced little progress in providing an adequate education for those not going on to college.[16] As French pointed out, it was not until about 1920 that the goal of providing an education for all adolescents would be realized.[17]

It was also about this time, 1920, that meeting the individual needs of students came to be considered an appropriate aim for education. In an effort to meet the increased needs of the expanded student body, educators began to consider the possibility of using community resources as a means of supplementing the limited high school curriculum.

Development of the High School Curriculum

Providing twelve years of education for so many students created new problems for the educators of the twentieth century. How was the school to meet the instructional needs of so diversified a

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[16]William Marshall French, American Secondary Education (New York: Odyssey Press, 1967), p. 159.

[17]Ibid., p. 126.

student body? Butterfield, one of the commissioners who served on the Committee for the Reorganization of Secondary Education in 1918, proposed three definitive tasks for the high school: to prepare, to train, and to educate. His proposal maintained that the high school should:

1. prepare twenty-five percent of our young people for professional specialization
2. train twenty-five percent of our young people for the skilled trades
3. educate fifty percent of our young people for the life of one who holds a job.[18]

Butterfield suggested that while a limited portion of the student body would benefit from a college-preparatory curriculum, and that while another sector of the high school population might benefit from a vocational education program, the majority of high school students would best be educated by a wholistic approach to the problems of life in general. His recommendations were later reiterated by Charles Prosser in 1939. While lecturing at Harvard, Prosser, the director of Dunwoody Institute in Minneapolis, Minnesota, suggested that "high school students should spend at least fifty percent of their school time each year in life-education subjects."[19]

Impact of Progressive Education Movement

Despite the limited acceptance of progressive education tenets, some school systems did experiment with, and in some cases adopted, various aspects of progressive education philosophy. Studies were

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[18]Ibid., p. 160.

[19]Ibid., p. 167.

gradually devised that compared schools using the principles of progressive education with those that were more traditional in nature. A study of eight activity-oriented schools compared them to eight traditional schools in New York City in 1939. The study reported data favorable to the activity classes.[20]

Most of the experimentation with progressive education techniques occurred at the elementary level. High school educators were reluctant to adopt some of the techniques employed at the elementary level, such as drawing upon community resources, as they feared that such instructional methods might fail to prepare the high school student adequately for entrance into college.

The Eight Year Study,[21] conducted by the Progressive Association's Commission on the Relation of School and College, seemed to disprove such assumptions. Completed in 1942, the study indicated that students from progressive schools compared favorably with those from traditional schools when measured in terms of academic success at the college or university level. Furthermore, the students from progressive systems tended to be more socially inclined.[22] Some educators suggested that this study supported the idea that progressive education could be a sound and workable method of meeting both individual and societal needs.[23]

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[20]Butts and Cremin, p. 590.

[21]Wilford M. Aikin, The Story of the Eight-Year Study, With Conclusions and Recommendations, Adventure in American Education Vol. 1 (New York: Harper & Brothers, 1942), p. 117.

[22]Ibid.

[23]Graham, p. 134.

Much of the impact of the Eight Year Study was lost due to the intervention of World War II, when the nation's interest focused on problems other than the education of its young. The progressive education movement lost much of its momentum in the wake of this national crisis, and many of its ideas lay dormant to be developed later in response to subsequent educational crises.

Criticism of Traditional Education

The period following World War II saw much criticism of the nation's education system. The school became the scapegoat for the emerging social problems of juvenile delinquency, youth unemployment, and the high drop-out rate of students. In the public's eye, the school had not sufficiently prepared the student to function in the rapidly changing society.

Although many of the social problems of the time were, in fact, related to such factors as the rapid advance of technology during the war, many critics felt the school should be held directly responsible for the social upheaval. The traditionalists blamed the advocates of progressive education for failing to provide students with the basic fundamentals of education. This occurred although the influence of progressive education was, in fact, minimal at the time. Progressive educators, on the other hand, attributed the blame for social problems related to education to the traditionalists, maintaining that the traditional approach to education had failed to meet the needs of the individual student in a rapidly changing society.

A new crisis had emerged from the attempt to offer an education to all the nation's youth. An educational opportunity was being offered to all, but all were not being educated, in the sense of being prepared to become functional members of an industrial society. Chandler and Gross commented on the inadequacies of the system in their educational history:

> When it is realized that this examination [Selective Service Registration Examination] is designed essentially to determine functional literacy, the 54% failure rate seems almost inconceivable, especially in a nation dedicated to the maximum development of every individual. . . . We rightly point with pride to the explosive growth of secondary education, yet only about 60% of our youth currently graduate from high school even though employment opportunities for the "drop-out" are extremely limited. College enrollments have skyrocketed; yet it has been estimated that some 40% of those intellectually best qualified to succeed in college never attend.[24]

Public criticism of the educational system continued in the post-war years. The dissatisfaction was strong enough to cause the White House to convene a conference on education in 1955. This conference identified fourteen goals for education but failed to specify or suggest methods for attaining such goals.[25] The goals tended to be idealistic in nature, with little guidance as to the implementation of such ideals. However, among the goals expressed was the need to prepare the student to function in the social community, through an increased awareness of that community. One way to accomplish that goal might be to utilize the resources of the community as part of the school curriculum.

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[24]Chandler and Gross, p. 337.

[25]French, pp. 185-86.

New Directions

Soon after the White House report was written, the first space vehicle, Sputnik, orbited the earth. The effect of the White House report was lost in the alarm created by the Russian advancement in the space race. American education attained a new focus as a result of this event: science. The greater emphasis on the sciences sought to bridge the technological gap between the United States and Russia. Education then became a matter of national security.[26]

Although that particular crisis seemed to ebb with some adjustments in the teaching of science, educational critics were not to be silenced for long. In the early 1960s, others, such as J. Lloyd Trump, were taking a critical look at the development of general education in the United States. Trump, like many others, called for a comprehensive overhaul of the educational system.

He also advocated the use of some of the progressive education methods as possible solutions to the problems of education, such as individualized instruction and the integration of the school and community facilities to better meet the needs of the individual student.

> Some out-of-school study may occur in factories, shops, offices, other places where students are acquiring work experiences. The school develops independent study spaces cooperatively with local employers, social agencies, governmental agencies, and others.

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[26]Ibid., p. 187.

> . . . This kind of independent study makes the community-school concept a reality.[27]

Development of Vocational Education

In 1963 the Kennedy Administration took note of the educational critics and chose to revitalize governmental interest in Vocational Education in an effort to meet the needs of individual students. This effort, in part, sought to reduce unemployment and to provide assistance to certain groups overlooked in the past. Two important documents resulted from this interest. One was Education for a Changing World, produced by the President's Consultants on Vocational Education.[28] The other was the Vocational Education Act of 1963. The recommendations of this group provided the basis for subsequent legislation, such as the Vocational Education Act of 1963. This act allocated $225 million for Vocational Education for 1965 and each year thereafter. The act made provisions for:

1. occupational training programs not requiring a baccalaureate degree for all persons, youth and adults
2. ancillary services to assure quality programs which included but were not limited to teacher education, administration, supervision, and instructional materials
3. construction of area vocational school facilities.[29]

This directive carried with it staggering implications. Considering that there were about 30,000 job titles listed, for which the

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[27]J. Lloyd Trump and Delmar F. Miller, Secondary School Curriculum Improvement Proposals and Procedures (Boston: Allyn and Bacon, 1971), p. 270.

[28]Carl J. Schafer and Merle E. Strong, Introduction to Trade, Industrial, and Technical Education (Columbus, Ohio: Charles E. Merrill Publishing Co., 1975), p. 13.

[29]Ibid., p. 16.

student could demand training, the question naturally arose where this training might be given. It was somewhat unrealistic to expect that every school system could provide such extensive training for their students. An obvious alternative was to look to business and industry, which already provided much of the training needed by educators, to carry out the specifications of this directive.

Development of Career Education

The increased interest in Vocational Education, coupled with the renewed interest in meeting individual needs of students, particularly those needs related to employment, caused the Department of Health, Education, and Welfare to declare Career Education a national goal in 1971. A primary objective of Career Education was the development of the skills, knowledge, and attitudes necessary for work success.[30] Sidney P. Marland, the then Secretary of Education, expressed his philosophy of Career Education as such:

> The fundamental concept of Career Education is that all educational experiences--curriculum, instruction, and counseling--should be geared to preparation for economic independence, personal fulfillment, and an appreciation for the dignity of work.[31]

Career Education required that all school systems provide students with an avenue for obtaining entry-level skills in whatever career they had selected. In compliance with federal law, each state had to devise a vocational plan which would meet the individual student's needs and also accomplish the objectives of Career Education.

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[30] Ibid., p. 60.

[31] Ibid., p. 61.

Vocational Education became a vehicle for realizing the goals stated for Career Education. Some state education departments recognized that frequently the local school district did not have the physical facilities nor the monies needed to build them, in order to comply with Marland's directives. Michigan, for example, issued administrative guidelines to aid local school districts with compliance to the federal law. These guidelines encouraged secondary districts to contract with nonschool agencies and businesses for specific educational services.[32] The contract between the Sault Area Skill Center and the Sault Ste. Marie Beauty Academy for cosmetology training for skill center students serves as an example of the way in which the Michigan guidelines were implemented.

Summary

Historically, education in the United States has been characterized by expansion and change. It has evolved from a single system designed to meet the needs of a select few to a multiple system redesigned to provide an equal opportunity for all. The focus of education has changed from merely nurturing the intellectual growth of the student to a more wholistic concern for individual success in work and leisure pursuits. Whereas, in the past, one's educational experience was generally limited to a period of six to twelve years, education is now viewed as a lifelong process.

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[32]Michigan, Administrative Guide for Vocational Education (Lansing: Michigan Department of Education).

The educational process, as well as the product, has undergone significant revisions, in an effort to accommodate the forces of change. The child, in the traditional system, had to change to fit the needs of the system; today, approaches have been developed to alter the system to fit the needs of the child. In the past, education tended to be viewed in isolation; the process was separate and distinct from real-life experiences. It tended to occur within the confines of the traditional classroom. Today, the world is seen as an appropriate environment for learning experiences.

The student is no longer confined to the limited resources of a single teacher or school system. The student's interests dictate the nature of the educational environment most conducive to learning. As the school cannot always provide the necessary facilities to accommodate the diversity of students' interests, it becomes expedient to draw upon community resources as an alternative method of meeting the needs of the individual student.

It has been noted that ideas developed at the elementary level, where considerable experimentation is encouraged, are often adapted and modified by high schools to fit the needs of the more advanced students. The mutual benefits derived from this cross-pollination of ideas might serve as an incentive for upper levels of higher education, namely colleges and universities, to follow the example of their colleagues. For example, colleges and universities might contract with business and industry for specific training not available from the institution--as the public school system does.

Such an exchange of facilities and programs could enhance the curriculums of post-secondary institutions at minimum cost.

The Need for Research

The greater emphasis on individualizing programs of instruction has caused educators to direct their attention to the possible use of agency training programs to fulfill the educational needs of students. Persons involved in Industrial Education at the college level have indicated an interest in using agency training programs as part of their respective programs. A problem arises, however, when the interested parties attempt to assess the feasibility of such a venture; namely, there is little information available concerning the agency training programs. Although it is known that business and industry conduct educational programs, no formal attempt has been made to determine the relevant characteristics of the sponsors or the agency training programs themselves.

In addition, there has been no formal attempt to assess the attitude of Industrial Education leaders at the college and university level concerning the use of agency training programs in degree-granting curriculums, despite the fact that such programs have had limited use at the college level.

Little or no data are available about the size and type of organizations which sponsor agency training programs. It is not known if the size or type of the organization is related to the specific training programs offered by such organizations. There is insufficient information to determine if the existing agency

training programs are varied enough to warrant consideration for educational purposes.

Although there is some evidence that directors of Industrial Education programs are interested in the use of agency training programs, little is known about the projected frequency of such usage; also, there are some questions about the utility of agency training programs as vehicles for individualizing instruction. No data are available for projecting the specific program areas of Industrial Education that might benefit most from the agency training programs available. Furthermore, it has not been determined how supportive Industrial Education administrators would be of using agency training programs for academic credit in the degree-granting programs of their respective universities.

