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**An identification of the incentives that motivate Michigan
industrial arts teachers to participate in professional-growth
activities**

Ellis, Alberta J., Ph.D.

Michigan State University, 1989

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AN IDENTIFICATION OF THE INCENTIVES THAT MOTIVATE
MICHIGAN INDUSTRIAL ARTS TEACHERS TO PARTICIPATE
IN PROFESSIONAL-GROWTH ACTIVITIES

By

Alberta Ellis

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ABSTRACT

AN IDENTIFICATION OF THE INCENTIVES THAT MOTIVATE MICHIGAN INDUSTRIAL ARTS TEACHERS TO PARTICIPATE IN PROFESSIONAL-GROWTH ACTIVITIES

By

Alberta Ellis

The purpose of this research was to identify incentives that would motivate Michigan industrial arts teachers to participate in professional-growth activities. A general problem exists in that teachers employed with continuing certificates in Michigan have not until now been required to renew their certificates or show evidence of continued professional growth. A related problem addressed in this study was the current trend of traditional industrial arts programs being replaced by technology education programs requiring a commitment to staff development by instructors being affected by the change.

A survey instrument was developed and sent to a stratified random sample of 405 drawn from the population of 2,243 industrial arts teachers in Michigan. The subjects were asked to indicate the frequency of their participation in 16 professional-development activities during the past 2 years and their reasons for participating. They were asked to indicate which incentives were available to them and the importance of the incentives. They were

Alberta Ellis

also asked to indicate their degree of interest in a variety of approaches for technological updating.

The 264 respondents participated in reading professional journals, informal teacher/colleague dialogue groups, and attending meetings as members of district professional education committees as their most frequent professional-development activities.

The subjects most frequently selected personal choice/professional success as the reason for participating in staff-development activities. The preferred approach for technological updating was participation in industry observations, followed by attending workshops, conferences, or seminars. They preferred industry-based programs over locally designed ones. All approaches were of interest to 60% of the subjects. The preferred time for professional development was during the school day.

Seventy percent of the districts represented provided reimbursement for workshop fees, but the preferred incentive was advancement on the salary scale for the accumulation of continuing education units. The preferred incentives were monetary.

A significant relationship was found between attending workshops and nonmonetary incentives. A significant correlation was found between two of the incentives, potential to become a department head or teacher coordinator and a decision-making voice locally, and respondents' participation in professional-growth activities.

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CHAPTER I

INTRODUCTION TO THE STUDY

Introduction

Inservice education is not a new term or a new phenomenon to educators. It can be traced back to the 1850s, when teachers received their basic instruction from laymen in the community, and to the early 1900s, when programs were geared to help teachers obtain college degrees. "The Great Depression brought new problems to the schools and added new tasks for inservice education" (Tyler, 1971, p. 14). The Eight-Year Study that began in 1933 prompted colleges and universities by 1939 to become involved in preservice and inservice education focusing on new educational programs of the schools.

Recent definitions of inservice education range from "the continual updating of the practitioner in the classroom" (Meade, 1971, p. 211) to "any planned learning opportunities provided to personnel of the local district or other authorized agency for purposes of improving the performance of such personnel in already held or assigned positions" (Harris, 1980, p. 383), to "the continuing education of a person who has previously developed the basic competencies required for entry into a position on the teaching team" (Hill, cited in Evans & Terry, 1971, p. 73).

Inservice education of teachers is often referred to as staff development, continuing education, and professional development. It is defined as "any professional development activity that a teacher undertakes, singly or with other teachers, after receiving his/her initial teaching certificate and after beginning professional practice" (Edelfelt, 1977, p. 111). Hunter (1988) made the following distinction between staff development and inservice: "Staff development: a total program for enhancing professional effectiveness; Inservice: instruction designed to supply information and develop skills that can be translated into professional practice" (p. 33).

Staff development, or inservice education, has come quite a way since 1975. During this period, ten times as much research on staff development was conducted as in all preceding years (Joyce, 1987). Educators studying inservice education agree that there is a need to rethink and reconceptualize inservice education. Teachers have been critical of the deficit model used to develop programs to improve them without their input and without sensitivity to the unique characteristics of the adult learner.

The implementation of any innovation requires a substantial amount of staff development. This is very evident as technological advancements are being infused into the educational environment. Technology is rapidly affecting the workplace, both in business/industry and the education community. Through a wide array of state and national reports, the educational community has been given a mandate to educate and/or train a diverse population in an

ever-changing, complex world of sophisticated technology (Zanardelli, 1984). "All reforms, all efforts to cope with reality, all efforts to follow new visions are heavily dependent on continued professional growth" (Rubin, 1987, p. 1). The Rand Change Agent Study (cited in McLaughlin, 1978) emphasized that "local districts can no longer rely on 'new hires' to bring fresh ideas into district classrooms and must face the problem of how to upgrade the skills of the teachers they already have" (p. 70).

The transition from an industrial age to the information age, with vast and rapid technological advancements, has brought with it distinct problems for a specific group of teachers, those teaching in the field of industrial arts. With a smaller pool of students in schools, increased academic course requirements, and fewer dollars to support education, teaching the current processes of industry is not a simple task. Many industrial arts teaching laboratories are reported to be the same as they were 20 years ago, yet industry has undergone a massive transformation from labor-intensive production to the use of high technology with fewer production-line employees. There is a recognized need for technological updating and other professional-development activities for industrial arts teachers.

Industrial arts, like many other fields of study, is in transition because of many changes in its environment. Some observe that declines in the number of teachers and students, differences between what is taught in school and what exists in industry and technology, and public challenges to the importance of industrial arts are signs that the field is not functioning as well as it should. (Bjorkquist, 1986, p. 38)

Suggestions for reform, the influence of technology, maturing staffs, new relevant research on teaching and learning, and staff development all contribute to the problem faced by educators, especially supervisors and administrators. The results of numerous attempts to provide staff-development activities locally or to encourage staff to participate in off-site staff-development activities, have been dismal. Of an average staff, 10% to 15% willingly participate in staff-development activities, whereas another 10% to 15% may never participate. The majority, 70% to 80%, may participate if incentives are provided and the activities are relevant to their perceived needs (Juntune, 1985).

Even though business and industry often allocate large sums of money, professional staff, and other resources for employee-training programs, a recent study indicated that only 38% of the employees participated in some form of training in 1985 (Opinion Research Corporation, 1986). There is a need to find solutions for the field of education as well as industry to motivate employees to assume a greater responsibility for their own professional growth. The present research was undertaken in an attempt to shed some light on this topic.

Background of the Problem

The teaching profession is not regulated by a set of national standards. However, each state has standards for teacher certification. The standards in Michigan include two basic types of certificates: the initial or Provisional Certificate and the

Continuing Certificate. The requirements for the Provisional Certificate include:

1. The individual must be 18 years of age.
2. He/she must have an approved bachelor's degree.
3. He/she must have completed a specific teacher preparation program at an approved teacher education institution.

After a teacher has been issued a Provisional Certificate, he/she must teach successfully for the equivalent of 3 years and earn 18 semester hours in a course of study established and/or approved as a planned program by an approved Michigan teacher education institution to qualify for the Continuing Certificate. The Continuing Certificate is valid as long as the holder serves in an educational capacity for a minimum of 100 days in any given 5-year period (Michigan Department of Education, 1979).

Teachers who possess a Continuing Certificate in Michigan and are employed in local school districts have not been required to renew their certificates or show evidence of continued professional growth. Participation in professional-development activities is strictly voluntary unless local teacher contracts contain other stipulations. Ann Arbor, Michigan, public schools pioneered mandatory annual staff participation in professional development, specifying the number of hours required of each teacher yearly. The Redford Union, Michigan, district offers staff members monetary incentives in terms of advancement on the salary schedule for participating in professional-development activities. Rubin (1978),

referring to a presentation by John Porter, Michigan's former State Superintendent of Education, stated,

Almost four-fifths of Michigan's teachers are at the top of the salary scale, and more than three-fourths already have acquired all of the certification they will need. Thus, he cautions, we have come to that point where salary increments and credentials no longer can serve as the prime incentive for sustained professional need. (p. 4)

Hamilton and Wonacott (1983-84) strongly recommended that school districts adopt policies supporting professional development. In the absence of such policies, it becomes the building administrator's responsibility to create a school climate that is conducive to professional growth. With maturing staffs across the state, this task becomes increasingly difficult.

The trend toward local policy clauses or changes in certification appears to be gaining momentum. Currently there are no renewal requirements for those possessing a Continuing Certificate in Michigan. Beginning September 1, 1989, however, all persons issued an original 5-year Continuing Certificate will be required to renew that certificate every 5 years by earning 6 semester hours of academic credit from an approved teacher preparation institution or the equivalent in State-Board-approved professional-development programs or activities (MDE, Rule 390.1135, 1986).

The report by the Carnegie Forum's Task Force on Teaching as a Profession included recommendations not only for restructuring teacher education programs, but also for creating a National Board for Professional Teaching Standards. This board would be organized

with a regional and state membership structure to establish high standards for teachers and to certify those who meet the standards. In addition, teachers would be required to participate in continuing-education activities in order to keep current with their subject matter and emerging uses of technology and to obtain the advanced certificate being recommended (Chronicle of Higher Education, 1986).

Several states, including Minnesota, California, and Oregon, created autonomous teacher-licensure boards in the late 1960s and early 1970s. Just recently Nevada created an autonomous teacher-licensure board that will be teacher dominated and has been hailed as the first ever to be established, shifting power from the state board of education to the new Commission of Professional Standards in Education. This panel will have the legal authority to set licensing standards and control entry into the profession, mirroring other professional licensure boards (Rodman, 1987).

Industrial arts can play an important role in preparing young people for a knowledge-based technological society. "Technological literacy prepares individuals for intelligent participation as informed citizens in the transition from an industrialized society to a post-industrialized service and information age" (Maley, 1985, p. 13). Yet, in Michigan, the future of industrial arts looks dismal. In the past 8 years there has been a serious decline in the number of industrial arts teachers employed and programs offered to students. Between the 1978-79 and 1985-86 school years, the number of industrial arts teachers employed in public schools in Michigan

declined from 3,240 to 2,243--a decrease of 997 teachers (Rudnick, 1987).

There is evidence that industrial arts teachers in Michigan are somewhat aware of this problem. In a 1985 needs assessment conducted by the staff of the Vocational Education Personnel Development Project (VEPDP), the Future Direction for Industrial Arts was the first-choice topic for 50% of the Michigan Industrial Education Society Regions as a staff-development program activity. Five statewide workshops were offered, attracting 580 teachers and administrators.

In spring 1987 another needs assessment was conducted, in which 50% of the approximately 2,243 teachers in the state were surveyed by MIES regions. The preferred topics for staff development were once again identified. Computer-aided design was the top priority, followed by two other computer-related topics. Staff-development activities were offered during the 1987-88 school year based on the high-need areas identified in the assessment. Project staff assumed that a strong relationship existed between activities focusing on needs rated highly by instructors and attendance at VEPDP-organized workshops. The present researcher analyzed the accuracy of this assumption by reviewing information on workshop attendance.

Statement of the Problem

The option of technology education as a curriculum focus is becoming more widely accepted in Michigan, following a nationwide

trend. Two other curriculum emphases--traditional industrial arts and prevocational training--are not attracting large numbers of students (Rudnick, 1985).

The concept of Technology Education as a natural evolution of industrial arts curricula has caused a great deal of concern in the profession during recent years. In 1980, a series of symposia initiated a debate of the issue, clarification of the philosophy and identification of the appropriate content. (Jones & Wright, 1986)

If current technology used in industry is to be included in the industrial arts curriculum, the need for professional growth in technological updating and accompanying pedagogical skills is critical. Yet, if given the choice, many industrial arts teachers may choose not to participate in such updating. Thus, industrial arts programs face a continuing decline in enrollments. This decline is further reflected by the fact that fewer industrial arts teachers are being employed in Michigan. Because fewer programs are also being offered, as current teachers retire, they are not being replaced by new industrial arts teachers. Industrial technology or technology-education programs are gradually replacing former industrial arts teacher training programs (Padelford, 1988).