Rationale for Investigation

Rogers' research on the adoption of innovative practices indicated that there are five developmental steps in the adoptive process. They include: (1) awareness, (2) interest, (3) evaluation, (4) trial, and (5) adoption.[33] A review of Industrial Education literature, coupled with the information gained by the pilot interviews conducted in relation to this study, seems to indicate that Rogers' first step of the developmental sequence has occurred. Leaders in Industrial Education are apparently aware of the existence of agency training programs, and some have in fact used the programs on an experimental basis.

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[33]Rogers, p. 81.

The next phase in the developmental sequence is the interest stage. "The function of the interest stage is mainly to increase . . . information about the innovation."[34] This stage is characterized by an active interest on the part of the group most directly influenced by the adoption of the innovative practice. Thus, given that stage one has been completed, the leaders of Industrial Education should now be receptive to a more detailed exploration of the possible utility of agency training programs by their departments. That was the assumption of this investigation.

The concern of this study was to promote the development of the interest stage by providing information pertinent to the adoption of an innovative practice--in this case, the use of agency training programs by colleges and universities as an integral part of Industrial Education curriculums.

Purpose of the Study

The purpose of this study was two-fold. First, it attempted to identify the types of agency training programs currently available. Second, the study attempted to determine the manner in which agency training programs might be used by teaching and nonteaching degree programs of Industrial Education.

Limitations of the Study

The business and industrial organizations surveyed were limited to those listed simultaneously in the Michigan Directory of

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[34]Ibid., p. 82.

Manufacturers for 1972 and the Thomas Register of Manufacturers for 1974. All company names not cross-listed in both sources were discarded. These sources caused the study to be limited to Michigan companies; thus the study cannot imply that other states would reflect the same distribution or degree of agency training activity.

The departments of Industrial Education contacted were limited to a random selection of those listed in the Industrial Teacher Education Directory for 1972-73. This directory is published by the American Council on Industrial Arts Teacher Education and the National Association of Industrial Technical Education. The directory includes 230 listings of Industrial Education programs in the United States, Canada, Mexico, and U.S. possessions. The responses given must be interpreted to reflect only those attitudes and practices of the institutions and persons represented.

This study limited its resources to those available from Michigan companies as such a practice was most economically and geographically feasible. In addition, as Michigan has a greater number of industries than many other states, a sampling of Michigan companies could provide sufficient data for the random sampling process. This being the case, although it was recognized that business and Industrial Education departments existed in other geographic areas, this study made no attempt to collect generalizable data. In spite of this limitation, the information provided by this study might well serve as a model for future investigations.

Definition of Terms

The following terms, as used throughout the study, are defined below:

Agency training program--Any educational program sponsored and conducted by a non-school-related agency, business, industrial, or governmental division, which takes place under predetermined conditions and has pre-established objectives. The training is open for public participation, as well as for that of Industrial Education personnel. The training approach involves a combination of theory and application and is reflective of courses conducted at the college level. Examples of agency training programs include: a welding course conducted by a welder manufacturer at its facilities, a hydraulics course offered by a hydraulic machinery manufacturer, or an instructional systems seminar sponsored by an information retrieval company at a conference center. Not included in the definition are such activities as co-op work, work study, and on-the-job training programs.

Industrial Education teacher education--Refers to the branch of education devoted to the preparation of teachers in the following curriculum areas: Industrial Arts Education, Trade and Industrial Education, Industrial Technical Education, and Vocational Education. All the areas specified function as components of Industrial Education.

Vocational-Technical Education (nonteaching degree programs)--Refers to the branch of education devoted to the instruction and training for occupations above the craftsman or trade level. Instruction is baccalaureate in nature and is evaluated by a credit-hour

criterion. The program qualifies persons for employment in semi-professional positions as technicians or production specialists.

Thomas Register of Manufacturers--A series of books, published yearly, that provides a compilation of companies nationwide. The listings are sectioned alphabetically by name and location, and are categorized by product or service and dollar-size rating. It is published by Thomas Publishing Company, 1 Penn Plaza, New York City, New York 10001.

The Directory of Michigan Manufacturers--A book, published yearly, that provides a compilation of companies in Michigan. The listings are sectioned alphabetically, geographically, and by product classification. Usually, over 14,000 companies are listed. It is published by Manufacturers Publishing Company, 8543 Puritan Avenue, Detroit, Michigan 48238.

Pre-service education--College-level courses, workshops, seminars, and independent studies offered for credit by institutions of higher learning, which result in the granting of a degree but in which the student participates before entering teaching or industry.

In-service education--College-level courses, workshops, seminars, and independent studies offered for credit and not for credit by institutions of higher learning and other education agencies, which result in an increase in educational knowledge but in which the participant is already a teaching professional or employed in industry.

Educational delivery system--Sometimes referred to as a teaching method. It refers to the situational design used by the instructor and includes such factors as physical setting, sequencing of events,

approach to instructional materials, audio-visual equipment, and other stimuli used to assist the learner in the process of knowledge acquisition.

Procedure

As the study was investigatory in nature, the methodology employed was designed to generate descriptive data about the two groups involved in the investigation, namely, industries and businesses with agency training programs, and Industrial Education personnel at the post-secondary level. The study sought to provide information to interested parties regarding the two populations surveyed, as well as provide opportunity for each professional involved to assess him/herself.

The descriptive data desired concerned the types and frequency of agency training programs available from industry and the attitude of post-secondary Industrial Education personnel toward the use of such programs as components of Industrial Education curriculums.

Two survey techniques were used to extract the desired information about the two populations. A telephone questionnaire was designed to survey industries in regard to the availability and nature of agency training programs. A written questionnaire was designed to survey post-secondary Industrial Education personnel about the prospective use of agency training programs in their curriculums. The volume of information desired from the second population (Industrial Education

personnel) precluded the use of the telephone survey in the second instance.

The procedure for each survey was identical. Based on the hypotheses formulated for each phase of the investigation, research questions were generated to test each hypothesis. The research questions then formulated a basis for the design of each test instrument: a telephone survey for phase one and a written questionnaire for phase two.

Six sequential steps were used to conduct each survey. The first involved an identification of the sample population to be tested. The second step involved the development of a pilot instrument. The pilot instrument was then refined in each case before collection of data began, this comprising steps three and four, respectively. Step five involved the tabulation of data collected. Analysis of the data concluded the procedure.

Organization

Chapter II includes a review of the literature considered to be pertinent to the chronological development of the concept that forms the basis of this study, namely the use of agency training programs in education. The intent is two-fold: to outline the historical background of this concept and to describe actual situations in which agency training programs have been used.

The investigatory design of the study and a description of the statistical method employed are found in Chapter III. Chapter IV

contains the findings and discussion thereof. The conclusions and implications of the research conducted are reviewed in Chapter V.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

Chapter I developed the philosophical and historical basis for the use of external learning environments for educational experiences. Chapter II provides an overview of the literature more directly related to the use of agency training programs by educators. The information available tends to be sketchy and piecemeal because of the inconsistent terminology used to identify training programs that are educational in nature but are offered by business and industry.

A review of the literature pertaining to agency training programs also tends to suggest that the concept of using such programs as vehicles for educating students has been explored theoretically but that very little has been done of an experimental nature, and even less has been substantiated. Only one study was discovered that dealt directly with the question of the availability of agency training programs, and that study had a slightly different orientation than the present investigation. It was, however, included in the literature reviewed.

The sparseness of the literature available on agency training programs and their use by educators suggests the need for further research in this area, and that was one of the functions of this investigation.

Origins of the Concept

While the advocates of the progressive education movement were seeking to establish their philosophies as a basis for the American education system, a parallel developmental process was occurring within the vocational education movement. Although the two groups shared some common goals, such as seeking to prepare the student better for entry into adult society, they diverged in the actualization of those goals despite the fact that some mutual trading of ideas did exist.

Vocational education evolved as a separate and distinct movement from the more general progressive approach partially because public schools resisted altering the traditional system of education to accommodate programs of a more technical nature, which were intended to prepare the student for employment upon graduation from high school. As a result, the early Vocational Education programs tended to be found in training schools specifically designed to provide students with the skills necessary for employment in the trades and industry. The establishment of such training schools signified the inception of a new attempt on the part of educators to provide for the educational needs of the industrial class.

The first major step in this direction was accomplished by the passage of the Morrill Act in 1862 "to teach such branches of learning as are related to agriculture and the mechanic arts . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."[35] The passage of

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[35]Barlow, pp. 32-36.

this Act, along with the subsequent passage of the Smith-Hughes Act in 1917, established Industrial Education as a "new profession that awaited development."[36]

Expression of the Concepts

From the beginning, Industrial Education leaders have expressed a concern that there be a working relationship between education and industry. While tracing the roots of Vocational Education, William Sears listed over a dozen industries that were providing some type of educational program for their employees as early as the early 1900s. He maintained, "Along with the development in industry and in business has come the development of Vocational Education. The one is inextricably tied up with the other."[37] Graney further supported the existence of the relationship between schools and industry by tracing the history of several institutions such as RCA Institute, which was established to provide technical skills to its students.[38]

Those in education were also interested in exploring the uses of industry in the preparation of their students. In 1908, Professor Herman Schneider of the University of Cincinnati, Ohio, reported at a meeting of metal manufacturers in New York City that he had secured

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[36]Ibid.

[37]William Sears, Roots of Vocational Education (New York: John Wiley and Sons, Inc., 1931).

[38]Maurice R. Graney, The Technical Institute (New York: Center for Applied Research, Inc., 1964), p. 47.

the services of industry for the purpose of providing practical experience to the engineering students at his university.[39] Simonds, a representative of the Massachusetts school system, happened to be present at Schneider's address and was so impressed by the possibilities of such cooperation between school and industry that he went back to Fitchburg, Massachusetts, and proceeded to apply Schneider's ideas in his own locale.[40]

Millwacker carried this concept of cooperation even further. He reported in 1916 that his institution was closing its technical laboratories (called shops at the time) as industry could provide the necessary work stations for the students.[41]

The fact that industry had programs available that could be used by educators was recognized early in the development of Industrial Education. Some organizations such as the National Association for Industry-Education Cooperation provided newsletters that encouraged cooperation between the two by informing industry of the benefits to be derived from an educational approach to the problem of training employees.[42] The National School Public Relations Association treated

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[39]Charles Alpheus Bennett, History of Manual and Industrial Education in the United States 1870-1917 (Chicago: Charles A. Bennett Co., 1937), p. 531.

[40]Ibid.

[41]Bruce Millwacker, "NewsNotes," Manual Arts 5 (May 1914): 9.

[42]National Association for Industry-Education Cooperation, The Link Between Industry and Education (Washington, D.C.: National Association for Industry and Education, August 1973), p. 3.

the relationship of industry and education as a partnership that needed further development, in its publication on Vocational Education.[43]

Community Schools and Career Education Influences

Although both industry and educators have been aware of the possibility of a more symbiotic relationship between the two, most of the awareness has remained at the cognitive level. Very little actual cooperation has existed until recently. The development of the concepts of community schools and career education has played an important role in the change that has occurred in the relationship of school and industry. Given the focus on the need to prepare the student for a vocation, those in Career Education have acknowledged the necessity of using every available resource.

> Support must be provided for such programs in occupational education, . . . in a wide variety of settings, including residential vocational schools, community colleges, private business and vocational schools, and apprenticeships.[44]

This idea was also supported by Byram and Wenrich in the development of the community school concept as they advocated the use of people, organizations, agencies, and establishments of production as educational resources for the Vocational and Industrial Arts programs. They maintained that "the resources inherent in the

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[43]National School Public Relations Association, Vocational Education (Washington, D.C.: National School Public Relations Association, 1971), p. 3.

[44]Kenneth B. Hoyt, Rupert N. Evans, Edward F. Markis, and Garth L. Mangun, Career Education: What Is It and How to Do It (Salt Lake City, Utah: Olympus Publishing Co., 1974), p. 220.

economy of a community are the very life blood of vocational education."[45]

A Suggestion for the Use of Training Programs

In 1973, Angelo Gillie, in his work, Principles of Post-Secondary Vocational Education, recommended that the public educational system make use of private training programs offered by business and industry, as well as private vocational schools, to improve the effectiveness of college-level programs in rural and poverty areas. He wrote, "Movement in this direction could very well be the start of a trend to subcontracting much of the specific skill training out to private vocational enterprises and leave more of the basic cognate elements of occupational education to the public two-year colleges."[46] Gillie's suggestion differed from that of his forerunners, such as Byram, Wenrich, and Schneider, in that he recommended the use of private vocational schools as resources for college-level programs, whereas the others favored the use of training programs conducted by industry. Although the private vocational schools have operated as business ventures since the 1800s, Gillie was the first to propose that they be used at the post-secondary level.

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[45]Harold M. Byram and Ralph C. Wenrich, Vocational and Practical Arts in the Community School (New York: Macmillan Co., 1956), p. 28.

[46]Angelo C. Gillie, Principles of Post-Secondary Vocational Education (Columbus, Ohio: Merrill Publishing Co., 1973), p. 201.

Industrial Education Teacher Educators Look at the Concept

Those educators involved in providing qualified personnel for the teaching profession have speculated on the use of agency training programs as part of the teacher education curriculum. Rosenberg asked the question, "How are teaching personnel to keep themselves informed of ongoing changes in their respective fields?"[47] This is particularly a problem in the rapidly advancing areas of trade and technology.

Erber treated the subject of the teacher as an industrial technologist and listed the qualities he perceived to be essential for the teacher in Industrial Education.[48] Olson suggested that "the new Industrial Arts may invite industry to lend assistance to advanced students in carrying on research and experimentation."[49] It was the suggestion of this study that such curriculums might well benefit from the use of agency training programs. Such programs could provide the technical assistance and practical experience necessary for the teacher in an Industrial Arts program.

Other leaders in Industrial Education have maintained that agency training programs can be used to enrich the curriculum while providing for a more effective and efficient learning experience for

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[47] Jerry M. Rosenberg, New Conceptions of Vocational and Technical Education (New York: Teachers College Press, 1967), p. 87.

[48] C. Thomas Dean and Nelson A. Hauer, Industrial Technical Education (Bloomington, Ill.: McKnight and McKnight Publishing Co., 1969), pp. 58-59.

[49] Delmar W. Olson, Industrial Arts and Technology (Englewood Cliffs, N.J.: Prentice-Hall, 1963), p. 291.

the student in the Industrial Education program. Hammond suggested that any single institution, be it industry, education, or government, is inadequate to fulfill all the needs of today's student in a technological environment.[50] Thus he called for an integrative effort on the part of all three institutions and advocated the concept of a partnership in the preparation of Industrial Arts graduates. Again, those interested in the concept of career education have asserted the necessity of "interaction among the training institutions, employing institutions, and labor associations to provide a more fertile learning environment than the schoolroom."[51]

Roger Viceroy, while reviewing the requirements for the technology-oriented graduate student, suggested that the relationship between industry and education should permit the student a "flexibility in his program which allows him to attend such things as industrial schools, professional organization-sponsored classes, or institutes, intensive industrial courses or workshops and even travel to visit industries which would add to his technical competence."[52]

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[50]James H. Hammond, "The Educational Partnership: Government-Industry-Labor," Man, Society and Technology (September-October 1970): 17.

[51]Rupert N. Evans, Kenneth B. Hoyt, and Garth Mangreve, Career Education in the Middle and Senior High School (Salt Lake City, Utah: Olympus Publishing Co., 1973), p. 14.

[52]Roger A. Viceroy, "Program Requirements for a Technically-Oriented Graduate Student," Convention proceedings, American Industrial Arts Association, 1972.

Agency Training Programs

Examples of how agency training programs might be used by those training vocational education teachers were described by Maley in his work, Cluster Concept in Vocational Education:

> (2) Some of the teachers were involved in on-the-job work learning experiences on some of the local construction projects. (3) Another group received programmed instruction in typewriter repair from a nationally known maker of such equipment. A tutor was also furnished by the typewriter manufacturer. (4) Another group of teachers needing upgrading and enrichment in occupations related to metalworking spent considerable time at the Goddard Space Flight Center in Greenbelt, Maryland. These teachers were introduced to and instructed in some of the latest techniques in metal forming, soldering and welding.[53]

The Massachusetts Study

In the late 1960s, the Commonwealth of Massachusetts undertook a study to determine the effectiveness of occupational education in the private sector.[54] A portion of the Massachusetts study was devoted to a detailed analysis of the industrial training programs available in the state to the high school graduate. An analysis of the data provided by the Massachusetts study indicated the availability of agency training programs for the state of Massachusetts. The question of availability of agency training programs was also explored in the present investigation.

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[53]Donald Maley, Cluster Concept in Vocational Education (Chicago: American Technical Society, 1975), pp. 180-81.

[54]Carl J. Schaefer and Jacob K. Kaufman, New Directions for Vocational Education (Lexington, Mass.: Heath Lexington Book Co., 1971), pp. 65-67.

The impetus of the Massachusetts study came from a concern on the part of educators in the state that the public schools were not preparing the high school students adequately in terms of occupational training. Thus it was determined that the need for occupational training was being served by private institutions at the post-secondary level. The study then set about to determine the characteristics of the training programs available in the private sector.

That, basically, was the same information sought by the present study, although the latter asked how the existent industrial training programs can best be accessed and used by those in Industrial Education curriculums at the college level, whereas the former sought to determine the types of training programs that were available to the high school graduate. Thus the data accumulated by the Massachusetts study differed from those sought in this investigation because the population sample differed, as did, in some cases, the nature of the data collected.

The Massachusetts study used an industrial directory to identify the target population, namely companies that offered industrial training programs. The selected companies were categorized, employee size being the determinant factor. However, other alternative categories might be used for determining the characteristics of the company, such as dollar output or product output. Based on the low response rate to the written questionnaire used by the Massachusetts study (32 percent), it would seem that an inquiry design that

involved more personal contact, such as a telephone survey, might prove to be more effective in extracting the information desired.

The Massachusetts study identified the various types of programs offered by the companies surveyed. That information tended to support the hypothesis that the size of the company is directly related to the amount of money expended on industrial training programs, with the larger companies offering a more varied selection of programs. The study also indicated that the majority of the training occurred at the operative and apprentice levels, with supervisory instruction the predominant kind of training available. The Massachusetts study also suggested that "there appears to be a good relationship between the area of manpower needs and the private school's offerings."[55]

Summary of the Literature

The reviewed literature indicated a philosophical and historical basis for the use of learning settings outside the traditional school. It further showed that there has been an interest in a cooperative effort between industry and Industrial Education. However, this interest has been evidenced primarily by an exchange of ideas between the two groups. Most exchanges of students and teaching techniques have been experimental in nature and have not been implemented on a broad scale. In some cases, as in Maley's program in Maryland, the experimentation has involved allowing students to participate in agency training programs for academic credit. However,

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[55]Ibid.

many areas of this concept have not been researched. This investigation focused on two such areas of needed research:

1. the availability of agency training programs, and
2. the attitude of Industrial Education personnel toward the use of agency training programs in Industrial Education post-secondary curriculums.

CHAPTER III

METHODOLOGY

This chapter describes the research design, populations, instruments, collection of data, coding and tabulation of data, research hypotheses, and analysis. The purpose of this study was to ascertain if agency training programs are available that might be used by Industrial Education departments for training of students in that curriculum. Given that such agency training programs could be located and identified, it was necessary to determine if such programs were presently being used by Industrial Education departments and to what extent the usage occurred. It was also the purpose of this investigation to determine if those companies with agency training programs were receptive to the idea of offering such training programs to Industrial Education students and, if so, how the Industrial Education departments might best access the company system.

The Sample

The subjects of this investigation were selected from two separate and distinct population groups. The first population group consisted of the fourteen thousand companies listed in the Michigan Directory of Manufacturers. Of that population, six hundred organizations were selected through a random number selection process. The Michigan Directory of Manufacturers does not categorize companies

by size, so the group of six hundred companies was then cross-referenced with the listings in the Thomas Register of Manufacturers. This process assigned a rating based on total company assets. The 150 companies that emerged as a result of this process were identified as the sample for Survey I of the study.

The second population group consisted of the 230 Industrial Education department heads at colleges and universities in the United States and its territories, as listed in the Industrial Teacher Education Directory (1973-74). A geographically stratified sample of seventy-five department heads was generated from the second population group through the use of random number assignment and selection procedure. The distribution generated twenty-five subjects in each of the three designated geographic areas, namely East, West, and Central United States. The seventy-five department heads comprised the sample for the second phase of the investigation.

Description of Test Instruments

Two investigatory instruments were selected to extract the data required to test the hypotheses generated for this investigation. A focused, semi-stratified questionnaire with open-ended questions was the format for conducting the telephone survey used to test the first hypothesis, related to the availability of agency training programs. The test instrument was designated as Survey I. (See Appendix A for a copy of the instrument.)

A two-way grid matrix design was used to investigate the second hypothesis, related to the nature of agency training programs deemed

appropriate by Industrial Education personnel for their programs. The two-way grid matrix was presented in letter form to the subjects. This test instrument was designated Survey II. (See Appendices B and D for further explanation.)

Statement of Hypotheses

Two hypotheses were generated for this investigation. They are as follows:

Ho_1: Agency training programs that can be identified and located are not available.

Ho_2: Industrial Education personnel who deem agency training programs as appropriate educational experiences for Industrial Education programs can not be located and identified.

Development of Research Questions

To investigate the two hypotheses for this investigation, it was necessary to develop a format that lent itself to a survey instrument. Therefore, research questions related to each hypothesis were developed as a method of categorizing the responses made by the sample populations. In the first instance, the responses to the research questions had to be extracted from information gathered by Survey I, related to the availability of agency training programs. The second group of research questions (related to the appropriateness of agency training programs for Industrial Education curriculums) served as the format for Survey II.

The research questions developed for Survey I were designed to determine what industries offered agency training programs. They also were developed to determine if agency training programs were

available in distinctive homogeneous groups. The research questions for Survey II sought to determine how frequently agency training programs could be or were presently being used in Industrial Education curriculums. Sufficient questions were constructed to insure data related to a particular aspect were collected in more than one way. This allowed the researcher an alternate means of assessment should the primary question's answer be suspect. The number of credits (semester) allowed was also assessed.

Survey I

Research Question 1: What percentage of A, AA, AAA, AAAA sized businesses and industries have agency training programs available?

Research Question 2: If agency training programs are available to colleges and universities for student participation, in what general homogeneous categories do they exist?

Survey II

Research Question 1: How frequently was an agency training program used as a pre-service elective in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 2: How frequently was an agency training program substituted for a required course in a pre-service role in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 3: How frequently was an agency training program used as a required activity in a pre-service role in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 4: How frequently was an agency training program used as an in-service elective in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 5: How frequently was an agency training program used as a substitute for a required course in an in-service role in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 6: How frequently was an agency training program used as a required activity in an in-service role in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 7: How frequently was an agency training program deemed inappropriate for pre-service programs as an elective in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 8: How frequently was an agency training program deemed inappropriate for pre-service programs as a substitute for a required course in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 9: How frequently was an agency training program deemed inappropriate for pre-service programs as a required activity in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 10: How frequently was an agency training program deemed inappropriate for in-service programs as an elective in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 11: How frequently was an agency training program deemed inappropriate for in-service programs as a substitute for a required course in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 12: How frequently was an agency training program deemed inappropriate for in-service programs as a required activity in:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 13: How frequently was an agency training program deemed an appropriate activity as an elective course but was not presently being used in a pre-service role for:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 14: How frequently was an agency training program deemed an appropriate activity as a substitute for a required course but was not presently being used in a pre-service role for:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 15: How frequently was an agency training program deemed an appropriate activity as a required activity but was not presently being used in a pre-service role for:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 16: How frequently was an agency training program deemed an appropriate activity as an elective course but was not presently being used in an in-service role for:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 17: How frequently was an agency training program deemed an appropriate activity as a substitute for a required course but was not presently being used in an in-service role for:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 18: How frequently was an agency training program deemed an appropriate activity as a required activity but was not presently used in an in-service role for:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 19: How many total credit hours were allowed per program for any given agency training program if used in a pre-service role for:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 20: How many total credit hours were allowed per college program for any agency training program if used in an in-service role for:

Industrial Education	Voc.-Tech. Education
Teacher Education?	Nonteaching Degrees?