The problem centers on the fact that a once-viable elective program area in the curriculum is failing to continue to attract students. Infusing technology into the program content and increased participation by industrial arts teachers in technology-related professional-growth activities may be factors that could contribute to a revitalized industrial arts program.

To address the problem outlined above, this researcher attempted to identify the types of incentives that are important to industrial arts teachers in increasing their participation in professional-growth activities. Teachers' willingness to take part in such activities was also assessed, along with their current level of participation.

Purpose of the Study

The primary purpose of this study was to identify the types of incentives that would motivate Michigan industrial arts teachers to participate in professional-growth activities. The researcher's specific objectives were as follows:

1. To identify the frequency with which industrial arts teachers have participated in professional-growth activities and their reasons for participating.
2. To identify those professional-development activities that teachers consider most relevant.
3. To assess the interest of industrial arts teachers in participating in specific approaches to technological updating and their preferred time to participate.
4. To determine which incentives industrial arts teachers have identified as important motivators and the degree to which incentives are currently provided.
5. To assess whether a relationship exists between frequency of participation in professional-growth activities and the availability of local incentives.

6. To determine whether there is a relationship between teachers' age, level of education, teaching assignment, years of teaching experience, size of district, and presence of secondary employment, and their identification of important incentives.

Incentives have been viewed as one of the keys to motivating existing personnel to become actively engaged in professional-growth experiences. For this reason, incentives were an important focus of this study.

Importance of the Study

Considerable research has been conducted on effective staff-development practices, and various models have been devised for successful staff-development programs. Likewise, strategies have been identified for technological updating of industrial arts teachers. Few researchers, however, have identified the types of incentives that teachers view as important. Likewise, research is limited on teachers' willingness to participate in specific activities. Such information may be valuable in motivating teachers to participate in professional-growth activities.

Industrial arts teachers are unique in that they possess skills in occupational areas other than the teaching profession. If these additional skills provide employment potential after the school day, their availability for professional-development activities may be diminished. Identification of the types of incentives attractive to this group of teachers is intended to enhance the literature on this topic. Staff developers, building administrators, and those

responsible for developing teacher contracts that include expectations for professional growth should benefit from this research.

Theory and Supportive Research

The following discussion of the theoretical foundation for this study was based on a review of the more than 40 theories of motivation, literature on incentives, relevant research on adult learners, and recent studies on inservice education/staff development. In addition, a review of the current status of industrial arts is included.

Herzog (1984) surveyed 104 teachers in Wisconsin, who had been nominated by their principals as "effective teachers," to determine what factors motivated them to engage in continuing professional development. She found that teachers cited increased competence and achievement of personal or professional success as their primary reasons for participation--both intrinsic incentives.

In Holly's 1977 study of 102 teachers attending summer courses at Michigan State University, participants were asked what they considered meaningful activities for their own personal-professional growth with respect to meaningful activities. Talking with other teachers was most often cited, followed by university classes. Holly noted that "pay," "credit hours," and other external rewards were noticeably omitted in teachers' responses throughout the interviews.

In an attempt to identify problems in industrial arts, Bjorkquist (1986) conducted interviews with representative junior high and senior high teachers, city program supervisors, state supervisors, teacher educators, and teacher education administrators (n = 29). Interviewees identified five problem areas: (a) public perception, (b) content and its organization, (c) personnel, (d) change, and (e) competition. Of specific interest to this researcher was the area of personnel and the concerns identified in the interviews. The need for inservice education of experienced teachers was identified, along with the following: "There are not enough incentives for teachers to change." "Teachers lack professionalism." "Teaching has become a second job" (p. 42).

Lieberman and Miller (1984) stated that teaching becomes a noncareer for men who entered teaching expecting an advancement into administration. Disengagement from teaching becomes the norm for "men who are still teaching at age 40." "This is a problem of special concern in the male-dominated field of industrial arts" (Bjorkquist, 1986, p. 42).

Geering (1980) reported that the literature on motivation theory is growing rapidly because of the increased interest by leaders in all types of organizations. He divided contemporary motivation theory into three major categories: (a) content theories such as Maslow's, which concern the factors that initiate, stimulate, or cause behavior; (b) process theories, which delve into the reasoning behind the choice of a behavioral pattern to accomplish work goals; and (c) reinforcement theory, which, in

Skinner's terms, refers to the passivity of individuals mediating between forces, with the belief that measurable and observable behavior is more important than needs or goals. Geering presented an integrative motivational model and examined practical applications of current motivational research. He noted that much of the theoretical and empirical material on motivation is contradictory, but increased practical application of the knowledge gained by research is needed to find solutions for the existing problems facing organizations.

In the field of education evidence has shown that extrinsic incentives such as teacher salaries, smaller class sizes, new teaching materials, and performance contracts will not bring about a meaningful improvement in school effectiveness. Even though such incentives contribute to effectiveness, their potency cannot compare with that of such social-psychology variables as internal commitment and motivation to work. Workers once thought to be motivated by money now look toward other factors such as achievement, job challenges, and the human resources of the organization for long-term development and growth (Geering, 1980).

Lortie (1975) conducted a sociological study of the teaching occupation by interviewing teachers. He classified the rewards extended to teachers as (a) extrinsic--money, prestige, power, and so on; (b) ancillary, which can be objective and subjective and tend to be taken for granted, including work schedules and extended vacations; and (c) psychic, subjective evaluations made in the

course of the work engagement but varying among individuals, including student achievement or sociability. Of the teachers Lortie interviewed, 76.5% chose psychic, 11.9% extrinsic, and 11.7% ancillary rewards.

Research Questions

The following research questions were addressed in this study:

1. To what extent have Michigan industrial arts teachers participated in professional-development activities during the past 2 years, and what were their reasons for participating?
2. To what extent have Michigan industrial arts teachers participated in activities targeted by the Vocational Education Personnel Development Project between 1985 and 1987?
3. What types of professional-development activities do teachers view as relevant?
4. Which methods for technological updating are of interest to industrial arts teachers?
5. When would industrial arts teachers most prefer to participate in professional-development activities?
6. What specific incentives do industrial arts teachers view as important?
7. What types of incentives do local districts provide to encourage participation in professional-growth activities?
8. Is there a significant relationship between the frequency of participation in professional-growth activities and the extent to which incentives are provided locally?

9. Is there a significant relationship between teachers' (a) age, (b) level of education, (c) teaching assignment, (d) years of teaching experience, (e) secondary employment, and (f) size of the school district, and their identification of important incentives?

Research Methodology

The first step in conducting this research was to review the 1985 and 1987 needs assessments conducted through the Vocational Education Personnel Development Project, in which industrial arts teachers throughout Michigan were surveyed. A review of the inservice activities conducted as a result of the teacher-identified needs revealed the extent to which eligible teachers had participated in these activities. This information was analyzed by Michigan Industrial Education Society region and statewide. The next step was to conduct a thorough review of the literature on the topics of staff development, motivation, incentives, adult learning, and industrial arts.

Based on the literature regarding teachers' perceptions of staff-development activities, the role of incentives in motivating adults, and the developmental levels of the adult learner, the researcher decided to conduct a statewide survey. From the eligible population of industrial arts teachers, the investigator selected and surveyed a stratified sample of approximately 400 teachers.

The researcher developed and pilot tested a survey instrument to collect the necessary data. Questionnaire responses were content analyzed, primarily using measures of central tendency and

correlation analysis. Chapter III contains a detailed discussion of the procedures followed in conducting the research.

Assumptions

In conducting this study, the researcher assumed that:

1. The industrial arts teachers selected randomly would willingly participate by completing the self-administered questionnaire.
2. The industrial arts teacher participants would be honest in giving responses that reflected their personal attitudes.
3. The randomly selected teachers participating in the study represented teachers employed in Michigan.
4. The field-tested questionnaire would provide the necessary data to answer the research questions.

Limitations

It was not possible to identify each potential activity that might be categorized as a professional-development activity. Therefore, the study was limited to (a) the 16 professional-development activities listed in the questionnaire and (b) the eight approaches listed in the questionnaire as methods for technological updating (Hamilton & Wonacott, 1984). When summarizing the frequency of participation in professional-growth activities, each activity was given the same value. For example, reading one professional journal was given the same weight as attending a workshop or participating in any other activity.

It was equally impossible to list every type of incentive the individual teacher participants valued. Consequently, the study was

limited to the 11 incentives listed in the questionnaire, and participants could contribute to and expand on the original list in the space provided.

The study was limited to the perceptions and responses of the teachers who were randomly selected as respondents.

Definitions of Terms

Definitions of key terms that are used in this study follow.

Deficit model. A staff-development model based on a belief that activities are needed to remediate or improve staff rather than to renew or provide for continual growth.

Eight-Year Study. A major educational study that began in 1933, involving 30 school districts in cooperation with universities to develop programs to reach all students.

Extrinsic incentive. An outward or external reward that encourages someone to do something.

Incentive. That which encourages someone to do something.

Industrial arts teachers. A classification of secondary-certified teachers with preparation to teach students "those phases of general education that deal with industry--its evolution, organization, materials, occupations, processes, and products--and with the problems resulting from the industrial and technological nature of society" (Wilber & Pendered, 1973, p. 16).

Innovation. Something new or different that is introduced or added to the curriculum (Random House, 1969).

Inservice education. A planned learning opportunity that is provided to personnel of the local district or other authorized agency for purposes of improving the performance of such personnel in their current positions (Harris, 1980).

Intrinsic incentive. An internal reward that encourages someone to do something.

Michigan Industrial Education Society (MIES) regions. The 18 regions of Michigan that are used for MIES membership information.

Monetary incentives. Incentives that are extrinsic but also include money and/or reimbursement for money expended.

Motivation. An individual's recognition of a situation that he/she feels stimulated to complete or that stimulates him/her to contribute to its stability or modification. It is a general term used to refer to any arousal of an individual to goal-directed behavior (Theordorson, 1970).

Nonmonetary incentives. Incentives that may be either extrinsic or intrinsic but do not have a direct monetary attachment.

Off-site staff-development activities. Staff-development activities that are conducted in a setting away from the primary employment arena.

Preservice education. "The preparation needed to develop the basic competencies prerequisite to adequate performance in each of the instructional roles" (Moss, cited in Evans & Terry, 1971, p. 33).

Prevocational programs. Programs that "provide learning experiences which enable students to identify and describe worker

roles, entry level education, and situational and personal factors" (Sievert, 1975, p. 45).

Professional-growth activities. A broad range of activities or experiences that contribute to an individual's effectiveness in relation to his/her work role.

Secondary employment. A job held in addition to a full-time teaching position.

Technology education. A type of program

that can help the student: know and appreciate technology; apply tools, materials, processes, and technical concepts safely and efficiently; uncover and develop individual talents; apply problem-solving techniques; apply other school subjects; apply creative abilities; deal with forces that influence the future; adjust to the changing environment; become a wiser consumer; and make informed career choices. (International Technology Education Association, 1985, p. 25)

Traditional industrial arts programs. Programs such as woods, metals, and drafting that are commonly found in Michigan schools.

Overview

Chapter I contained an introduction to the study, a background and statement of the problem, purpose and importance of the study, theory and supportive research, research questions, assumptions and limitations, and definitions of key terms.

Chapter II contains a review of literature related to this research. An abundance of information exists on the topics of staff development, motivation, incentives, and the adult learner. Therefore, these topics were examined as they relate to the question: What types of incentives motivate Michigan industrial arts teachers to participate in professional-growth activities?

Chapter III contains a description of the design, methodology, and procedures followed in the study, from the development of the pilot survey instrument through revisions and actual data collection. The population and sample are described, as is the method of stratifying the sample. The data-collection procedures are detailed, and the statistical methods used in analyzing the data are explained.