Research Question 21: How often were those surveyed undecided about any of the previous questions?

Design of the Study

The study consisted of two separate investigations, each containing six sequenced steps. The six steps were repeated in sequence for each phase of the study with regard to the investigatory instruments, Survey I and Survey II.

Survey I sought to establish the availability of agency training programs and to delineate the types of agency training programs available. Survey II sought to identify the preference of the Industrial Education personnel with regard to the use or possible use of the agency training programs as identified in Survey I.

The major aspects of the two phases of the study involved:

1. the identification of the sample,
2. development of a pilot instrument,
3. refinement of the survey instrument,
4. data collection,
5. data tabulation, and
6. data analysis, which involved the conversion of raw data to percentage form.

A detailed account of each procedural step for each phase of the study follows.

Survey I

Step one: Identification of sample.--From the list of 14,000 companies listed in the Directory of Michigan Manufacturers, a pool of 600 company names was selected through the following process. Each company listed in the Directory was assigned a number from

1 to 100. From each group of 100, four names were selected using a table of random numbers. For every 300 names in a running count, a name was selected in order to obtain an average of twenty-four names per 1,000 company listings. In the case of a 00 listing in a random number column, the first number in the next column was substituted. The company names were chosen from the alphabetized town listing section of the Directory.

A group of 600 company names was compiled by this random number selection process. Each of the 600 company names was then cross-referenced with the company names listed in the Thomas Register of Manufacturers and its concomitant rating system. Companies that were subsidiaries of larger companies were assigned the parent company name and rank.

The Thomas rating system is based on the approximations of each company's total tangible assets. The companies are rated on the following basis: A--$100,000 capital; AA--$300,000; AAA--$500,000; and AAAA--$1,000,000 and over capital.

After the cross-referencing process, the final sample consisted of 150 company names that appeared in both the Directory of Michigan Manufacturers and the Thomas Register. The 150 company names in the final sample were distributed in the four categories assigned by the Thomas Register in the same random order as they appeared in the Directory. These 150 companies represented a cross-section of typical Michigan companies. The number 150 gave the researcher a sample size large enough to conduct a pilot survey and still retain enough companies to ensure a proper sample size.

Step two: Development of a pilot instrument.--Twenty-five percent of the companies in each of the four categories rated by Thomas as A, AA, AAA, and AAAA were selected for use in the pilot study. Each of the thirty-eight selected was contacted by telephone. The interviewer requested to speak with the industrial relations manager. If the company had no one assigned to that position, a request was made to speak with the party responsible for educational or training activities of the company. The person responding was then asked if the company was involved in any activities of a training or educational nature, either internally for employees or externally for nonemployees.

If the response was negative, the interview was terminated with a request for the name of the respondent and the title of his/her position with the company. The information was recorded on a sheet of paper, along with the company's name and telephone number.

When a positive response was received, the respondent was then requested to describe the nature of the training or educational activities conducted by the company. The responses were recorded on a sheet of paper, along with any other pertinent information provided. If the respondent did not offer very specific information, the interviewer attempted to initiate conversation related to any kinds of training activities the company might be involved in, or to the philosophical views of the company spokesman related to agency training programs.

Step three: Refinement of the test instrument.--The data collected and the interviewing experience gained from the pilot survey

were then reviewed to determine the most efficient method of conducting the interview section of the first phase of the research. This review led to two conclusions:

1. The survey would be completed using the telephone technique because that method allowed for a high response rate from those surveyed.

2. The telephone contact would be carried out using a focused semi-stratified questionnaire with open-ended alternate questions assembled from the experience gained with the pilot survey. It was determined that the telephone interview technique permitted optimal efficiency with regard to the nature of the information gathered and the time involved in doing so.

Step four: Data collection.--After the information gathered from the pilot survey was analyzed and converted into a series of focused semi-stratified questions, step four was initiated. Each of the remaining 112 companies from the sample was contacted by telephone. The person contacted was read the introductory material and then asked the questions on the data sheet. (See Appendix A.) The format of the questionnaire was followed verbatim. All responses were recorded in the appropriate blanks of the questionnaire. Five attempts were made to contact a given company over a period of one week before termination of effort. One hundred twelve companies were actually contacted in this manner.

A sample population n of 67 was required for the study to have an error tolerance equal to .10. This was determined using the formula:

$$n = \frac{Z^2}{4E^2 + \frac{Z^2}{N}}$$

where N = total number in the population

n = size of sample population needed for the study

E = confidence level

Z = value of the normal distribution

The remaining 75 percent of the original 150 companies (112) exceeded the n required for statistical validity. This statistical procedure was used to ensure that if the research was repeated under identical circumstances, one could be confident 90 percent of the time that the results would be the same. This was also true for Survey II.

Step five: Data tabulation.--Upon completion of the telephone survey, the data were categorized by company rating (Thomas'), and total responses were calculated for each research question.

Step six: Data analysis.--The raw data were then converted to percentages. Finally, the data collected were used to generate five homogeneous categories of agency training programs provided by the companies interviewed. The categories were derived from the raw data collected. The five categories of agency training programs that emerged were as follows: Technical sales training, technical training for production activities, management seminars, proprietary schools, and open short courses or seminars. Agency training programs were placed in the various categories on the following basis:

1. Technical sales training--This category involved those training programs offered to people who sell the company's product but are not involved in the production of said product.
2. Technical training for production activities--Training programs designed for training in-plant workers for the purpose of improving productivity.
3. Management seminars--Training programs designed to improve personnel relations between supervisors and employees in order to increase productivity of workers.
4. Proprietary schools--Training programs designed exclusively to improve productivity for related industries. Service is furnished only after a fee is paid.
5. Open short courses or seminars--A catch-all training program offered to any personnel not in plant production.

Survey II

Step one: Identification of the sample.--Phase two of the research project began after the compilation of the data extracted from Survey I. Step one of the second phase involved the identification of the Industrial Education department heads to be surveyed. A geographically stratified sample of seventy-five department heads was generated from the 230 listings in the Industrial Education Directory (1973-1974) through the use of random number assignment and selection procedures. Twenty-five department heads were selected

from each of the three geographic areas designated (East, West, and Central United States).

The seventy-five department heads to be surveyed was a large enough number to ensure an n of 52 returned survey instruments needed to obtain a confidence level of 90 percent as derived from the formula given on page 55. The number of actual returned responses was 56. (See Appendix D.)

Step two: Development of pilot instrument.--A review of various written survey methods revealed the three-way grid matrix design best suited for this purpose. Based on the content provided by the research questions developed from the second hypotheses, a three-way grid matrix design was constructed as the pilot instrument for this phase of the study.

Step three: Refinement of the test instrument.--The instrument design for the second phase of the study was validated with the assistance of three Michigan Industrial Education department heads at Eastern Michigan, Central Michigan, and Michigan State Universities. The three department heads, all experienced in research design, reviewed the pilot instrument and offered suggestions on how to revise the instrument to be sent to other department heads. Their suggestions were intended to maximize the extraction of pertinent information desired from the sample group. The pilot instrument was then revised to accommodate the suggestions derived from this resource.

Step four: Data collection.--Seventy-five Industrial Education department heads were sent a copy of the written survey instrument with a cover letter and a self-addressed, stamped envelope. (See

Appendix B.) Three months were allotted for the receipt of the questionnaire. Those not responding in the allotted three months were sent a second copy of the questionnaire along with a second letter requesting a response. (See Appendix C.) A period of two months was then allowed for the forms to be returned. At the end of the five-month period, data collection was terminated. Fifty-six Industrial Education department heads returned responses.

Step five: Data tabulation.--The data collected from Survey II were then tabulated by the computer. Data processing used was a two-way grid matrix design. (See Appendix D.) Charles Weber of Lake Superior State College designed the program for the computer that processed the data.

Step six: Data analysis.--This step involved the conversion of raw data into bar graphs and percentages so as to make the information more intelligible to the general reader. Since the design of the study was investigatory in nature, the methodology of data presentation was statistical, although the study itself was designed to ensure statistical confidence. The intent was to present the information gathered in the most comprehensible form to the reader. Bar graphs are used in Chapter IV to present the numerical data.

The Specific Method Employed

The research design that offers the greatest amount of direct contact is the personal interview. However, that method would have been economically and geographically unfeasible for the present

study. Therefore, telephone interviews were conducted in the first phase of this investigation for the following reasons:

1. The telephone interview guaranteed that all 150 companies would be contacted if they were still in existence.
2. The telephone interview technique allowed for needed flexibility to contact the appropriate person within the organizational structure.
3. The telephone interview method allowed for clarification of the language used in the specific area of Industrial Relations.
4. The telephone interview increased the possible return response rate from a probable low percentage to approximately 100 percent.
5. The telephone interview enhanced the willingness of respondents because of the informality and increased personal contact involved.
6. The possibility of interviewer bias and variations became negligible as one party did all the interviewing using a focused, semi-stratified questionnaire with open-ended alternate questions.

The reasons listed above were derived from the works of Engelhart in Methods of Educational Research and Phillips and Selltiz in Social Research concerning interview techniques.

Assumptions

This study was predicated on the following assumptions:

1. The businesses and industries interviewed in phase one of the study represented a normal cross-section of Michigan businesses and industries.
2. The department heads involved in phase two of the study represented a normal cross-section of Industrial Education department heads at colleges and universities in the United States.
3. The terms used in the telephone and written survey instruments were ones that have generally accepted definitions among the group surveyed, and all questions were answered within that specific context by respondents.
4. Parties not completing a particular question on the written survey were considered to have been undecided about that specific question.

CHAPTER IV

ANALYSIS OF THE DATA

Data gathered on agency training programs and their use in Industrial Education are reported and analyzed in this chapter. The report includes a distribution of the subjects contacted and the results of the two surveys. The information generated by the surveys is reported in the form of tables and bar graphs. Several of the tables and bar graphs contain data from more than one research question. This method of presentation was chosen for ease of data comparison and clarity.

Profile of Survey I Respondents

The research sample for Survey I consisted of 112 Michigan businesses and industries. These businesses and industries were ranked by dollar volume as indicated in Table 1. The dollar volume size ratings were assigned through the use of the Thomas Register of Manufacturers. Table 1 shows that large companies, type AAAA, are the most frequently encountered business or industry in Michigan.

Analysis of the Hypothesis for Survey I

Ho_1: Agency training programs that can be located and identified are available.

To investigate this hypothesis, it was divided into two research questions. The first research question generated data in answer to

Table 1.--Distribution of companies.

Size of Industry		Number Contacted
A	($100,000 capital)	30
AA	($300,000 capital)	15
AAA	($500,000 capital)	14
AAAA	($1,000,000 capital)	53
Total		112

the query: "At what frequency do A, AA, AAA, and AAAA sized businesses and industries have agency training programs available?" Responses to this question were distributed as illustrated in Table 2. The table shows that 17 of the 112 companies contacted did have agency training programs available. A relationship between the size of a business or industry and the availability of agency training programs was also evident. Twelve of the seventeen organizations having agency training programs available were in the AAAA size range.

Table 2.--Distribution of companies with agency training programs.

Number Contacted	Company Rating	Companies With Programs	Companies Without Programs	Refused to Answer	Offices Closed
30	A	0	24	0	6
15	AA	3	9	0	3
14	AAA	2	10	1	1
53	AAAA	12	33	0	8
112	Total	17(15%)	76(68%)	1(1%)	18(16%)

The second research question for Survey I was: "If agency training programs are available to colleges and universities for student participation, in what general homogeneous categories do they exist?" The categories and their distribution are presented in Table 3. These categories were defined in Chapter III, p. 52. A sample recording instrument for this portion of the data is located in Appendix A.

Table 3.--Distribution of categories of agency training programs.

Company Rating	Number With Agency Training Programs Available	Type Available				
		Sales	Pro-duction	Manage-ment	Proprie-tary	Open
A	0	0	0	0	0	0
AA	3	2	0	0	0	2
AAA	2	0	1	0	0	1
AAAA	12	6	5	12	3	2
Total	17	8	6	12	3	5

Industries offered management seminars most frequently. Sales training programs were the second most frequently available agency training program. Proprietary schools were the least frequently encountered agency training program.

Profile of Survey II Respondents

The research sample for Survey II consisted of seventy-seven randomly selected Industrial Education department heads. These department heads represented a geographically stratified sample of

the department heads listed in the Industrial Teacher Education Directory (1973-74). Fifty-six of the selected seventy-seven department heads responded to the survey. A table listing the number of respondents by geographic region is located in Appendix E.

Analysis of the Hypothesis for Survey II

Ho_2: Industrial Education personnel who deem agency training programs as appropriate educational experiences for Industrial Education programs can be located and identified.

To investigate the hypothesis for Survey II, a series of twenty-four research questions was generated. (See Chapter III for specific questions.) These questions were developed to determine the use or desired use of agency training programs in Industrial Education.

The following four bar graphs contain data from a cluster of from two to six research questions. Research questions were grouped to report data clearly. They were not necessarily presented in numeric sequence since those numbers were assigned through test instrument design. As was pointed out previously, an excess of data was collected to allow for alternate means of assessment should they prove necessary. Therefore, data from each question were not presented in the bar graphs but may be found in the appendix. Detailed data related to individual responses and geographic regions are found in Appendix F.

Figure 1 shows that open short courses or seminars were the most frequently used agency training program. Agency training programs were consistently used most often as electives. Technical training for production was the second most used form of agency training program. Few Industrial Education department heads indicated

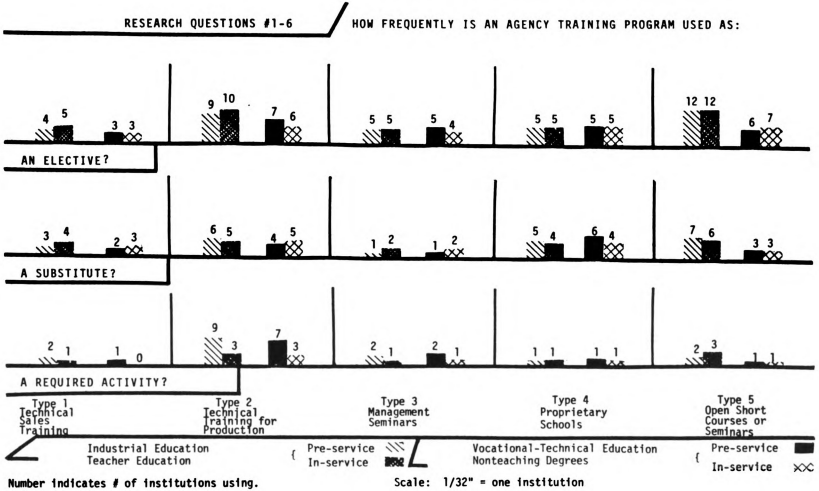

Figure 1.--Responses to Research Questions 1 to 6.

using any type of agency training program, other than production training, as a required activity. Except for the category, a required activity for Voc. Tech. Education Nonteaching Degrees, all categories registered at least one user. Although it does not show on the graphs, an analysis of the detailed question data revaled that there was very little difference in the use rate between the geographic regions.

Figure 2 shows that about half of the fifty-six respondents felt that agency training programs were appropriate to use as electives in Industrial Education programs. This is in contrast to the 8 or 9 percent who indicated that they were presently using agency training programs (Figure 1). Electives were the most acceptable method of use, but up to nineteen department heads responded that they would use agency training programs as required activities. This seems to be somewhat in conflict with the data from Figure 1, which indicate that those using agency training programs were not doing so very often in a required manner.

Sales training activities remained a low priority, whereas technical training for production maintained its high-approval status. Proprietary schools gained in indicated possible use over what they had by present users in Figure 1. Potential users showed more interest in management seminars than did present users.

Figure 3 indicates the average number of credits (semester) the respondent department heads believed would be appropriate to allow for any given agency training programs. Most credits (6.7 to 8.1) would be given for activities taken under auspices of proprietary schools. The middle range (5.3 to 6.5 semester credits) was represented by Technical

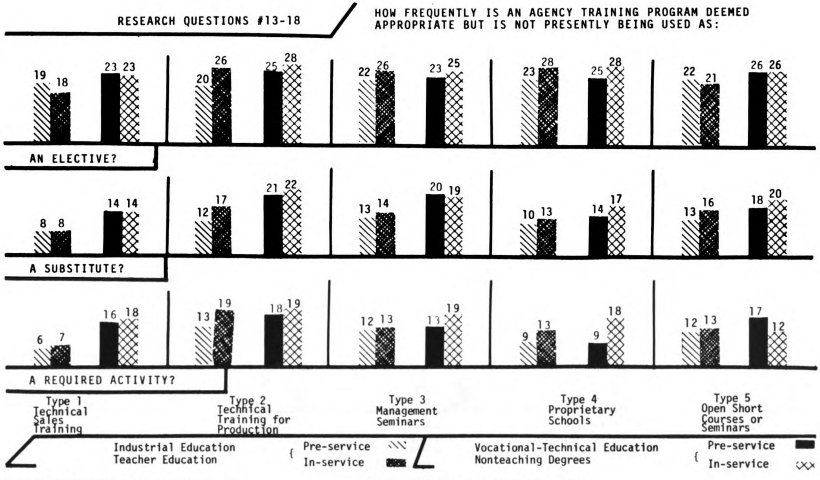

Figure 2.--Responses to Research Questions 13 to 18.

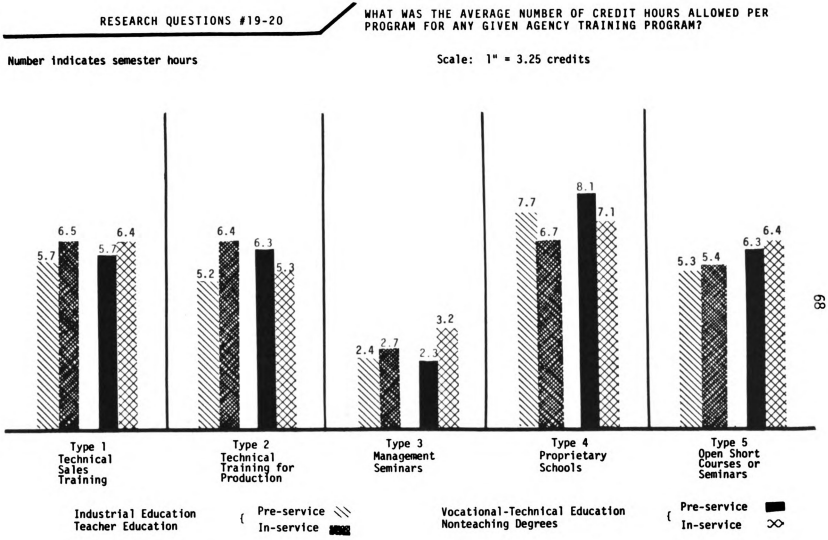

Figure 3.--Responses to Research Questions 19 and 20.

sales training, technical training for production, and open short courses or seminars. The fewest credits (2.3 to 3.2) would be awarded for work completed in management seminars.

Figure 4 illustrates the number of department heads who felt agency training programs were not appropriate activities for use in Industrial Education programs. This number was roughly 50 percent of the total respondent population, a number that just about balanced with the number of respondents who were either using or were positive about considering using agency training programs. The largest number, sixteen to twenty-eight, felt technical sales training was inappropriate. The other four categories are relatively similar except for technical training for production. This category used for inservice education in nonteaching Vocational-Technical education was the least often indicated as inappropriate for use. These data check positively with those reported in Figure 1.

Sales training activities led the list of inappropriate for use. This was consistent with the data in Figures 1 and 2, which also showed this type of program to be held in low regard. There appears to be some discrepancy with this finding when it is matched with Table 3, which shows it being used for about the same number of credits as technical training for production, for example.

Technical training for production was the least often mentioned, which would be consistent with the findings reported in Figures 1 and 2. There appears to be no definite trend in the middle area.

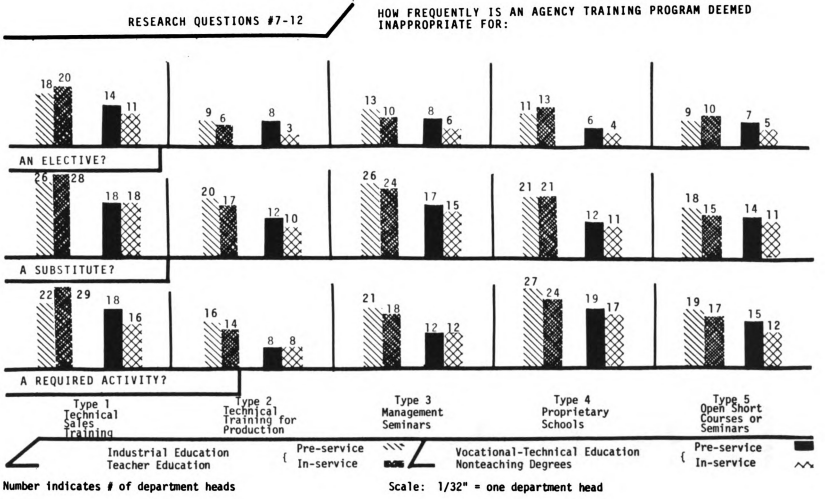

Figure 4.--Responses to Research Questions 7 to 12.

Summary

In Chapter IV, the findings of the study were presented with interpretation. The data showed that businesses and industries did have agency training programs available to Industrial Education. The data further showed that these agency training programs were available in five homogeneous categories. Therefore, the first hypothesis was considered valid.

The second hypothesis investigated the use or possible use of agency training programs in Industrial Education. The data showed a present use rate of from 3 percent to 13 percent and an acceptance rate from 10 percent to 50 percent for agency training programs. Respondents also reported that they would award from 2.3 to 8.1 credits for such activities. Hypothesis 2 was rejected on the basis of these data. Chapter V contains the conclusions and implications reached from these findings.

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CHAPTER V

SUMMARY

In Chapter I the background for this study revealed that the use of agency training programs had a philosophical base in the general and progressive education movement. The availability and use of such agency training programs in Industrial Education is unknown. The purpose of this research was to study the availability and use of agency training programs in Industrial Education. If agency training programs could be located and grouped, questions could be asked of department heads to determine their usefulness. The general hypotheses and limitations of the study were stated in Chapter I with assumptions and definitions of key terms.

Relevant literature was reviewed in Chapter II. That review found that the roots of the concept for using agency training programs in Industrial Education stretched back to the early 1900s. No studies were attempted until the Massachusetts Study in the late 1960s. One individual was located, Donald Maley from the University of Maryland, who had written about the present use of agency training programs in Industrial Education.

In Chapter III the methodology of the study was explained. The subjects for the two surveys were identified as 112 Michigan businesses and industries and 74 Industrial Education department

heads, respectively. Determination of availability and homogeneous grouping of agency training programs was identified as the outcome for Survey I. The use or acceptance of the use of agency training programs in Industrial Education was the identified outcome for Survey II.

Two research questions were constructed for Survey I. Twenty-one research questions were generated for Survey II. These included questions related to both teacher education programs and to nonteaching programs in Industrial Education.

A telephone survey was used to assess the 112 businesses and industries. A 100 percent completion rate was attained for this sample. A mailed two-way grid matrix questionnaire was sent to seventy-seven department heads for Survey II. The fifty-six completed questionnaires that were returned (73 percent) comprised the research sample for Survey II.

Ho_1: Agency training programs that can be identified and located are available.

Ho_2: Industrial Education personnel who deem agency training programs as appropriate educational experiences for Industrial Education programs can be located and identified.

Hypothesis I was investigated through the use of two research questions. Hypothesis II was investigated through the use of twenty-one research questions.

Chapter IV was devoted to presenting the analysis of the data and the results of the research questions. Data from the research questions yielded the following results:

1. Seventeen of 112 Michigan businesses and industries had some type of agency training program available.
2. Agency training programs were available in five homogeneous categories: technical sales training, technical training for production, management seminars, proprietary schools, and open short courses or seminars.
3. From 3 to 13 percent of the department heads responding were using agency training programs in at least one form.
4. From 75 to 91 percent of the respondents felt that agency training programs were appropriate for use at least in one manner.
5. Department heads were willing to allow from 2.3 to 8.1 semester credits for any given type and usage of agency training programs.