The findings are presented and interpreted in Chapter IV. Chapter V includes a summary of the study, major findings, conclusions drawn from the findings, recommendations, and suggestions for further research.

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

Introduction

The topics selected for review provide the background and theory underlying the problem addressed in this study. The literature and research on the topics of staff development, motivation and motivational theories, incentives, adult learning and staff development, and industrial arts and technology education were examined as they pertain to the following question: What types of incentives motivate Michigan industrial arts teachers to participate in professional-growth activities? To respond to that question, the following topics were considered relevant:

1. The current status of inservice education.
2. Teachers' perceptions of current staff-development practices.
3. Staff-development practices that are recognized to be effective and recommendations for improving staff development.
4. Motivation and motivational theories as they relate to staff development.
5. Incentives or rewards and the implications for increasing participation in staff development.

6. Adult learners and adult learning theories as important considerations in designing staff-development programs.

7. The current status of industrial arts and technology education as areas in which staff need continued professional growth.

The literature related to these subjects is reviewed in this chapter.

Inservice Education for Teachers

A vast amount has been written on the topic of inservice education or continuing professional development for teachers. This section contains a discussion of the current status of inservice education, teachers' perceptions of current staff-development practices, recognized effective inservice-education practices, and a summary of recommendations made by prominent contributors to the literature.

Various terms have been used to denote professional-growth activities. Some of the terms that are used interchangeably in the literature include inservice education, professional development, continuing education, staff development, and professional-growth activities. These terms are also used interchangeably in the literature review.

The Status of Inservice Education

In a 1965 survey of promising practices in inservice education, comprehensive planning in which teachers were involved in selecting goals and activities for their own growth was noticeably absent (Edelfelt & Lawrence, 1975). In 1975, the National Education

Association conducted a study of teachers' need for instructional and professional development. A concern that surfaced was the inadequacy of or disinterest in inservice education. "The positive conclusion to be drawn from this information is that teachers want quality inservice education; they also recognize a significant discrepancy between what exists and what they would like" (Edelfelt & Lawrence, 1975, p. 16). Edelfelt and Lawrence pointed to a missing framework for inservice education and a lack of commitment at either the university level, to link inservice to preservice, or at the state or local district level, to assume ultimate responsibility for such education.

"Teachers, administrators, researchers, and bureaucrats all agree that current staff development or inservice programs are irrelevant, ineffective, and generally a waste of time and money" (McLaughlin & Berman, 1977, p. 19). Long (1977) and Edelfelt (1977) concurred on the ineffectiveness of most current practices.

The Rand Change Agent Study (1975) referred to two models of staff development: the deficit model and the developmental model.

The deficit model assumes that problems in the school or with teachers have to do with inadequate information, inadequate skills, and so if these skills and information could only be imparted to teachers, they would be more effective in the classroom. The major incentives for participation in systems using the deficit model seem to be credit on the salary scale or fulfilling the relicensing regulations with little or no release time for teachers. (McLaughlin & Berman, 1977, p. 193)

With the deficit model, there is very little carry-over to the classroom by teachers who feel staff development is not a priority.

With the developmental model or strategy, a school district is permeated with expectations about the role of teachers and their professional needs. The developmental model sets a climate for teachers to assume responsibility for solving their own problems. Some prevailing characteristics of the developmental model are: (a) funding and authority to determine staff-development needs and outcomes are at the building level, (b) the principal is viewed as an educational leader who sets an example for professional growth; (c) teacher centers often emerge as a message of the district's priority for staff growth; (d) when possible, local resources guide innovative efforts; and (e) release time is used rather than monetary incentives, but a combination of personal and release time may result (McLaughlin & Berman, 1977).

Shaefer (1986) said that one flaw in staff-development practices is that participants are lumped into homogeneous groups with similar expectations and outcomes, ignoring adult learning and the adult learner as a unique individual. She also noted the difference in emphasis between school districts and the private sector. The private sector recognizes the need for a systematic approach to guiding employees to appropriate professional-growth avenues through their personnel function or division. Shaefer cited the importance of the attitude and support of an organization toward staff development and its integration into the total organization.

Wood and Thompson (1980) described most staff-development programs as being ineffective, irrelevant, and a waste of time and money. They claimed that "inservice teacher training, as it is now

constituted, is the slum of American education" (p. 374). The authors criticized the focus of such training, which is usually information dissemination in the form of disjointed workshops and courses. Seldom is there a comprehensive plan with goals set by staff and adequate funding to carry out the plan. They blamed the current status of inservice education on educators who hold negative attitudes toward such education.

According to Lortie (1975),

"In-service training" in American public schools rarely rises above a superficial level; it seems to consist primarily of occasional short "workshops," faculty meetings, and infrequent visits to the classroom by central office supervisors. School systems generally have not assumed responsibility for systematically improving staff performance through serious training programs. I have speculated earlier that this stems from financial stringency and narrow localism; it may also be connected with the reluctance to invest in the future of staffs with high turnover. . . . If school systems are to play a significant part in increasing the adaptability of teachers, in-service education will have to receive considerably more cultivation. (pp. 233-34)

Rubin (1971) cited a lack of "achievement motivation" as the reason educators often do not continue to grow professionally. He faulted the teaching profession for its failure to establish in teachers the expectation of continued growth. Rubin claimed the existing system tends to destroy much natural motivation by not providing a tangible way of acknowledging either a superior effort or superior performance and suggested making greater use of extrinsic and intrinsic reinforcement.

Long (1977) perceived a need for staff development to cope with the pressing needs generated by societal changes, which are reflected first by students or clients and later in the curriculum.

It is our position that learning (changes in behavior) is the overall goal of staff development. Such changes are more likely to occur when in-service experiences have meaning to the learner (helper) and are not perceived as being threatening to the individual. (p. 80)

He stated that a transition must be made from staff development for renewal credits to staff development for professional growth.

Landrith (1977) asserted,

The tragedy of the decade is that public schools which spend so much time in upgrading the education of the nation expend so little time and effort in upgrading their own employees. Without effective in-service education programs, educators cannot perform at their peak efficiency. (p. 1)

Teachers' Perceptions of Staff-Development Practices

Showers, Joyce, and Bennett (1987) found that:

Surveys of staff development practices confirm the complaints of teachers, principals, and central office personnel that only a small proportion of programs combine the necessary components to develop skill or engender the "follow up" that sustains practice to the point of transfer. (p. 86)

Davis and Armistead (1965) listed the following ten aspects teachers prefer with regard to inservice activities: (a) active involvement, (b) demonstration teaching, (c) practical information, (d) programs that are short and to the point, (e) in-depth treatment of one concept, (f) well-organized activities, (g) variety, (h) an incentive to attend, (i) occasional inspirational speakers, and (j) an opportunity to visit other schools to observe other teachers.

In their research in Tennessee, Brimm and Tollett (1974) found that teachers wanted an opportunity to select the inservice program they believed would strengthen their own competence. They also wanted to be involved in developing the purposes, activities, and methods of evaluating the inservice programs.

Wood and Thompson (1980) claimed that the current problems with staff development exist because of negative attitudes, poor planning, impersonal activities, and participants' lack of involvement in planning. They also cited lack of follow-up, inadequate needs assessment, and unclear objectives as problems. Teachers are viewed as disliking inservice; therefore, they are often coerced or forced to take part or rewarded for participating. Often a district-wide focus is adopted, which is too far removed from teachers' needs; instead, the individual school should be the focus of inservice activities. Adults' needs must be met through inservice, yet it is customary for a program to consist solely of information to be assimilated. There is a lack of modeling, which should reflect desired practices to use in the classroom.

Holly (1977) surveyed 102 teachers attending summer courses at Michigan State University concerning their preferences for personal/professional-growth experiences. Talking with other teachers ranked as their first priority, followed by university classes, reading, self-evaluation, personal activities, and extracurricular activities with students. In questions related to where these teachers usually sought help or where they might obtain new ideas, the top response was "other teachers." Teachers' suggestions for improving inservice

education included personal/individual relevance of the activities, teacher input and collaboration, teacher-to-teacher sharing, provision of choices and alternatives, and ongoing programs that include follow-up.

Lortie (1975) noted,

That teachers do not depend greatly on the school hierarchy for technical assistance is supported by responses to a national survey conducted by the NEA (1967). When questioned about activities which might "contribute to professional growth," respondents showed limited enthusiasm for school-based programs. (p. 76)

Teachers evaluated external activities such as college-based programs more positively than in-school activities.

Christensen (1981) investigated Wisconsin elementary school teachers' perceived professional-development needs. In addition, teachers were asked to rank those needs by importance and to indicate their preference in having those needs met. A two-phase process was used in the study. The first phase consisted of identifying needs. In the second phase, teachers were asked to match a preferred delivery mode to each need. The top five needs teachers indicated were: (a) identifying reading abilities, (b) motivating students, (c) identifying mathematics abilities, (d) identifying learning disabilities, and (e) acquiring new ideas in reading. Of the 53 identified professional-development needs, teachers preferred the university workshop delivery mode for more than 50% of the topics and district workshops for 25%. Other preferred delivery modes were university courses and teacher-led workshops. Delivery modes identified but not preferred to any

meaningful degree were curriculum committees, staff meetings, and work experience.

Effective Staff-Development Practices

A 4-year, 2-phase study sponsored by the Rand Corporation (1975) provided insights into characteristics of effective staff-development practices. McLaughlin and Berman (1977) concurred with the Rand findings, stating,

The effective district staff development model provides a variety of options, it has a flexible program format, it stresses individual and small-group learning, it is concrete, ongoing, and directly tied to ongoing activities. Yet effective staff development depends much more on the district's point of view about principals and teachers as learners than on the specifics of the staff development program. (p. 191)

Lawrence (1974), too, found that the most successful strategies are teacher specific. Programs that emphasize demonstration, practice, and feedback have been found to be more effective than those that merely absorb teachers in ideas. Lawrence also found that staff development conducted by local administrators appeared to be more effective than that presented by outside consultants. Berman and McLaughlin (1978) supported this view, but Joyce (1976) found that teachers did not want their evaluators as their trainers. Johnston and Yeakey (1977) discovered that teachers and administrators differed significantly in their preferences for staff development and concluded that joint planning would contribute greatly to effective programs. The Rand Study (Lawrence & McLaughlin, 1980) supported this conclusion.

Showers et al. (1987) indicated that the majority of research relevant to staff development has been conducted during the last 20 years. Their research pointed to the importance in staff development of program design that teachers can implement in their classrooms. The authors reviewed researcher and practitioner issues and studied such independent and dependent variables as (a) teacher characteristics, (b) school and school-system characteristics, (c) student characteristics, and (d) staff-development programs. They also reviewed field-defined issues such as teachers' involvement in the governance process, site and time of training, the role of trainers, and voluntariness and commitment. Showers et al. wrote, "The literature is replete with the assumption that if people are highly motivated, flexible and good risk takers, then the results of training will be positive" (p. 83). They continued, "Stronger training, combined with involvement-oriented governance and the positive effects of active organizational leadership, can lay the basis for some very effective staff development programs" (p. 87). Self-concept has been found to be a strong influence on the ability to "drive" new teaching skills to implementation in the classroom (McKibbin & Joyce, 1980).

Cook's (1982) research on preservice and inservice teacher education revealed the following characteristics of effective staff-development programs: (a) teachers are actively involved in their learning; (b) collaboration based on mutual trust between institutions of higher education, local school districts, and the community is essential; and (c) changes in curriculum, learning, and

teaching require a change in attitudes, beliefs, and values. Programs based on the above-mentioned characteristics are: (a) teacher centered, giving choices to teachers who have responsibility for their own growth; (b) teacher directed, allowing teachers to play a major role, and (c) cooperative programs between universities and teachers, bringing together broad visions and immediate concerns.