Conclusions

Based on this research, it can be concluded that:

1. Businesses and industries offered agency training programs for use in Industrial Education programs.
2. Agency training programs occurred in five homogeneous categories.
3. Some Industrial Education department heads were currently using agency training programs.
4. A number (about one-third of the respondents) felt that the use of agency training programs was appropriate for Industrial Education but were not currently using them.

5. Department heads rejecting the use of agency training programs did so at a higher rate for teacher education areas than they did for nonteaching areas.
6. Technical training for production and open short courses and seminars were the most frequently used agency training programs.
7. Little difference was noted between the number of credits allowed for teacher education versus nonteaching programs.

Discussion

The dual survey technique used in this research allowed the acquisition of a large amount of data. The high percentage of responses (100 percent on Survey I and 73 percent on Survey II) indicated the strength of this assessment technique. Based on the strength of these returns, it is logical to use the information from this research for professional-development purposes.

The research showed that businesses and industries had agency training programs available in some number and variety. This would allow Industrial Education personnel to screen and select those activities that they deem desirable for their programs.

The researcher also found a group of agency training program users along with some parties who would consider their use as appropriate. Thus Industrial Education department heads may want to use this research as a base for further program development. They could also use it as a source of information for the location of colleagues who are presently using agency training programs.

Implications for Future Research

Although this investigation showed that agency training programs were available for use by colleges and universities, it also indicated a degree of difficulty in locating an agency training program that would best aid a given student. This location problem might have several possible solutions. Included among these are the development of a system within the Industrial Education profession to make location and selection of agency training programs an easier process. This system might be housed within the American Industrial Arts Association or the American Vocational Association. Of course, joint sponsorship would be even more advantageous.

Related to the problem of sponsorship most likely would be a concern for quality assurance. The study developed five homogeneous categories of agency training programs but did not determine their quality. A possible solution to the question of quality assurance could be addressed by an investigation into each agency training program, with data being housed within a central agency. This would serve two purposes: (1) insure quality standards for agency training programs used in Industrial Education and (2) improve the speed in accessing such programs. These and related problems could serve as a basis for further research in the access and delivery system areas.

Survey II showed that besides those department heads already using agency training programs, there was a large group of potential users. For further development of the usage of agency training programs, it seems essential to study two aspects of the concept further.

First, those people involved with curriculum development in Industrial Education programs need to be consulted about how agency training programs can best be integrated into their programs. This would refine the data developed in this study. Second, a national effort should be made to develop, test, and implement a quality screening and delivery system for agency training programs. As recommended in the implications for Survey I, it might be advisable to conduct this research and development with the backing of one of the national organizations.

Further investigation needs to be made into the causes of seemingly opposing answers the department heads made regarding the use of agency training programs in either teacher education programs or nonteaching programs. The profession needs to know if department heads actually change their minds about appropriateness of agency training programs as they move from a philosophical acceptance to the use of such programs.

Since this study showed that agency training programs have a good potential for use in Industrial Education programs, it would seem appropriate to investigate student awareness of such programs and student needs related to using agency training programs. Because students are a transient group, this imposes a need on an educational delivery system to advertise and explain itself. This need is critical to programs such as the use of agency training. By nature these programs fill the needs of students in a very individual manner. Consequently, mass experiences can not be used as a stimulus but must be replaced by

some sort of informational system designed to provide each student with awareness of how agency training programs might meet his/her specific needs.

These problems could serve as a basis for further research into the development and adoption of agency training programs as an integral part of the educational delivery system in Industrial Education.

APPENDICES

APPENDIX A

QUESTIONNAIRE USED IN SURVEY I

APPENDIX A

Company_____ Person Contacted_____
Address_____ Title_____
Telephone_____ Date_____

May I speak to the Industrial Relations Manager, please?

If there is a pause or a questioning answer, insert: O.K. May I please talk to the person involved in any educational or training activities conducted by the __(company name)_____ ?

Hello, Mr./Ms. _____. This is David Lickteig at Michigan State University. We are studying educational activities conducted by industry, and I am specifically interested in knowing about any educational or training activities the (company name) is involved in, either on an internal or external basis. Would you please tell me about them?

If an answer is forthcoming, the information is charted in the following seven categories. Then the questions are repeated with the answers in order to insure correctness of recording. If more information is desired by the respondent prior to answering, the following seven statements are used to aid the respondent, and the answers to them are recorded.

Is (company name) involved in educational activities related to advertising? _____

How about situations related to sales, like instructing the client in the use of your product? _____

Are management seminars used with salaried employees? _____

Do you have tradesmen in the plant? _____
If so, do you handle the apprenticeship training? _____
Are any slots held out for outsiders in this education? _____

Any proprietary school or course activity? _____

Do hourly or salaried personnel receive inservice work? _____
Could people outside the company be involved? _____

What about workshop activities? _____

Anything else? _____

Since you have activities _____(specify)_____, do you have any written information about them that you could please send me?
Yes_____ No_____

David Leo Lickteig, 1540-L Spartan Village, East Lansing, MI 48823

What is your position title with the company, Mr./Ms. _____?

Thank you very much, Mr./Ms. _____, for your cooperation. You have been very helpful. Good-bye.

APPENDIX B

COVER LETTER AND INSTRUMENT USED IN SURVEY II

APPENDIX B

July 10, 1974

Dear Colleague:

I am currently involved in a study to determine whether educational experiences available to the public from business and industry may be appropriate to those engaged in the study of Industrial Education and Vocational Technical Education.

My study is two-phased: (1) to survey industry and business in order to find out what types of educational experiences they offer, and (2) to have professionals in Industrial Education and Vocational Technical Education determine the potential of business and industry's educational experiences to their respective fields.

Phase I has been completed. Based on the data from Phase I, and for purposes of Phase II of this study, the educational experiences available from business and industry have been grouped into five types:

1. Technical Sales Training
2. Technical Training for Production Activities
3. Management Seminars
4. Proprietary Schools
5. Open short courses or seminars

Your participation in Phase II of this study is requested because of your professional status in Industrial Education or Vocational Technical Education. The results of the study will be made available to you on request, and you may be assured that your responses will, in no way, be interpreted as an evaluation of your program.

Please complete the enclosed questionnaire and return it in the postpaid, addressed envelope provided.

I would appreciate hearing from you by July 31, 1974, so that my research can proceed on schedule.

Your cooperation is very much appreciated.

Approved by:

C. Blair MacLean
Professor of
Industrial Education

Sincerely,

David Leo Lickteig
Fellow, EPDA
Leadership Program

DIRECTIONS: Fill in each box (in rows A, B & C) in the following survey grids with the appropriate symbol (selected from the following scale) that reflects your attitude toward each of the five types of educational experiences as applied to Industrial Education and Vocational Technical Education programs.

X - Presently using this type activity

1 - Appropriate type activity but not presently using

2 - Inappropriate type activity

3 - Undecided as to the appropriateness of this type activity

For row D, please indicate the maximum number of semester credit hours you now presently allow or would allow in each of the specified programs. Please equate these outside experiences to college credit.

When you are finished, each box should contain a symbol for both Industrial Education and Vocational Technical Education. In the comment area you may react to anything you feel needs further explanation.

* * * * * * * * * * * *

Type 1. Technical Sales Training

The initiation of sales personnel, generally during a 3 to 20 hour period, to the technical, mechanical, and material aspects of a company's products. Emphasis is placed on being able to relay information to others about the product.

Industrial Education Teacher Education			Vocational Technical Education Nonteaching Degrees		
Pre-service	In-service	X--Using 1--Appropriate 2--Inappropriate 3--Undecided	Pre-service	In-service	
		Elective			A
		Substitute for Required Course			B
		Required Activity			C
		Total Credit Hours Allowed per Program			D

Comments or explanations: _____

Type 2. Technical Training for Production Activities

Material and training which is intended to provide a more effective and skilled production workforce. Delivery may range from a canned purchased program to presentations by company-designated training personnel. Time spans of 8 to 40 hours of intense learning are common.

Industrial Education Teacher Education			Vocational Technical Education Nonteaching Degrees		
Pre-service	In-service	X--Using 1--Appropriate 2--Inappropriate 3--Undecided	Pre-service	In-service	
		Elective			A
		Substitute for required course			B
		Required activity			C
		Total credit hours allowed per program			D

Comments or explanations: _____

Type 3. Management Seminars

A common core of ideas directed toward the more effective use of communications through various methods in order to enable salaried personnel to effectively and efficiently maintain and promote company activities. Delivery systems range from self-paced audio-video tutorial to extensive T-group activity. Generally they run 3 to 5 days in length.

Industrial Education Teacher Education			Vocational Technical Education Nonteaching Degrees		
Pre-service	In-service	X--Using 1--Appropriate 2--Inappropriate 3--Undecided	Pre-service	In-service	
		Elective			A
		Substitute for required course			B
		Required activity			C
		Total credit hours allowed per program			

Comments or explanations: _____

Type 4. Proprietary Schools

Educational service enterprises operated by companies for a profit which offer a course or courses in specific studies. Courses may be sequenced into a total learning package which may be up to 2 years in length. Generally the school will report to another institution student progress and a grade related to a student's performance.

Industrial Education
Teacher Education

Vocational Technical Education
Nonteaching Degrees

X--Using
1--Appropriate
2--Inappropriate
3--Undecided

Pre-service	In-service		Pre-service	In-service	
		Elective			A
		Substitute for required course			B
		Required activity			C
		Total credit hours allowed per program			D

Comments or explanations: _____

Type 5. Open Short Courses or Seminars

A specific educational activity related to a particular technical or managerial skill. This is offered to the public either as a complimentary service or for a charge and is conducted by a given company because they have expertise in the particular area. Usually it involves a 1 or 2 week learning period, and generally a report of students' evaluation can be obtained.

Industrial Education
Teacher Education

Vocational Technical Education
Nonteaching Degrees

X--Using
1--Appropriate
2--Inappropriate
3--Undecided

Pre-service	In-service		Pre-service	In-service	
		Elective			A
		Substitute for required course			B
		Required activity			C
		Total credit hours allowed per program			

Comments or explanations: _____

APPENDIX C

SECOND COVER LETTER USED IN SURVEY II

APPENDIX C

October 3, 1974

Dear Colleague:

Some time ago, I mailed to you a survey instrument along with a letter of explanation, and I asked that you complete the instrument and return it to me in an envelope that I had provided.

As of this date, I have NOT received the necessary number of completed survey instruments that would allow me to proceed into the final stages of my research. It is my belief that this situation can be attributed, in part, to the time of the year that this survey instrument was mailed out--that being summer--a time when many professors are either on vacation or out of the office for various reasons.

Because of this and also because I have moved, I am mailing to you another copy of this survey instrument and another self-addressed, stamped return envelope containing my new address.

If you have not already done so, it would be very much appreciated by me if you would complete this survey instrument as soon as possible after you read it and mail to me immediately in the envelope provided.

Your cooperation will be the determining factor in my being able to complete my research project.

Thank you very kindly for your assistance.

Sincerely yours,

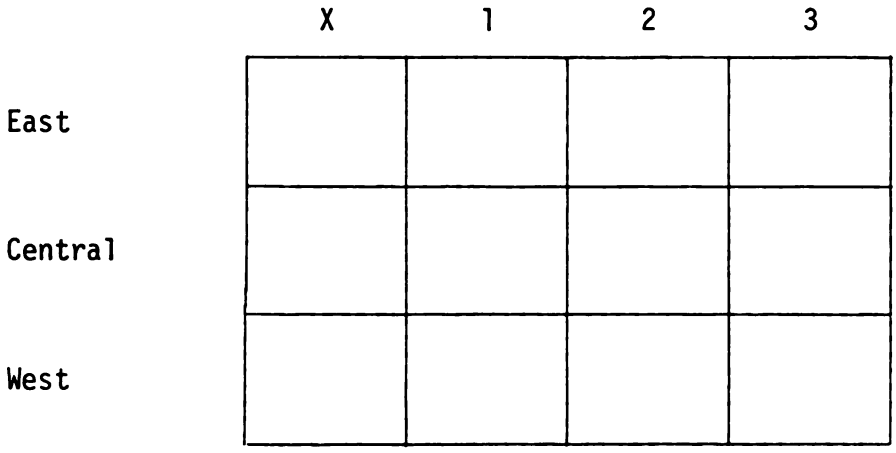
David Leo Lickteig
Fellow, EPDA
Leadership Program

APPENDIX D

TWO-WAY GRID MATRIX DESIGN

APPENDIX D

Type 1 - Cell 1



The above two-way grid matrix design was used for each of the twelve cells for all five types of agency training programs.