Berman and Friederwitzer (1981) indicated that successful inservice programs are based on teachers' expressed needs and allow teacher input early in the program. Such programs provide teacher training before the onset of a new program or innovation and employ activities that parallel those to be used for children, creating a model for implementation. Successful programs provide teachers with knowledge of subject matter below and above their own grade level and include administrators and other supervisory personnel in the same training. Successful programs are held during the school day but take place in the building and provide continuous evaluation of the process and the immediate and long-term effects on student achievement.

Ainsworth (1974) focused on the shift of inservice activities from remediation to growth enhancement. He suggested that effective inservice education has the following characteristics: (a) practicality, (b) systematic development, (c) a humanistic nature, (d) teacher sharing, (e) variety, (f) choice, (g) self-direction, and (h) support and encouragement.

Wood and Thompson (1980) suggested redesigning staff development with adult learning in mind. Adults will commit when important and realistic goals are set that enhance their personal and professional needs. They want to see results and get feedback but do not want to be criticized for their current practices. As learners, they want to be shown respect, trust, and concern, without damaging their egos. They do not want topics or activities imposed on them, but desire to select the content, objectives, and activities. Effective staff-development programs should include more participant control over what is to be learned and how it is to be assimilated. The focus should be on job-related tasks that teachers consider important. Choices and alternatives should be provided, along with opportunities to practice new skills. Small-group work and learning from each other should be encouraged. Threat can be eliminated by having peers review and provide feedback about performance and areas needing improvement.

"To be more effective, training should include theory, demonstration, practice, feedback, and application" (Joyce & Showers, 1980, p. 379). Joyce and Showers analyzed more than 200 studies concerning the effectiveness of various kinds of training methods. The results of these investigations consistently showed that "teachers learn the knowledge and concepts they are taught and generally demonstrate new skills and strategies if provided opportunities for any combination of modeling, practice, or feedback" (p. 380).

McLagan (1987) claimed that excellent professional development has the following qualities: (a) anticipates the future while helping prepare individuals to shape and respond to it, (b) is a self-directed and a highly self-responsible process, (c) is efficient, (d) is relevant to the individual's career stage, and (e) uses both social processes and appropriate technology. Hull (1975) wrote that "inservice education exists as one of the most rewarding and potentially most effective mediums for encouraging the use of new ideas" (p. 43). For each inservice activity, he advocated using a management plan in which four simple questions are asked: (a) What is the purpose of the session? (b) Whom is it designed to influence? (c) What approach is likely to be most effective? and (d) What was the effect of the session?

The National Education Association, in cooperation with the Ohio Education Association (1977), prepared a planning manual for inservice education. An inservice continuum was designed, having six specific stages: (a) attending, (b) awareness, (c) interest, (d) commitment, (e) skill development, and (f) implementation.

Holly and Blackman (1981) suggested that the emphasis for professional development be placed on philosophical and psychological aspects rather than on the need for remediation. They recommended building a context that supports personal-professional development, considering the five related categories of attitude, climate, content, organization, and time. A nonthreatening environment, with personally relevant activities that are flexible and responsive, contributes to a positive learning climate. "Time

is one of the most important resources available to support professional development. . . . Growing takes time" (Holly & Blackman, 1981, p. 7).

Based on research and experience, researchers for the Association for Supervision and Curriculum Development (1985) identified the following 20 characteristics of successful professional development: (a) involvement of the participants in planning; (b) active involvement of principals; (c) allocation of time to plan; (d) visible district administrative support; (e) stated expectations for participants during activities and afterwards, including evaluation; (f) opportunities for participants to share; (g) an overall plan that provides for continuity; (h) regularly conducted needs assessments; (i) provision for follow-up sessions; (j) a program design that includes demonstration, supervised tasks, and feedback; (k) participants' active involvement in activities; (l) activities that allow for participant choice; (m) using participants as resources and building on individual strengths; (n) direct applicability to grade level or specific content area, with accompanying ready-to-use materials; (o) presentation of topics from participants' perspective; (p) degree of individualization determined by adults' stages of development; (q) small-group activities as the norm; (r) a nonthreatening environment; (s) consideration of physical needs when choosing a facility; and (t) choice of appropriate time of day and season.

Harris (1980) cited assumptions that should be made in shaping inservice education with a "people" orientation. One of these assumptions was that people can and will learn, based on their internal, personal frame of reference. Other assumptions were as follows: Feedback and cognitive organizers guide learning. Direct intervention is sometimes necessary. Time, conditions, and motivation lead to learning. Individuals determine the meaning and purpose of and satisfaction with the inservice activities.

Landrith (1977) recommended employing a systems approach in planning inservice activities. The approach he suggested is shown in Figure 2.1.

Recommendations for Improving Staff Development

To improve staff development, Edelfelt (1975) recommended building a conceptual framework with a legal-organizational and support framework. He suggested that such a design framework be constructed using cues from research. According to Edelfelt, the major issues to be resolved were (a) teacher supply and demand; (b) the relationship between preservice and inservice education; (c) the role of higher education; (d) the role of teachers and teacher organizations; (e) self-governance for the teaching profession; (f) the adequacy of courses, credits, and credentials; and (g) the role and purpose of inservice education.

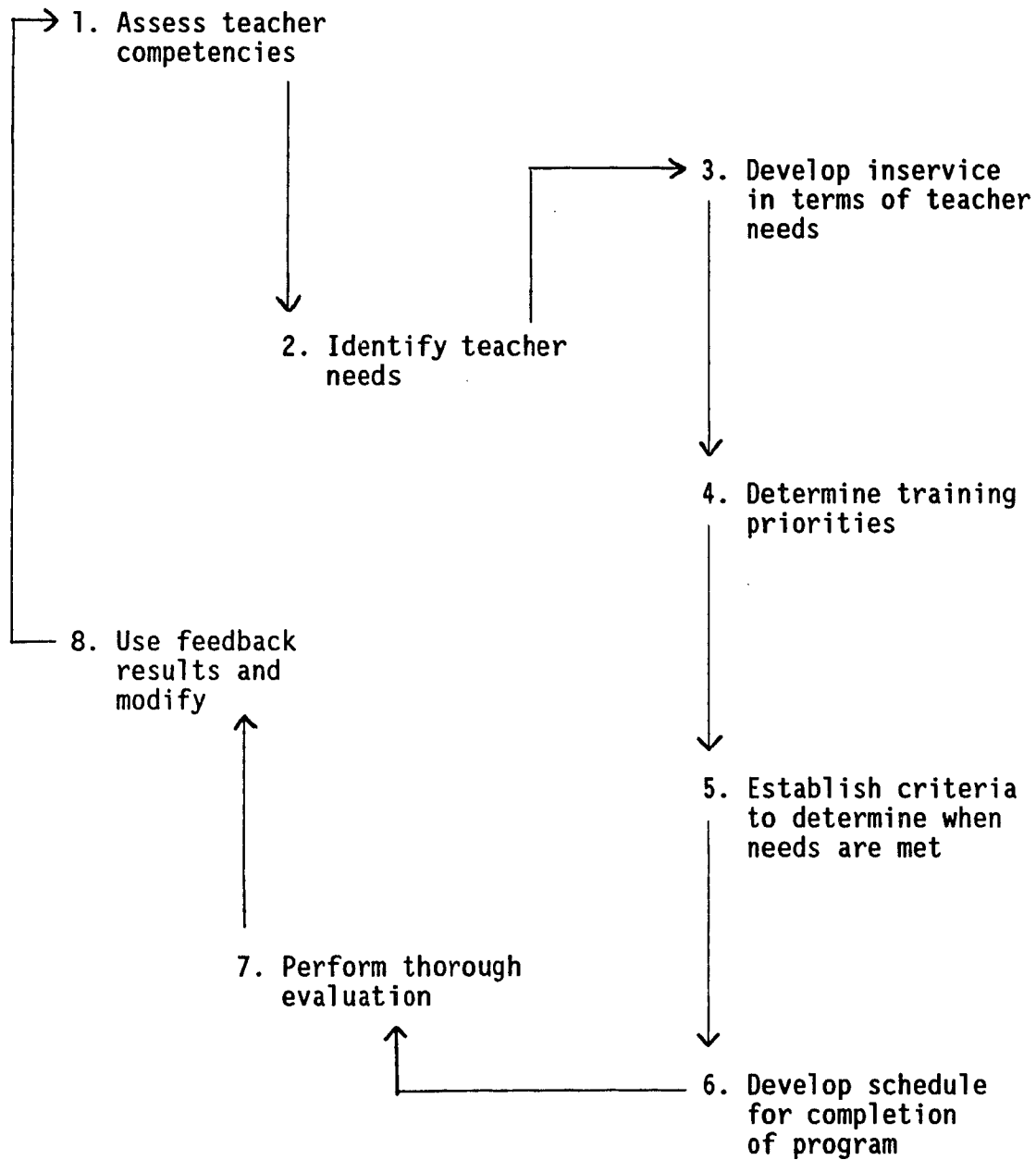


Figure 2.1.--Systems approach to planning inservice education
(from Landrith, 1977).

Tyler (1971) predicted that "inservice education of tomorrow will place great emphasis upon helping teachers acquire what is perceived by school leaders to be essential to the implementation of the plans of the school setting" (p. 14). He further predicted that inservice would address real problems directly or through simulation in a variety of settings. Tyler forecasted that the notion of molding or shaping teachers will cease to exist and be replaced with enhancing, aiding, supporting, and encouraging the development of the teaching capabilities the individual values.

Staff development is assumed to be an adaptive learning process in which (a) learners, namely principals and teachers, have different needs at different times and (b) that learners themselves must know what it is they need to know; (c) learners must be willing and (d) learners must be able. (McLaughlin & Berman, 1977, p. 194)

Jones and Hayes's (1980) study of 86 K-6 teachers and their needs relative to the teaching of reading raised questions about the validity of needs assessments. "Asking teachers what inservice they want may not produce an accurate assessment of needs" (p. 390), they wrote. The authors found little relationship between teachers' expressed need for knowledge and their measured knowledge in the content area of reading. Their preference for related staff-development activities did not reflect their real need, which was for a stronger foundation of knowledge of reading. Jones and Hayes concluded, "Our research suggests that teachers can express symptoms of needs but may not be aware of their actual needs" (p. 392).

Johnson (1975) worked with staff-development educators in an effort to reconceptualize inservice education. Their work led to

the following recommendations: (a) professional development should be viewed in three stages: preservice, initial teaching (1-5 years), and the "long pull"; (b) inservice should be a collaborative effort; (c) it should be recognized as an essential element of the educational process and include all personnel; (d) it should be based on personnel needs, school-program needs, and student needs; (e) inservice should interface with curriculum development and instructional improvement; (f) inservice should be locally planned by the people being affected; and (g) "alternative inducements/rewards for inservice education should be explored" (p. 75). Some suggested rewards or incentives included small grants and local and professional recognition. Johnson recommended that these rewards should take precedence over salary increments and should be offered to those who deliver staff development, as well as those who participate.

Edelfelt (1975) also identified a need to reconceptualize inservice education, but with the purpose of changing the ways educators are helped to improve their skills and broaden their horizons. He preferred using the terms "continuing education" or "professional development" instead of "inservice education" and saw a need to distinguish between the education of provisionally certified and fully certified teachers. Edelfelt identified needs at both the state and local levels for frameworks, resources, and commitments to professional development. In visualizing a plan for staff development, Bishop (1977) called for translating deficiencies

into affirmative and generative program objectives. Such a plan should provide an index to the responsiveness of the school district, the competencies of district professionals, and their commitment to learners.

MacDonald (1977) viewed the problem of staff development as existing in two arenas, which he defined as the social structure and the mindset of individuals and their view of teaching/learning. He affirmed the need for a change in both to alter meaningfully the future of staff development. Recognizing the present and future concern for staff development, the question emerges,

How can we create a professionwide environment which will enrich the lives of teachers and administrators, help faculties and districts enliven and continuously improve their schools, and ensure that each education professional continuously studies and enhances his or her own craft? (Joyce, 1977, p. 114)

Joyce asserted,

If the education profession is to flourish and if schools are to be a vital force in society, it is necessary to rebuild the school into a lifelong learning laboratory not only for children, but for teachers as well. The improvement of staff development is not a matter of deciding how to create and implement ad hoc programs. Rather, it is a matter of generating a rich environment in which every education professional becomes a student of education and works continuously to improve his or her skills. (pp. 117-18)

According to Joyce, "the primary task in staff development is to develop a professional, growth-oriented ecology in all schools" (p. 118). The three purposes of staff development are (a) to enrich the lives of staff, (b) to generate continuous efforts to improve schools, and (c) to create conditions that promote continuous professional skill development.