APPENDIX E

DISTRIBUTION OF POPULATION FOR SURVEY II

APPENDIX E

Table 4.--Distribution of responses to the survey questionnaire sent to Industrial Education personnel.

Geographic Location	Number of Subjects Contacted	Number Who Responded	No Response
East	26	16	10
Central	25	22	3
West	26	18	8
Total	77	56	21

APPENDIX F

RAW DATA FROM SURVEY II

APPENDIX F

Table 5.--Responses to Research Question 1: How frequently is an agency training program used as a pre-service elective in: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	0	1
Central	25	22	3	0
West	26	18	1	2
Total	77	56	4	3
Type 2: Technical Training for Production				
East	26	16	3	3
Central	25	22	5	3
West	26	18	1	1
Total	77	56	9	7
Type 3: Management Seminars				
East	26	16	2	2
Central	25	22	2	2
West	26	18	1	1
Total	77	56	5	5
Type 4: Proprietary Schools				
East	26	16	2	3
Central	25	22	2	1
West	26	18	1	1
Total	77	56	5	5
Type 5: Open Short Courses or Seminars				
East	26	16	2	2
Central	25	22	6	2
West	26	18	4	2
Total	77	56	12	6

Table 6.--Responses to Research Question 2: How frequently is an agency training program used as a substitute for a required course in a pre-service role in: Industrial Education Teacher Education? Vocational Technical Education Non-teaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	1	0
Central	25	22	1	0
West	26	18	1	2
Total	77	56	3	2
Type 2: Technical Training for Production				
East	26	16	1	1
Central	25	22	3	2
West	26	18	2	1
Total	77	56	6	4
Type 3: Management Seminars				
East	26	16	0	0
Central	25	22	0	0
West	26	18	1	1
Total	77	56	1	1
Type 4: Proprietary Schools				
East	26	16	2	2
Central	25	22	2	1
West	26	18	1	1
Total	77	56	5	4
Type 5: Open Short Courses or Seminars				
East	26	16	0	0
Central	25	22	4	1
West	26	18	3	2
Total	77	56	7	3

Table 7.--Responses to Research Question 3: How frequently is an agency training program used as a required activity in a pre-service role in: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	0	0
Central	25	22	1	1
West	26	18	1	0
Total	77	56	2	1
Type 2: Technical Training for Production				
East	26	16	2	1
Central	25	22	7	6
West	26	18	0	0
Total	77	56	9	7
Type 3: Management Seminars				
East	26	16	1	1
Central	25	22	0	0
West	26	18	1	1
Total	77	56	2	2
Type 4: Proprietary Schools				
East	26	16	1	1
Central	25	22	0	0
West	26	18	0	0
Total	77	56	1	1
Type 5: Open Short Courses or Seminars				
East	26	16	0	0
Central	25	22	1	1
West	26	18	1	0
Total	77	56	2	1

Table 8.--Responses to Research Question 4: How frequently is an agency training program used as an in-service elective in: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	0	0
Central	25	22	3	1
West	26	18	2	2
Total	77	56	5	3
Type 2: Technical Training for Production				
East	26	16	2	2
Central	25	22	5	3
West	26	18	3	1
Total	77	56	10	6
Type 3: Management Seminars				
East	26	16	2	1
Central	25	22	2	2
West	26	18	1	1
Total	77	56	5	4
Type 4: Proprietary Schools				
East	26	16	2	2
Central	25	22	2	1
West	26	18	1	1
Total	77	56	5	4
Type 5: Open Short Courses or Seminars				
East	26	16	3	3
Central	25	22	5	2
West	26	18	4	2
Total	77	56	12	7

Table 9.--Responses to Research Question 5: How frequently is an agency training program used as a substitute for a required course in an in-service role in: Industrial Education Teacher Education? Vocational Technical Education Non-teaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	2	1
Central	25	22	1	1
West	26	18	1	1
Total	77	56	4	3
Type 2: Technical Training for Production				
East	26	16	1	1
Central	25	22	3	3
West	26	18	1	1
Total	77	56	5	5
Type 3: Management Seminars				
East	26	16	0	0
Central	25	22	1	1
West	26	18	1	1
Total	77	56	2	2
Type 4: Proprietary Schools				
East	26	16	2	2
Central	25	22	1	1
West	26	18	1	1
Total	77	56	4	4
Type 5: Open Short Courses or Seminars				
East	26	16	0	0
Central	25	22	3	1
West	26	18	3	2
Total	77	56	6	3

Table 10.--Responses to Research Question 6: How frequently is an agency training program used as a required activity in an in-service role in: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	0	0
Central	25	22	0	0
West	26	18	1	0
Total	77	56	1	0
Type 2: Technical Training for Production				
East	26	16	1	1
Central	25	22	2	2
West	26	18	0	0
Total	77	56	3	3
Type 3: Management Seminars				
East	26	16	2	1
Central	25	22	2	0
West	26	18	2	1
Total	77	56	6	2
Type 4: Proprietary Schools				
East	26	16	1	1
Central	25	22	0	0
West	26	18	0	0
Total	77	56	1	1
Type 5: Open Short Courses or Seminars				
East	26	16	0	0
Central	25	22	1	1
West	26	18	2	1
Total	77	56	3	1

Table 11.--Responses to Research Question 7: How frequently is an agency training program deemed inappropriate for in-service programs as an elective in: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	3	0
Central	25	22	9	6
West	26	18	6	5
Total	77	56	18	11
Type 2: Technical Training for Production				
East	26	16	1	1
Central	25	22	3	2
West	26	18	5	2
Total	77	56	9	5
Type 3: Management Seminars				
East	26	16	1	1
Central	25	22	6	5
West	26	18	6	2
Total	77	56	13	8
Type 4: Proprietary Schools				
East	26	16	2	1
Central	25	22	4	3
West	26	18	5	2
Total	77	56	11	6
Type 5: Open Short Courses or Seminars				
East	26	16	2	1
Central	25	22	4	4
West	26	18	3	2
Total	77	56	9	7

Table 12.--Responses to Research Question 8: How frequently is an agency training program deemed inappropriate for pre-service programs as a substitute for a required course in: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	5	3
Central	25	22	12	8
West	26	18	9	7
Total	77	56	26	18
Type 2: Technical Training for Production				
East	26	16	3	2
Central	25	22	6	4
West	26	18	11	6
Total	77	56	20	12
Type 3: Management Seminars				
East	26	16	3	2
Central	25	22	12	9
West	26	18	11	6
Total	77	56	26	17
Type 4: Proprietary Schools				
East	26	16	3	2
Central	25	22	11	5
West	26	18	7	5
Total	77	56	21	12
Type 5: Open Short Courses or Seminars				
East	26	16	3	2
Central	25	22	9	7
West	26	18	6	5
Total	77	56	18	14

Table 13.--Responses to Research Question 9: How frequently is an agency training program deemed inappropriate for pre-service programs as a required activity in: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	0	4
Central	25	22	12	9
West	26	18	10	7
Total	77	56	22	20
Type 2: Technical Training for Production				
East	26	16	3	1
Central	25	22	7	2
West	26	18	6	5
Total	77	56	16	8
Type 3: Management Seminars				
East	26	16	2	1
Central	25	22	10	6
West	26	18	9	5
Total	77	56	21	12
Type 4: Proprietary Schools				
East	26	16	6	3
Central	25	22	14	10
West	26	18	7	6
Total	77	56	27	19
Type 5: Open Short Courses or Seminars				
East	26	16	4	2
Central	25	22	8	8
West	26	18	7	5
Total	77	56	19	15

Table 14.--Responses to Research Question 10: How frequently is an agency training program inappropriate for in-service programs as an elective in: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	4	1
Central	25	22	9	6
West	26	18	7	4
Total	77	56	20	11
Type 2: Technical Training for Production				
East	26	16	1	0
Central	25	22	2	2
West	26	18	3	1
Total	77	56	6	3
Type 3: Management Seminars				
East	26	16	1	0
Central	25	22	6	5
West	26	18	3	1
Total	77	56	10	6
Type 4: Proprietary Schools				
East	26	16	3	0
Central	25	22	5	3
West	26	18	5	1
Total	77	56	13	4
Type 5: Open Short Courses or Seminars				
East	26	16	3	0
Central	25	22	4	4
West	26	18	3	1
Total	77	56	10	5

Table 15.--Responses to Research Question 11: How frequently is an agency training program deemed inappropriate for in-service programs as a substitute for a required course in: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	5	2
Central	25	22	13	9
West	26	18	10	7
Total	77	56	28	18
Type 2: Technical Training for Production				
East	26	16	3	1
Central	25	22	6	3
West	26	18	8	6
Total	77	56	17	10
Type 3: Management Seminars				
East	26	16	4	1
Central	25	22	11	8
West	26	18	9	6
Total	77	56	24	15
Type 4: Proprietary Schools				
East	26	16	4	2
Central	25	22	10	5
West	26	18	7	4
Total	77	56	21	11
Type 5: Open Short Courses or Seminars				
East	26	16	3	2
Central	25	22	7	6
West	26	18	5	3
Total	77	56	15	11

Table 16.--Responses to Research Question 12: How frequently is an agency training program deemed inappropriate for in-service programs as a required activity in: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	7	3
Central	25	22	12	8
West	26	18	10	5
Total	77	56	29	16
Type 2: Technical Training for Production				
East	26	16	3	1
Central	25	22	7	3
West	26	18	4	4
Total	77	56	14	8
Type 3: Management Seminars				
East	26	16	2	1
Central	25	22	10	6
West	26	18	6	5
Total	77	56	18	12
Type 4: Proprietary Schools				
East	26	16	5	2
Central	25	22	12	9
West	26	18	7	6
Total	77	56	24	17
Type 5: Open Short Courses or Seminars				
East	26	16	3	2
Central	25	22	8	7
West	26	18	6	3
Total	77	56	17	12

Table 17.--Responses to Research Question 13: How frequently is an agency training program deemed an appropriate activity as an elective course but is not presently being used in a pre-service role for: Industrial Education Teacher Education: Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	4	6
Central	25	22	8	9
West	26	18	7	8
Total	77	56	19	23
Type 2: Technical Training for Production				
East	26	16	4	4
Central	25	22	9	10
West	26	18	7	11
Total	77	56	20	25
Type 3: Management Seminars				
East	26	16	4	4
Central	25	22	11	9
West	26	18	7	10
Total	77	56	22	23
Type 4: Proprietary Schools				
East	26	16	3	4
Central	25	22	11	11
West	26	18	9	10
Total	77	56	23	25
Type 5: Open Short Courses or Seminars				
East	26	16	6	6
Central	25	22	8	10
West	26	18	8	10
Total	77	56	22	26

Table 18.--Responses to Research Question 14: How frequently is an agency training program deemed an appropriate activity as a substitute for a required course but is not presently being used in a pre-service role for: Industrial Education Teacher Education? Vocational Technical Education Non-teaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	3	5
Central	25	22	4	5
West	26	18	1	4
Total	77	56	8	14
Type 2: Technical Training for Production				
East	26	16	4	5
Central	25	22	7	9
West	26	18	1	7
Total	77	56	12	21
Type 3: Management Seminars				
East	26	16	5	5
Central	25	22	6	8
West	26	18	2	7
Total	77	56	13	20
Type 4: Proprietary Schools				
East	26	16	1	2
Central	25	22	5	8
West	26	18	4	4
Total	77	56	10	14
Type 5: Open Short Courses or Seminars				
East	26	16	5	5
Central	25	22	5	8
West	26	18	3	5
Total	77	56	13	18

Table 19.--Responses to Research Question 15: How frequently is an agency training program deemed an appropriate activity as a required activity but is not presently being used in a pre-service role for: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	1	4
Central	25	22	4	6
West	26	18	1	6
Total	77	56	6	16
Type 2: Technical Training for Production				
East	26	16	4	5
Central	25	22	3	6
West	26	18	6	7
Total	77	56	13	18
Type 3: Management Seminars				
East	26	16	4	4
Central	25	22	5	7
West	26	18	3	7
Total	77	56	12	18
Type 4: Proprietary Schools				
East	26	16	1	2
Central	25	22	4	4
West	26	18	4	3
Total	77	56	9	9
Type 5: Open Short Courses or Seminars				
East	26	16	2	3
Central	25	22	6	7
West	26	18	4	7
Total	77	56	12	17

Table 20.--Responses to Research Question 16: How frequently is an agency training program deemed an appropriate activity as an elective course but is not presently being used in an in-service role for: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	4	5
Central	25	22	9	9
West	26	18	5	9
Total	77	56	18	23
Type 2: Technical Training for Production				
East	26	16	7	6
Central	25	22	11	11
West	26	18	8	11
Total	77	56	26	28
Type 3: Management Seminars				
East	26	16	6	6
Central	25	22	10	9
West	26	18	10	10
Total	77	56	26	25
Type 4: Proprietary Schools				
East	26	16	6	5
Central	25	22	12	11
West	26	18	9	12
Total	77	56	9	12
Type 5: Open Short Courses or Seminars				
East	26	16	5	6
Central	25	22	9	10
West	26	18	7	10
Total	77	56	21	26

Table 21.--Responses to Research Question 17: How frequently is an agency training program deemed an appropriate activity as a substitute for a required course but is not presently being used in an in-service role for: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	4	5
Central	25	22	4	5
West	26	18	0	4
Total	77	56	8	14
Type 2: Technical Training for Production				
East	26	16	5	6
Central	25	22	8	10
West	26	18	4	6
Total	77	56	17	22
Type 3: Management Seminars				
East	26	16	5	5
Central	25	22	5	8
West	26	18	4	6
Total	77	56	14	19
Type 4: Proprietary Schools				
East	26	16	3	3
Central	25	22	5	8
West	26	18	5	6
Total	77	56	13	17
Type 5: Open Short Courses or Seminars				
East	26	16	7	5
Central	25	22	7	9
West	26	18	2	6
Total	77	56	16	20

Table 22.--Responses to Research Question 18: How frequently is an agency training program deemed an appropriate activity as a required activity but is not presently being used in an in-service role for: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

Region	Number Contacted	Number of Responses	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training				
East	26	16	2	4
Central	25	22	4	7
West	26	18	1	7
Total	77	56	7	18
Type 2: Technical Training for Production				
East	26	16	4	5
Central	25	22	6	7
West	26	18	9	7
Total	77	56	19	19
Type 3: Management Seminars				
East	26	16	4	5
Central	25	22	4	7
West	26	18	5	6
Total	77	56	13	18
Type 4: Proprietary Schools				
East	26	16	3	3
Central	25	22	5	5
West	26	18	5	4
Total	77	56	13	12
Type 5: Open Short Courses or Seminars				
East	26	16	5	4
Central	25	22	6	8
West	26	18	4	7
Total	77	56	15	19

Table 23.--Responses to Research Question 19: How many total credit hours were allowed per program for any given agency training program if used in a pre-service role for: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training		
Grand total allowed	132	150
No. of department heads answering the question	23	26
Ave. no. of credit hours allowed	5.74	5.77
Type 2: Technical Training for Production		
Grand total allowed	174	208
No. of department heads answering the question	33	33
Ave. no. of credit hours allowed	5.27	6.30
Type 3: Management Seminars		
Grand total allowed	72	96
No. of department heads answering the question	30	29
Ave. no. of credit hours allowed	2.40	2.28
Type 4: Proprietary Schools		
Grand total allowed	146	162
No. of department heads answering the question	19	20
Ave. no. of credit hours allowed	7.68	8.10
Type 5: Open Short Courses or Seminars		
Grand total allowed	149	163
No. of department heads answering the question	28	26
Ave. no. of credit hours allowed	5.32	6.27

Table 24.--Responses to Research Question 20: How many total credit hours were allowed per program for any given agency training program if used in an in-service role for: Industrial Education Teacher Education? Vocational Technical Education Nonteaching Degrees?

	Industrial Education Teacher Education	Vocational Technical Ed. Nonteaching Degrees
Type 1: Technical Sales Training		
Grand total allowed	157	176
No. of department heads answering the question	24	27
Ave. no. of credit hours allowed	6.54	6.48
Type 2: Technical Training for Production		
Grand total allowed	206	171
No. of department heads answering the question	32	32
Ave. no. of credit hours allowed	6.44	5.34
Type 3: Management Seminars		
Grand total allowed	85	92
No. of department heads answering the question	31	29
Ave. no. of credit hours allowed	2.74	3.17
Type 4: Proprietary Schools		
Grand total allowed	160	157
No. of department heads answering the question	24	22
Ave. no. of credit hours allowed	6.67	7.14
Type 5: Open Short Courses or Seminars		
Grand total allowed	152	167
No. of department heads answering the question	28	26
Ave. no. of credit hours allowed	5.42	6.42

Table 25.--Responses to Research Question 21: How often were those surveyed undecided about any of the previous questions?

	For Industrial Ed. Teacher Education		For Voc.-Tech. Ed. Nonteaching Degrees	
	Pre-Service	In-Service	Pre-Service	In-Service
Type 1: Technical Sales Training				
Used as elective	18	16	22	22
Used as substitute	22	19	25	24
Used as required activity	20	22	22	25
Type 2: Technical Training for Production				
Used as elective	21	17	22	22
Used as substitute	21	20	22	22
Used as required activity	21	23	26	29
Type 3: Management Seminars				
Used as elective	19	18	23	24
Used as substitute	19	19	21	23
Used as required activity	24	23	27	27
Type 4: Proprietary Schools				
Used as elective	20	14	23	22
Used as substitute	23	21	29	27
Used as required activity	22	21	30	29
Type 5: Open Short Courses or Seminars				
Used as elective	16	16	20	21
Used as substitute	21	22	24	25
Used as required activity	26	24	26	26

BIBLIOGRAPHY

BIBLIOGRAPHY

Aikin, Wilford M. The Story of the Eight-Year Study, With Conclusions and Recommendations, Adventure in American Education Vol. 1. New York: Harper & Brothers, 1942.

American Association for School Administration. In-Service Education for School Administrators. Washington, D.C.: American Association for School Administration, 1963.

Atkinson, Carroll, and Maleska, Eugene. The Story of Education. New York: Chilton Books, 1965.

Bakamis, William A. Improving Instruction in Industrial Arts. Milwaukee: Bruce Publishing Co., 1966.

Barlow, Melvin L. History of Industrial Education in the United States. Peoria, Ill.: Charles A. Bennett Co., Inc., 1967.

Bennett, Charles A. History of Manual and Industrial Education in the United States 1870-1917. Peoria, Ill.: Charles A. Bennett Co., Inc., 1937.

Burt, Samuel. Industry and Vocational-Technical Education. New York: McGraw-Hill, 1967.

Butts, R. Freeman, and Cremin, Lawrence A. A History of Education in American Culture. New York: Holt, Rinehart and Winston, 1953.

Byram, Harold, and Wenrich, Ralph. Vocational Education and Practical Arts in the Community School. Lexington, Mass.: D. C. Heath and Co., 1971.

Chandler, Charles, and Gross, Carl. The History of American Education Through Readings. Boston: D. C. Heath and Co., 1964.

Dean, C. Thomas, and Hauer, Nelson A. Industrial Technical Education. Bloomington, Ill.: McKnight and McKnight Publishing Co., 1969.

DeCarlo, Julia, and Madon, Constance A. Innovations in Education for the Seventies. New York: Behavioral Publications, 1973.

Dewey, John, and Dewey, Evelyn. Schools of Tomorrow. New York: E. P. Dutton and Co., 1962.

Evans, Rupert N. Foundations of Vocational Education. Columbus, Ohio: Charles E. Merrill Publishing Co., 1973.

Evans, Rupert; Hoyt, Kenneth; and Mangreve, Garth. Career Education in the Middle and Senior High School. Salt Lake City, Utah: Olympus Publishing Co., 1973.

French, William M. American Secondary Education. New York: Odyssey Press, 1967.

Gillie, Angelo. Principles of Post-Secondary Vocational Education. Columbus, Ohio: Charles E. Merrill Publishing Co., 1973.

Good, H. A History of American Education. New York: Macmillan, 1956.

Graham, Patricia Albjerg. Progressive Education: From Arcady to Academe. New York: Teachers College Press, 1967.

Graney, Maurice. The Technical Institute. New York: The Center for Applied Research in Education, Inc., 1964.

Guthrie, James, and Wymen, Edward, eds. New Models for American Education. Englewood Cliffs, N.J.: Prentice-Hall, 1971.

Hammond, James H. "The Educational Partnership: Government-Industry-Labor." Man, Society and Technology (September-October 1970): 17.

Havighurst, Roger J., ed. Leaders in American Education, Pt. 2. Chicago: University of Chicago Press, for the National Society for the Study of Education, 1971.

Hoyt, Kenneth; Evans, Rupert N.; and Markis, Edward F., eds. Career Education: What It Is and How to Do It. Salt Lake City, Utah: Olympus Publishing Co., 1974.

Leighbody, Gerald B. Vocational Education in America's Schools. Chicago: American Technical Society, 1972.

Luethemeyer, J., ed. A Historical Perspective of Industry. American Council of Industrial Arts Teacher Education, 1968.

Maley, Donald. Cluster Concept in Vocational Education. Chicago: American Technical Society, 1975.

Miller, Rex, and Smalley, Lee H. Selected Readings for Industrial Arts. Bloomington, Ill.: McKnight and McKnight Publishing Co., 1963.

Millwacker, Bruce. "NewsNotes." Manual Arts 5 (May 1914): 9.

National Association of Secondary School Principals. Focus on Change, A Guide to Better Schools.

National Association for Industry-Education Cooperation. The Link Between Industry and Education. Washington, D.C.: National Association for Industry and Education, August 1973.

National Education Association. Schools for the Sixties. New York: McGraw-Hill, 1963.

National School Public Relations Association. Vocational Education. Washington, D.C.: National School Public Relations Association, 1971.

Olson, Delmar W. Industrial Arts and Technology. Englewood Cliffs, N.J.: Prentice-Hall, 1971.

Pauther, Albert J., ed. Vocational Education Curriculum Development. New York: MSS Information Corp., 1972.

Power, Edward J. Education for American Democracy. New York: McGraw-Hill, 1958.

Ragan, William, and Henderson, George. Foundation of American Education. New York: Harper and Row, 1970.

Rhodes, James A. Alternatives to a Decadent Society. Indianapolis: Howard W. Sams and Co., Inc., 1969.

Robertson, Von H., ed. Guidelines for the 70's. American Vocational Association Yearbook. Chicago: American Technical Society, 1967.

Rogers, Everett M. Diffusion of Innovations. New York: The Free Press of Glencoe, 1962.

Rosenberg, Jerry M. New Conceptions of Vocational and Technical Education. New York: Teachers College Press, 1967.

Rugg, Harold, and Shumaker, Ann. The Child-Centered School. New York: World Book Co., 1928.

Schaefer, Carl, and Kaufman, Jacob K. New Directions for Vocational Education. Lexington, Mass.: D. C. Heath and Co., 1971.

Schaefer, Carl, and Strong, Merle. Introduction to Trade, Industrial and Technical Education. Columbus, Ohio: Charles E. Merrill Publishing Co., 1975.

Sears, William. Roots of Vocational Education. New York: John Wiley and Sons, Inc., 1931.

Trump, J. Lloyd, and Miller, Delmar. Secondary School Curriculum Improvement Proposals and Procedures. Boston: Allyn and Bacon, 1971.

U.S. Department of Health, Education, and Welfare. Increasing the Options. Recent Developments in College and University Degree Programs, by John R. Valley. Education Resources Information Center. Princeton, N.J.: Educational Testing Service, 1972.

Venn, Grant. Man, Education, and Work. Washington, D.C.: American Council on Education, 1964.

Viceroy, Roger A. "Program Requirements for a Technically-Oriented Graduate Student." Convention proceedings, American Industrial Arts Association, 1972.