Edelfelt (1977) described two directions staff development might take. One was a continuation of what he viewed as a haphazard approach. The other was the development of a plan based on the roles teachers assume, while identifying specific competencies teachers need, to ensure that they are better prepared. Edelfelt cautioned that the plan must be carefully examined and prepared by all who operate within the system. The plan should be a sketch of the general framework in which the context and governance are established. Planners must recognize that circumstances and conditions often influence any thoughtful plan.

Having a choice of activities or paths to follow in personal and professional growth has been identified as a key ingredient in changing the somewhat negative view many individuals hold toward staff development or inservice education. Rogers (1969) characterized the freedom to choose as "something which exists within the individual, something phenomenological rather than external" (p. 269). "This experience of freedom to choose is one of the deepest elements underlying change" (p. 268), he said.

Meade (1970) supported the notion of giving teachers the prerogative to determine the ways they might achieve their professional-growth goals. He also believed that the organization (school system) must first set minimally acceptable standards of performance and identify the kind and quality of teaching it wants. Teachers would then be responsible for determining how to achieve their goals for professional growth. As Devaney (1975) wrote,

Teachers must be more than technicians, must continue to be learners. Long-lasting improvements in education will come about through inservice programs that identify individual starting points for learning in each teacher [and] build on teachers' motivation to take more, not less responsibility. (p. 7)

Jackson (1970) recommended a growth approach to staff development. He wrote,

What is needed . . . is both the time and the tools for the teacher to conceptualize his experience, to imbue it with personal meaning in a way that alters his way of looking at his world and acting upon it. . . . If teachers are to grow in their jobs, they need more than time off from their regular classroom duties. They require an institutional climate that supports and encourages their efforts to learn more about what they are doing. (pp. 28, 30)

Bush (1970) said that planners should respect teachers' professional autonomy and base professional-growth activities on individually determined needs. The ideal, he noted, was to have professional growth become a matter of inquiry in which the teacher continuously seeks to learn more about his/her own craft. It is a slow, cumulative process. Also, Bush recommended that professional-growth programs should "take advantage of teachers' potential for teaching one another" (p. 70). Lippitt-Fox (1971) also advised that teachers be involved in their own learning through identifying the most useful growth experiences. Colleagues must share in sustained professional growth. "The professional development of teachers must be seen in the context of a group process, of team relationships, and of total staff development" (Lippitt-Fox, 1971, p. 107).

Motivation and Motivational Theories

Motivation is an important topic in the fields of psychology, sociology, management, education, religion, and consumerism. However, there is little consensus about the meaning of motivation and how it is aroused or controlled. Interest in the concept has grown over the past 30 years, but opinions on the extent to which motivation influences behavior and the theories postulated to explain such influence differ greatly.

The term "motivation" is derived from the Latin word "movere," which means to move. Theodorson and Theodorson (1970) defined motivation as "the recognition by a person of a situation that he feels stimulated to complete or which stimulates him to contribute to its stability or modification. It is a general term used to refer to any arousal of an individual to goal-directed behavior" (p. 266). Murray (1964) stated that "a motive is an internal factor that arouses, directs, and integrates a person's behavior. It is not observed directly, but inferred from his behavior or simply assumed to exist in order to explain his behavior" (p. 7). He described a motive as consisting of two parts: the drive, which is the internal process, and the goal or reward, which terminates the drive.

Geering (1980) recognized that the research was sharply divided with regard to the degree of support given to the validity of pioneer and more recent theories of motivation. He concluded that analyses of motivation should concentrate on the incentives or factors that arouse a person's activities. Motivation is process

oriented and concerns choice, direction, and goals. It also is concerned with how behavior is initiated, sustained, or stopped and the individual's subjective reaction to this behavior.

According to Geering, there are three major categories of contemporary motivation theory: (a) content, (b) process, and (c) reinforcement. Content theories are related to the basic concept of needs, which begin, stimulate, or cause behavior. Process theories are concerned with understanding the reasoning behind one's choice of a particular pattern to accomplish work goals. Reinforcement theories, which gained renown through Skinner's work, assume that individuals are passive, merely mediating between forces and focusing on measurable and observable behavior rather than on needs or goals.

Well-known examples of contemporary content theorists include Argyris, Maslow, Herzberg, and Alderfer. Argyris's (1960) theory includes the term "predisposition," which he defined as "a tendency to act in a particular manner under specific conditions" (p. 65). Every individual has a number of predispositions he/she wants to express while a member of an organization, but they vary from individual to individual. In addition, predispositions vary within the individual at different times. Argyris drew attention to the incompatibility of one's basic needs and the demands of the formal organization. One such need, the innate human-development process, begins in infancy and advances toward completion in adulthood; it is difficult to suppress or alter this process. Argyris believed that

management should give more consideration to these basic needs and values and attempt to adjust the structure and operation of the organization to gain employee commitment. If the job meets the individual's predisposition, the employee will be motivated and productive.

Maslow (1954) wrote,

Current conceptions of motivation proceed ordinarily, or at least seem to proceed, on the assumption that a motivational state is a special, a peculiar state, sharply marked off from the other happenings in the organism. Sound motivational theory should, on the contrary, assume that motivation is constant, never ending, fluctuating, and complex, and that it is an almost universal characteristic of practically every organismic state of affairs. (p. 93)

According to Maslow, a positive theory of motivation is one that is derived from clinical experience in the tradition of James and Dewey, fused with the holism of Wertheimer, Goldstein, and Gestalt and the dynamicism of Freud and Adler.

Maslow categorized man's needs as (a) basic physiological and safety needs, (b) belongingness and love needs, (c) esteem needs, and (d) the need for self-actualization. He organized these needs into a hierarchy of relative prepotency. Once needs are relatively well gratified, a new set of needs emerges because "a want that is satisfied is no longer a want" (p. 84). The clear emergence of one need usually rests on the satisfaction or gratification of another need, assuming that human beings are motivated only by unsatisfied needs.

Chisholm's (1980) work was grounded on Maslow's theoretical framework. She found that not all needs are met entirely before

the next need emerges. For the average person, 85% of the physiological needs, 70% of the safety needs, 50% of the love needs, and 40% of the self-actualizing needs are satisfied.

Much research has been based on Maslow's work. Some of the results have been supportive, but most have opposed his theory. More than 200 such studies were conducted between 1948 and 1972, 146 of them after 1965. Maslow's critics have doubted that a hierarchy of needs exists and have asserted that needs are interconnected and dynamic, not static. The concept of a hierarchy of needs has also been difficult to validate empirically.

In his two-factor theory, Herzberg (1968) claimed that people have two levels of needs: (a) biological or physical, stemming from animal nature; and (b) psychological, stemming from human nature. He identified satisfiers or motivators as achievement, recognition, work itself, responsibility, and advancement, all of which are intrinsic in the work. He identified dissatisfiers or hygiene factors as company policy, supervision, interpersonal relations, working conditions, status, and security, which are all extrinsic to the work.

Herzberg studied 203 accountants to discover events at work that resulted in high satisfaction or high dissatisfaction. He concluded that factors that led to job satisfaction were distinct and separate from those leading to job dissatisfaction. Critics have viewed Herzberg's work as too narrow and lacking in validity and reliability. Herzberg himself stated, "The psychology of

motivation is tremendously complex, and what has been unraveled with any degree of assurance is small indeed" (p. 313).

Alderfer's ERG theory is a more recent motivation approach to establishing human needs in organizational settings. He reduced Maslow's five need categories to the three categories of existence (E), relatedness (R), and growth (G)--ERG. The two basic principles of ERG theory are: (a) the less each level of need has been satisfied, the more it will be desired; and (b) the more lower-level needs are satisfied, the more higher-level needs are desired, and the less higher-level needs have been satisfied, the more lower-level needs will be desired. Since ERG is a relatively new theory, few studies have been undertaken to evaluate it, but Geering (1980) viewed it as "the most current, valid, and researchable theory of motivation" (p. 32).

McGregor's (1957) work resulted from his assessment that the conventional management approach was inadequate when motivation was considered. He supported Maslow's theory of a hierarchy of needs but stated, "A satisfied need is not a motivator of behavior" (p. 306). McGregor's Theory X philosophy of management is inadequate because the human needs on which the approach relies are today unimportant motivators of behavior. His Theory Y concept of management relies heavily on self-control and self-direction. Management is responsible for organizing elements of productive enterprise. People are not by nature passive or resistant to organizational needs, but become so as a result of experiences in organizations. According to McGregor,

The motivation, the potential for development, the capacity for assuming responsibility, the readiness for direct behavior toward organizational goals are present in all people. Management does not put them there. It is the responsibility of management to recognize and develop these human characteristics for themselves. The essential task of management is to arrange organizational conditions and methods of operation so that people can achieve their own goals best by directing their own efforts toward organizational objectives. (p. 316)

Houle (1963) developed a motivational orientation model specifically to explain adult learners' motives for participating in continuing education. He stated, "If we are ever to understand the total phenomenon of continuing education, we must begin by understanding the nature, the beliefs, and the actions of those who take part to the highest degree" (p. 10). Houle interviewed 22 individuals who had the same basic way of thinking about the process in which they were engaged. "They all had goals they wished to achieve, they all found the process of learning enjoyable or significant, and they all felt that learning was worthwhile for its own sake" (p. 15). Houle categorized adults into three groups. Goal-oriented adults use education as a means of accomplishing objectives that have been clearly identified. Activity-oriented adults take part because they find, in the circumstances of the learning, meaning that may not relate to the content or purpose itself. Learning-oriented adults are those who seek knowledge for its own sake.

In relating his findings, Houle noted:

It is surprising . . . that only one of the persons interviewed thought that teachers had had any influence in creating the desire to continue learning. . . . The explanation of this

discordant finding may well be related to failures in the prevailing method of teaching. If a teacher does not make explicit the importance of lifelong learning, demonstrate its significance in his own behavior, and show by what methods it may be pursued, there is no particular reason why he should be identified by his students as wishing to create the desire for continuing education within them. (pp. 71-72)

Five contemporary motivational models are illustrated in Figure 2.2 to show the similarities and differences among them. The chart, adapted from O'Connor (1982), is arranged hierarchically, with the lowest need requirements shown at the bottom and the highest at the top.

The two major process theories are expectancy theory and equity theory. Expectancy theory was formulated by Vroom (1970), based on the earlier work of Tolman, Lewin, and Atkinson. The theory is based on three key concepts: (a) expectancy, which is the perceived belief that one's effort will lead to successful performance; (b) valence, which is the degree of attractiveness or desirability that an individual attaches to a reward; and (c) instrumentality, which is the belief that a given performance is essential in attaining a given reward or satisfying a valence. "The underlying assumption of the expectancy model is that choices are lawfully related to psychological events occurring with behavior" (Geering, 1980, p. 33).

Equity theory was developed by Adams in 1963 and states that if individuals perceive a discrepancy between the amount of reward they received and their efforts, they are motivated to reduce that discrepancy; the greater the discrepancy, the more the individuals are motivated to reduce it. Adams postulated that employees compare

Argyris's Interpersonal	Maslow's Need Hierarchy	Herzberg's Two-Factor Theory	Alderfer's ERG Theory	Houle's Motivational Orientation
Humanistic/democratic values: -Internal commitment -Psychological success	Self-realization and fulfillment	MOTIVATIONAL FACTORS Work itself Achievement Possibility of growth Responsibility Advancement	GROWTH (G) Efforts directed toward creative or personal growth (self-actualization and ego esteem)	Professional knowledge Improvement in social welfare skills Professional advancement
Humanistic/democratic values: -Psychological success -Process of confirmation	Esteem and status	COGNITIVE FACTORS Recognition		Acquisition of credentials
Humanistic/democratic values: -Authentic relationships	Belonging and social activity	HYGIENE FACTORS Status Interpersonal relations -Supervision -Peers -Subordinates	RELATEDNESS (R) Interpersonal relationship in the workplace (safety, social, some esteem)	Improvement in social relations
Bureaucratic/pyramidal values: -Direction, authority control, rewards/penalties	Safety and security	HYGIENE FACTORS Supervision technical Company policy & administration		Compliance with authority
	Physiological needs	HYGIENE FACTORS Job security Working conditions Salary Personal life	EXISTENCE (E) Good working conditions Adequate pay (Physical and safety need)	Relief from routine

Figure 2.2.--Comparison of motivational models, arranged hierarchically.

their own inputs and outcomes to those of co-workers. If there is not a balance between the two, the individual is motivated to reduce the inequity. Most research in this area has focused on wage and pay levels as basic outcome and work effort or performance as input.

The difference between expectancy theory and equity theory is that, according to expectancy theory, the person chooses a level of work that would maximize outcomes or rewards. In equity theory, though, the person chooses a level of work effort that is equitable to that of some comparison or reference person.

Skinner (1972) is the most noted authority on reinforcement theory. The basic assumptions of reinforcement are that: (a) the individual is passive and only mediates the relationship between forces acting on him/her and the output; and (b) the notion that behavior is based on an individual's needs, drives, or goals is rejected in favor of measurable and observable behavior. Permanent change in behavior results from reinforced behavior or experience.

Ivancevich (1977) developed an integrative model in an attempt to draw together the major motivational theories. His model encompasses organizational variables such as leadership, job design, reward system, group activities, and organizational design. He integrated the individual characteristics of need deficiencies, drives, learning, and personality, which the literature has indicated lead to choice decisions, such as the value of rewards, effort and performance probability, and the individual's perception of equity. Past experiences are recognized along with learning effects in stimulus-reinforcement situations. Managers can use this

information to develop strategies to influence employees' motivation.

Madsen (1964) defined motivational psychology broadly as the study of all conditions that arouse and further regulate the behavior of organisms. He attempted to crystallize the wide array of motivational theories into three types. The physiologically oriented theory includes the work of such theorists as Pavlov, Hebb, Duffy, Morgan, Lindley, Tinbergen, Bindra, Berlyne, Konorsky, and Pribram. An example is Hebb's theory of behavior, which is "based on the physiology of the nervous system and . . . attempts to find some community of neurological and psychological conceptions" (Madsen, 1964, p. 179). The learning theory of motivation embraces the work of Thorndike, Hull, Miller, Brown, Tolman, Woodworth, Logan, and Skinner. Hull's theory has been described as an atypical theory of motivation and a general theory of psychology, which is most detailed in dealing with the psychology of the learning process and the drive process. Some people consider it to be the "most systemic and exact theory in psychology" (Madsen, 1964, p. 176). The personality theory of motivation is represented by the work of Freud, Lewin, Murray, Festinger, Cattell, Atkinson, McClelland, and Maslow. McClelland's theory is "an original motivational theory based upon a pioneering study of human, culturally determined motivation" (Madsen, 1964, p. 213). According to these theorists, all motives are acquired, and all motivation is based on emotions.

Madsen also discussed the motivation theory of Charlotte Buhler, who is known as one of the great integrators in psychology. She developed a goal inventory describing the stages of development, along with the theme of each stage. According to Buhler, childhood is dominated by satisfaction of life, love, family, sex, and self-gratification needs. Adolescence is governed by self-limiting adaptation with self-limiting caution, adaptiveness and submissiveness, and avoidance and hardships. Ages 25 to 50 are a time of creative expansion, self-development, power, and fame. Ages 50 to 65 uphold internal order and moral values, with political and religious commitments as well as success. Ages 65 and older can be dominated by a regression to need satisfaction from childhood or a continuation of creative expansion.

McDougall's theory explains behavior in terms of purposive life processes aimed at preserving one's existence. McDougall labeled his motivational variables instincts and propensities, but they are not highly developed and are difficult to control empirically (Madsen, 1964).

Tolman presented a classifying theory that he later changed to a deductive theory, consisting of the initiating causes of behavior, the intervening variables, and the behavior itself. Allport applied his hypotheses of functional autonomy to the psychology of motivation. He described the two aspects of human behavior as adaptive and expressive, which "always appear simultaneously as aspects of concrete units of behavior, actions" (Madsen, 1964, p. 108). Each aspect of behavior is determined by its own set of

central determinants, which together form a system known as the personality of the individual.

According to Geering (1980), most concepts of motivation are based on cognitive, hedonistic, instinct, and drive theories. "There is no single generally accepted theoretical framework for motivation. Instead there are a number of competing competencies inherited from philosophy or borrowed from biology" (pp. 8-9).

Cognitive theory was based on the assumption that man is a rational being with conscious desires and the will to fulfill them. This assumption has been rejected and replaced by the notion that man makes decisions based on personal constructs, ideas, values, and attitudes about the world.

Hedonistic theory was based on the idea that man behaves in such a way as to seek pleasure and minimize displeasure. A more sophisticated version of hedonistic theory stated that motivation really consists of learned anticipation of goal-arousing positive or negative emotional reactions.

Darwin's theory of evolution initiated the instinct theory, but this concept was later changed by Freud and McDougall. Its demise came about as behavioral theorists emphasized acquired rather than inherited behavior.

Drive theory is of central importance to many current theories of motivation. It is based on the belief that deficiencies pertaining to both primary and secondary drives are responsible for motivating behavior. The principal emphasis in motivation as an

organizational and administrative phenomenon is on the individual's behavior at work. There has been a marked change in the concept of managing work and workers from prescriptive models to the current approaches based on human relations and a sense of cooperation, not only between workers but also between employers and employees, rather than an adversarial relationship.

Extrinsic and Intrinsic Motivation

The two widely recognized types of motivation are extrinsic and intrinsic. According to Deci and Porac (1978),

An activity is generally said to be intrinsically motivated if there is no apparent external reward associated with the activity. . . . The reward is said to be in the activity itself. The extent to which the people engage in the target activity is assumed to reflect their intrinsic motivation for the activity. (p. 150)

The psychological basis for intrinsic motivation is a need for competence and self-determination because both have survival values.

Extrinsic motivation occurs when the external environment and some type of reward can be associated with the specific behavior or activity. Much research has been conducted on the effects of the two types of motivation and the specific rewards or incentives that stimulate a desired behavior. In his research, deCharms (cited in Calder et al., 1975) found evidence that intrinsic and extrinsic motivation may interact. Deci indicated that intrinsic and extrinsic rewards are not additive in their effect on motivation. Kruglanski et al. (1975) elaborated:

According to Deci, intrinsic motivation obtains whenever the actor locates the causality for his activity within himself and extrinsic motivation whenever he locates it in the external

environment. . . . By now there exists experimental data to wit that the introduction of external rewards (money, prizes, experimental credits, etc.) leads to a decline in intrinsic motivation measured, for example, by reported interest, persistence at or resumption of an activity or the quality of task performance. (p. 744)

Two studies reported by Kruglanski et al. supported the hypothesis that when money is intrinsic to a task, its presence enhances intrinsic motivation, but when it is extrinsic to a task, its presence lowers intrinsic motivation. An experiment designed to test the relationship between the magnitude of task-intrinsic rewards and the degree of intrinsic and extrinsic motivation toward the task revealed that "there was strong support for the hypothesis that (a) the extent of intrinsic motivation varies positively and (b) the extent of extrinsic motivation varies negatively with the magnitude of task-intrinsic rewards" (Kruglanski et al., 1975, p. 704). The practical implication is that extrinsic rewards tend to decrease intrinsic motivation, and since workers quickly adapt to extrinsic rewards, there is a need constantly to elevate the rewards to sustain work motivation. The economic efficiency of extrinsic motivation and reward systems needs to be examined carefully by employers developing such systems.

McGraw (1978) and McCullers (1978) claimed that rewards may have detrimental effects on motivation over a long period. McGraw pointed to the task itself and claimed that, with interesting tasks, offering incentives is a superfluous type of motivation. McCullers based his claim on the theoretical principles of the Yerkes-Dodson law, which states that increasing the level of motivation will

enhance performance up to a point and after that will result in poorer performance on difficult tasks. The Hull-Spence theory states that rewards should be used only to enhance performance and will do so only with simple tasks but be detrimental in complex tasks. Most success with rewards has been found with young children and institutionalized adults. It is more difficult to find evidence that rewards enhance performance in situations requiring flexibility, intrinsic motivation, conceptual and perceptual openness, and creativity.

Motivation and Staff Development

Farrar (1981) conducted research involving 184 teachers and 18 building administrators to determine what constituted superior teaching and what manipulable extrinsic incentives exist in education to motivate teachers to become superior instructors. He identified two types of motivators. Participation motivators (retirement plans, annual salary, increments, and medical plans) attract an individual to an organization. Performance motivators (piecework and merit pay) are distinguished by a contingency payoff depending on performance.

Farrar used expectancy theory to determine teachers' performance motivation. He found that the potential performance motivators for teachers were: (a) recognition for superior teaching, (b) insurance, and (c) cost-of-living allowance. Farrar claimed that these findings supported the general contention of many motivational theorists like Lawler (1973) and Lawler and Madler

(1979), "who believe pay manipulation holds the greatest promise for performance motivation" (p. 28). He concluded that pay-related incentives appeared to hold the most potential for both elementary and secondary teachers. However, the incentives used in his study were primarily extrinsic ones that were administratively manipulable and perceived by teachers as fair and equitable.

O'Connor (1982) studied the problems of motivating nurses to attend staff-development programs, to be active learners, and to apply the new knowledge and skills in the work setting. Looking for solutions to these problems, she reviewed the models of Maslow, McGregor, Argyris, Herzberg, and Houle. O'Connor further applied Maslow's model to the three motivational problems with nurses. Drawing on the work of Knowles, she concluded that humanistic approaches to the educational process work best with adults. Data from records of nurses' participation in continuing education outside the work environment indicated that their motivational orientations corresponding to higher-order needs were the most influential in prompting participation. She recommended that adult-learning theory and humanistic educational approaches appealing to higher-order needs are likely to be most effective in motivating nurses to participate, to be active learners, and to apply the new skills learned.

Wonacott and Hamilton (1983) expressed concern that "vocational teachers, as a whole, are not staying up to date with the fast-changing technologies of their fields" (p. 56). As a result, they worked with experts in the field and identified many successful

approaches for technological updating. They noted that maintaining motivation among teachers was essential. Wonacott and Hamilton's subsequent research focused not only on motivation, but also on incentives and rewards. "Intrinsic motivation is probably the most effective motivation" (Hamilton & Wonacott, 1984, p. 33). Personal values, which the authors labeled professionalism, were cited as a powerful force that "naturally leads teachers to put time, money, and effort of their own into the job of teaching" (p. 33). Hamilton and Wonacott listed salary, professional recognition, and credentialing as motivators commonly used in vocational education as extrinsic incentives and rewards. "Although motivation theory stresses the long-term advantages of positive motivation, the important consideration is not so much how teachers are motivated but that they are motivated" (p. 35).

Incentives

This section contains a discussion of the literature on incentives, rewards, and reward systems, as well as their effects on individuals primarily in a work setting. The implications of offering rewards for participation in staff-development programs are also examined. The terms "rewards" and "incentives" are used interchangeably in the literature. An incentive or reward is that which encourages someone to do something. The two basic categories of incentives are (a) outward or external, known as extrinsic incentives, and (b) internal, known as intrinsic incentives.

Organizations may have formal or informal incentive or reward systems as potential employee benefits or to provide opportunities to challenge employee groups and individuals. Incentives can be key factors in bringing about change, but the literature review provided little insight into the specific types of incentives that increase motivation, the sources and conditions under which they should operate, or the way they should be combined to enhance motivation (Sieber, 1979).

The following seven trends identified by Sieber suggest a need for a new perspective in identifying incentives and disincentives in public education: (a) there is a growing appreciation for extrinsic rewards that emerge in the process of innovation; (b) there is an increased awareness that implementation is distinct from adoption of an innovation and that a different reward is appropriate at each stage of the change process; (c) there is a recognition of the local conditions that shape change efforts and sometimes cause incentives to fail to yield the expected results, (d) there is an awareness of school personnel's reliance on local sources rather than on external sources of knowledge or expertise; (e) there appears to be greater attention to conflicting requirements of various incentives, (f) there is a growing awareness of the unanticipated negative and positive side effects of planned change efforts, and (g) there is an emerging body of research on the types of rewards that teachers endorse.

Much has been written about the negative effects of incentives and the results of giving extrinsic rewards. In reference to Deci's cognitive evaluation theory, Pinder (1976) stated,

Contingently paid rewards, especially money, can cause an individual to perceive the justification of his working to shift from internal reasons (based on the satisfaction of doing the task) to external reasons (the receipt of the reward). As a result, when the external reward ceases, the major justification for performing the task is removed. Further, the initial intrinsic motivation will have also been undermined" (pp. 693-94)

Pinder's research further supported Deci's theory, suggesting that individuals who are paid under a noncontingent schedule may derive a more intrinsic orientation toward the work, greater work satisfaction, and higher degrees of intrinsic motivation than people paid according to a more contingent pay schedule.

Sergiovanni and Elliott (1965) investigated attitudes toward work and the types of investments people make in order to obtain the desired rewards. The first investment is participation, which meets lower-order needs of security, socialization, and small amounts of esteem. The second investment is performance--giving extra energy and achieving above and beyond expectations. Rewards needed here are improved self-esteem and self-actualization. More money, release time, and better working conditions are appreciated but not appropriate. Sergiovanni and Elliott's work suggested that inservice programs should address the variety of needs and experiences teachers bring to the learning environment, along with interest and investment at different levels.

According to Mitchell and Peters (1988), "effective incentive systems should reflect the principles that intrinsic rewards are more powerful than extrinsic ones and that encouraging collegiality is preferable to rewarding individual teachers" (p. 74). They maintained that policies being developed to enhance teacher motivation must solve two problems. The first is participation, extending the scope of work; the second is performance, setting higher standards. Figure 2.3 illustrates four motivational strategies these authors recommended: (a) extend the range of tasks for teachers by enlarging their job definition; (b) develop better ways to recruit new teachers, keep good teachers, and encourage ineffective ones to find alternative careers; (c) develop high-quality professional-growth programs to enhance teachers' skills; and (d) strengthen accountability for performance by improving task execution.

	Extend the Scope of Work (Do More)	Set High Standards (Do Better)
Motivating Participation (Try Hard)	1. Enlarge job responsibilities	2. Improve ways to recruit and retain
Motivating Performance (Get Results)	3. Professional development	4. Accountability for performance

Figure 2.3.--Teacher-motivation policy strategies (from Mitchell and Peters, 1988).

In an ERIC Clearinghouse (1980) study,

a rather surprising finding was that giving extra pay for training had either insignificant or negative effects. Apparently, teachers participate in training programs because they believe they will help them to become better teachers and not because of extrinsic rewards. (p. 182)

... Paying teachers to participate in programs appears to be less useful than providing programs that appeal to teachers' motivation to improve their abilities and become better teachers. (p. 184)

West (1977) identified questions that researchers need to answer to assist in solving some problems in staff development. Some of those questions are:

Is the reward system in schools effective? Teachers identify personal growth as their most potent motivating factor, but they are offered only credits leading to financial reward. What other rewards could be offered? How could they be instituted, and what effect would they have? (p. 44)

The distinction between intrinsic and extrinsic sources of satisfaction or dissatisfaction is inherent in the very nature of the job itself or is generated by the contextual conditions surrounding the job (Fraser, 1969). Rewards can also be viewed as either individual or system based. Individual rewards depend on individual performance, whereas system-based rewards apply across the board to all employees of an organization (Katz & Kahn, 1966).

Over the years, incentives have been categorized in a variety of ways, from a taxonomy of organizational inducements (Barnard, 1938) to organizational incentives (Schon, 1967). These categories include material or extrinsic incentives, climate and working conditions, and finally intrinsic incentives, which include pride, sense of worth, respect of peers, and the freedom to choose

different tasks within a specific job culture. Lortie (1975) used three categories to distinguish incentives: (a) extrinsic, (b) intrinsic or psychic, and (c) ancillary rewards. According to Lortie, the psychic rewards of daily effort are of far greater motivational potency to teachers than are other incentives.

Specific rewards or incentives have not changed as much as have the approaches to categorizing rewards. Researchers have been searching for ways to implement various types of recognition for attainment. Spuck (1974) found that teachers preferred the following types of recognition: (a) material or monetary inducements, (b) support and recognition from the community, (c) pleasant physical conditions, (d) pride of workmanship, (e) social interaction with peers, (f) agreement with district goals and policy, (g) ability or opportunity to influence school policy, and (h) environment/working conditions.

Greenwood et al. (1975) cited five types of incentives: (a) tangible rewards, (b) chance to learn a new skill, (c) opportunity to implement ideas, (d) solution to student needs, and (e) professional stature. The reward or incentive most valued by the actualizing adult is individual autonomy both in the work setting and in one's personal life. Social responsibility is a primary value, along with striving to incorporate one's work into a meaningful, fulfilling life context. The goal being sought is inwardly rewarding and outwardly creative (Sinetar, 1987).

A factorial laboratory study was conducted at Pennsylvania State University to examine the effects of individual and group incentives. Both types of incentives significantly increased performance. This finding supported the results of earlier research in which performance increased 10% to 20% when individual-incentive plans were used (Lawler & Farr, 1976). Some negative side effects of individual incentive plans include restrictions of output due to perceptions of possible social rejection by peers. Group-incentive plans generally avoid negative side effects. Although Lawler and Farr's study showed that group or individual incentive systems increased productivity, the findings also suggested that certain combinations of these plans may have serious negative consequences. Campbell's (1952) and Mariott's (1949) findings also suggested that as group size increased, the effectiveness of group-incentive plans decreased.

In Hibbing, Minnesota, a Saturday staff-development program was piloted to bring together teachers from remote geographic areas (Richburg & Drazenovich, 1987). Incentives such as advancement on the salary scale, graduate credit from nearby universities, and recertification units were offered. The program follow-up indicated that those staff members who were most in need of renewal were least interested in attending. The incentives offered had no appeal for veteran teachers. Elementary teachers evidenced the greatest interest in participating, whereas fewer intermediate-level or middle school staff participated, and nearly none of the 30 eligible high school staff participated.

The National School Boards Association monograph on compensation and incentive plans reflected the interchangeable use of the terms "merit pay" and "incentives" (Amundson, 1987). The report focused on attracting more qualified teachers, retaining current teachers, and motivating them to increase their level of performance. According to the monograph,

Research shows that the rewards that matter most to teachers are the ones that come from students themselves. Anything that gets in the way of those rewards makes teachers unhappy. Eliminating barriers to effective classroom teaching is a way to increase teacher satisfaction. . . . An ERIC review of what motivates teachers found that a number of nonfinancial incentives have also been found to be effective in motivating teachers. These include reducing class size, administrator and public recognition of outstanding teaching, more interesting responsibilities, and opportunities for professional growth. (p. 23)

Rosenshine (cited in Amundson, 1987) completed research that revealed a "simple, no-cost practice" that had potential advantages of nonfinancial incentives for teachers. He found that teacher satisfaction and improved student behavior could be attained by reducing the number of nonacademic intrusions on class time, such as most of the announcements over the public-address system.

A school district in the Catalina Foothills of Arizona developed a nonfinancial incentive program based on Herzberg's motivation-hygiene theory (Amundson, 1987). The district found that if salary, working conditions, job-security status, and supervision needs were not appropriately met, dissatisfaction would occur, but meeting these needs did not automatically insure high and sustained

motivation. These results substantiated the work of Sergiovanni (1975).

An incentive system proposed for teachers in Jefferson County, Kentucky, modeled the successful frequent-flier program devised by the airline industry, whereby customers can accumulate points to be put toward rewards (Schlechty & Ingwerson, 1987). The Jefferson County program differed from the frequent-flier plan in that it encouraged both cooperative action and individual initiative. The program developer stated,

A sound incentive system should highlight what is expected as standard performance and then reward performance that meets or exceeds those expectations. In the long run, failure to highlight expectations causes standard performance to become the minimum level of performance that the system will tolerate without dismissing an employee. In our view, incentive systems that tolerate minimum performance and punish deficiencies will not promote excellence. (p. 587)

The literature on incentives contained the following recommendations for designing a monetary or nonmonetary incentive program: (a) base the program on a district's goals, management style, concept of teaching, and community values; (b) evaluate the existing salary structure to determine its competitiveness before designing an incentive program; (c) involve teachers in the designing phase; and (d) consider offering a menu of monetary and nonmonetary incentives recognizing different teacher needs. A well-planned, comprehensive incentive system can be a powerful staff motivator. "Incentive programs have in many cases led school districts to develop new ways to foster teachers' professional growth and development" (Amundson, 1987, p. 29).

The wide variety of incentives identified illustrates the diverse assumptions and purposes that underlie such offerings. "As Havelock very succinctly points out, 'The spectrum of significant rewards is, of course, vast, and different users place different values on various types of rewards'" (Sieber, 1979, p. 25).

Adult Learning and Staff Development

In reviewing the literature on adult education and adult learning theories and their implications for staff development, the names of several prominent contributors to the literature appeared repeatedly. Edward Lindeman (1926), an early leader in the field of adult education, introduced a new purpose of education: teaching learners to apply knowledge, rather than producing knowledgeable people. This new purpose led to the concept of performance- or competency-based education. Lindeman's second concern was a shift in research and practice away from teaching and toward the learning process itself. Out of this shift emerged a new emphasis on education as a process of facilitating self-directed learning in adults. Third, he introduced the concept of lifelong learning in a world of accelerated change. His fourth concern was with developing new ways to deliver educational services so individuals can continue learning throughout their lives, at their convenience.

The study of adult education and the notion that adults learn in distinct and diverse ways are relatively new phenomena. In fact, "[adult education] is so new that it is still in the process of

forming an identity that is separate from youth education, social work, counseling and related fields of social practice" (Knowles, 1980, p. 25). New terminology for the field has emerged, including nontraditional study, external degrees, multimedia learning centers, community education, learning communities, learning resource centers, educational brokering agencies, learning networks, staff development, manpower development, developmental education, inservice education, continuing education, and lifelong education (Knowles, 1980).

The term "andragogy," coined by European adult educators, was first used by Knowles in 1968. He defined andragogy as "the art and science of helping adults learn, in contrast to pedagogy as the art and science of teaching children" (p. 43). The concept of andragogy has been used extensively to describe the adult learner and his/her unique characteristics.

Andragogy is premised on at least four crucial assumptions about the characteristics of learners that are different from the assumptions on which traditional pedagogy is premised. These assumptions are that as individuals mature: (a) their self-concept moves from one of being a dependent personality toward being a self-directed human being; (b) they accumulate a growing reservoir of experience that becomes an increasingly rich resource for learning; (c) their readiness to learn becomes oriented increasingly to the developmental tasks of their social roles; and (d) their time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly their orientation toward learning shifts from one of subject-centeredness to one of performance-centeredness. (Knowles, 1968, pp. 44-45)

Knowles identified three meanings of adult education: (a) in the broadest sense, it is the process by which adults learn; (b) technically, it is a set of organized activities carried on by a

wide variety of institutions to accomplish specific educational objectives; and (c) it combines processes and activities into the idea of a movement or field of social practice. According to Knowles,

An adult learning experience should be a process of self-directed inquiry, with the resources of the teacher, fellow students, and materials being available to the learners but not imposed on them. The learners should be active participants, discovering for themselves those things they are ready to discover at a particular phase of their development. (p. 13)

Krupp (1982) identified 34 characteristics of adults that influence how they learn. These characteristics formed the basis for a theory of education that "organizes and integrates knowledge from personal experiences, observations, and such disparate disciplines as biology, education, human development, philosophy, psychology, and sociology" (p. 1). Krupp tested the characteristics by means of interviews with more than 200 people and through workshops with more than 500 participants. Her theory was based on three concepts: (a) the adult is a unique individual; (b) human development does not end with the beginning of adulthood; and (c) although adulthood is recognized, it cannot be defined.

Krupp's 34 characteristics, which are quoted on the following pages, are divided into seven categories: experiential, physical, role and relationship, personality, developmental, environmental, and learning.

Experiential characteristics:

The adult is the summation of past experiences, but similar experience(s) may produce different sums and thus evoke different responses to the same current experiences. (p. 5)

No adult is the same as any other adult, because each has a unique past and a unique perception of that past. (p. 13)

An adult's self-concept is the product of past experiences and ability to interpret those experiences. The self-concept can be rigid or tentative and positive or negative in a given situation. (p. 18)

Through experience and past decisions adults narrow the possibilities open to them in the future. (p. 25)

Physical characteristics:

The adult body has entered a catabolic (breaking down) process. (p. 31)

Adults have habit needs. (p. 35)

Role and relationship characteristics: Adults belong to many groups and play many roles during a single day and during a lifetime. (p. 37)

The motivational needs of adults change in different roles, with different developmental tasks, and in different ego and morality states. These needs affect relationships. (p. 43)

Adults have relationship preferences that influence their sense of self and that affect decisions and actions. (p. 53)

Adults respond to significant others in their lives by fixed or tentative concepts. (p. 60)

Personality characteristics:

An adult has a defined personality composed of a stable core and a periphery that modifies with experience. (p. 67)

Adults have strengths and weaknesses that may or may not modify as they interact with the environment and go through life's natural processes. Satisfaction is greatest when the strengths of the adult are used and acknowledged. (p. 74)

Flexible adults function cooperatively more often than rigid adults. (p. 80)

Adults need a positive sense of personal worth. (p. 85)

Adults have biases and mindsets that preclude complete openness and flexibility. (p. 92)

Adults give clues to their conscious but unspoken, and their unconscious thoughts and feelings. (p. 95)

Needs, interests, and values create an affective and cognitive base for an adult's goals. (p. 102)

Adults behave in terms of what is real to them at the moment. (p. 111)

Adults are located along numerous continua and are constantly affected by the satisfaction of their basic needs in relation to their current location on each continuum. (p. 118)

Stress is an integral part of human existence. (p. 124)

Developmental characteristics:

Adult development is a lifelong search for identity. (p. 133)

Adults continuously move from self to others. (p. 138)

Marker events, transitions, and crises create times of unrest, reappraisal, or explosion that lead to some form of adaptation. (p. 144)

The relation of load to power changes as we age. (p. 152)

As adults, ability does not appreciably decline, although time needed for a response increases and new material may be harder to learn. (p. 157)

Across the lifespan, time perception changes, and affects functioning. (p. 163)

Environmental characteristics:

Adults are continuously faced with dualities they can ignore, balance, or attempt to transcend. (p. 169)

Adults are consciously and unconsciously affected by the geographic and physical space around them as well as the attitudes and values of the times in which they live. (p. 177)

Adults use a phenomenological approach when evaluating early occurrences. (p. 184)

Learning characteristics:

Adults are continuously growing and learning. (p. 189)

Adult learning is often self-initiated and aimed toward an immediate goal. (p. 194)

Adults learn and process materials through multitudinous means. (p. 202)

People have subject matter or skills about which they prefer to learn. (p. 208)

Adults use only part of their intellectual potential during their lives. (p. 213)

Oja (1986) described and categorized the theories of adult development to furnish current information but also to provide a framework for an inservice program model. Her program design, based on developmental theory and research, can be used "to promote teachers' growth to higher levels of ego, conceptual, and moral development" (p. 10). Oja stated, "Views of adult development can be categorized in terms of three different perspectives: the biological/maturational models; the developmental-task models; and the developmental-stage models" (p. 10). Of the three, developmental-task models have the greatest implications for staff development.

Biological/maturational models are represented in the psychoanalytic theories developed by Freud, Gessell, Rousseau, and Allport. In these models, adult personality and growth are traced back to childhood experiences. The physiological correlates of aging in adults focus on adults over 65 and their loss of skills and functions.

Developmental-task models include social roles, tasks, and coping behaviors that individuals need to perform in order to function in society. The two groups of developmental-task theorists are life-age and life-cycle theorists.

Examples of life-age theorists include Levinson (1978), Gould (1978), and Sheehy (1974, 1976). Levinson developed a ladder describing how men develop from 17 to 65 years of age. In his study of 40 men between the ages of 35 and 45 in four occupational groups, Levinson found that men pass through predictably unstable transitional periods and a particularly wrenching time close to age 40. Men must confront issues if they are to move or progress successfully to the next period. Gould examined 500 middle-class people between the ages of 16 and 60 and found that age 40 was a difficult one for most, both personally and professionally. He stressed that individuals need to change their early expectations as they develop. Gould has changed his position from that of a stage or age theorist and no longer believes that people go through formal developmental stages in adulthood. Based on his clinical observations, he claimed individuals merely change their way of looking at and experiencing the world over time. Sheehy (cited in Rosenfeld, 1987) suggested that "adults go through progressive, predictable, age-linked stages each offering challenges that must be met before moving on to the next stage" (p. 64). Sheehy's ideas were based on the work of Levinson, Gould, and Vaillant.

Examples of life-cycle theorists include Havighurst, Erikson, and Neugarten. Robert Havighurst, an early pioneer of research on

adults, divided the adult years into three phases: (a) early adulthood (ages 18 to 30), (b) middle age (ages 30 to 55), and (c) later maturity (ages 55 and over). He also identified ten social roles of adulthood: worker, mate, parent, homemaker, son or daughter of aging parent, citizen, friend, organization member, religious affiliate, and user of leisure time. According to Knowles (1980), the requirements for performing these roles change as adults move through the three phases of adult life.

Erikson (1950) described eight stages in the life cycle of man, indicating that individuals must grapple with the conflict of one stage before they can advance to a higher one. Stage one is infancy, with the conflict of trust versus mistrust. Early childhood, stage two, represents the conflict of autonomy versus shame and doubt. Stage three is the play age, in which initiative versus guilt presents conflict. School age in stage four presents the conflict of industry versus inferiority in the time before puberty. In adolescence, stage five, identity versus identity diffusion is the primary conflict. In stage six, young adulthood, intimacy versus isolation must be resolved. In adulthood, stage seven, generativity versus self-absorption is the key issue. In stage eight, senescence, the conflict of integrity versus disgust is resolved by the person who has achieved intimacy with others and feels good about his/her own accomplishments in various life roles.

Neugarten and Neugarten (1987) indicated that all societies define social age according to at least three periods: childhood,

adulthood, and old age. Attempts to define middle age began only a few decades ago, and the defining lines are blurred because of a new group labeled "young-old"--individuals who have retired but are healthy, vigorous, and well-off financially. The line between adolescence and adulthood is also being obscured because some individuals now marry very young, whereas others delay marriage until they are in their late 30s and beyond. The line between childhood and adulthood is fading as children know more about once-taboo topics and their preferences are similar to those of adults.

The incongruities between the traditional norms and the fluid life cycle represent new freedoms for many people, for other people new uncertainties and strains. . . . Some people live in new ways, but continue to think in old ways. . . . One's own age remains crucial to every individual, all the way from early childhood through advanced old age. . . . A person uses age as a guide in accommodating to others, in giving meaning to the life course, and in contemplating the time that is past and the time that remains. (Neugarten & Neugarten, 1987, p. 33)

Oja (1986) wrote that:

Developmental-stage theories are based on the assumption that human development results from changes in cognitive structures, which are thinking patterns by which a person relates him/herself to his/her environment. The development-stage theories of Jean Piaget, Lawrence Kohlberg, Jane Loevinger, and David Hunt all posit a sequence of hierarchical, invariant, and qualitatively different stages with the higher stages being more adequate in the sense that they include taking multiple points of view, more empathic role-taking and more adequate problem solving. (p. 16)

Rosenfeld (1987) reported on several studies concerning women and their development. Helson, Mitchell, and Moore completed a long-term study of 132 women to examine forces propelling people to change psychologically during adulthood. The researchers studied these women as college seniors, 5 years later, and when they were

between 42 and 45. They found three distinct groups: (a) family oriented, (b) career oriented, and (c) those who followed neither path but pursued low-level work. Between age 21 and their mid-40s, women in all groups became more self-disciplined, more committed to duties, and more independent and confident. Between age 27 and their early 40s, the women shifted toward less traditionally feminine attitudes, including greater dominance, higher achievement motivation, greater interest in events outside the family, and more emotional stability.

In another study, Helson and Moane (cited in Rosenfeld, 1987) found the same midlife concerns among women that the life-stage theorists have found in men and women. They described the period as midlife consciousness, rather than midlife crisis. Helson and Moane found that women who did not commit themselves to one of the main life-style patterns faced few challenges and did not fully develop as did other women.

Based on her studies of women at midlife, Schlossberg (cited in Rosenfeld, 1987) disagreed with the notion that there is a single, universal timetable for adult development or that one can predict a crisis by knowing a person's age. Bandura (cited in Rosenfeld, 1987) also opposed the stage-development theory and contended that "chance events" play an important role in shaping adults' lives. Life-age and -stage approaches have been further criticized because they do not seem to apply to women (Rosenfeld, 1987).

Oja (1986) designed a framework based on adult learning theory that can be used to incorporate a developmental focus into staff-development programs.

The framework is based on the hypothesis that staff development which addresses teachers' level of ego, moral and conceptual growth will meet teachers' needs for challenge in new learning and will result in changes in teachers' behaviors with students in the classroom and with colleagues in schools. (p. 35)

Oja's framework consisted of three phases that would take place during the summer and fall. Phase I was a time to build supportive personal relationships within small groups, in order to create the environment necessary for developmental growth. Phase II consisted of learning new skills appropriate for more complex role taking. Here teachers would be familiarized with the theory of developmental stages of growth. Phase III focused on applying the newly acquired skills and theory to the teacher's own classroom, with on-going support and advisement by means of small-group and individual conferences. The example illustrates how an environment conducive to adult learning can be created in a nonthreatening setting with adequate support and follow-up.

Using the age blocks delineated by Levinson et al. (1978), Krupp (1981) developed Adult Development: Implications for Staff Development, a handbook to assist those planning staff-development activities. She wrote, "A staff developer must get to know each teacher as completely as possible in order to understand that individual's place in the developmental sequence" (p. 2). She urged staff developers to be concerned not only with adults' developmental stages but also with research about such topics as the adult

learner, learning styles, relationship preferences, needs assessments, and teacher-administrator differences. Krupp asserted,

Only the educator familiar with all areas related to staff development can individualize and view the adult learner in a holistic manner. This must be done! It is only through a holistic view of the adult, a view of the adult in all possible aspects, that staff development can hope to be successful. (p. 147)

The Current Status of Industrial Arts and Technology Education

The current status of education and, more specifically, industrial arts education has been said to be a reflection of current educational thought, societal changes, and values. Zuga (1985) formulated a framework of twentieth-century educational thought and inserted industrial arts curriculum changes into an expanded framework. (See Figure 2.4.) Her purpose was to depict how the values of general education have influenced industrial arts curriculum. She traced industrial arts from manual training and manual arts through technology education. Zuga described traditional industrial arts as being based on the curriculum-content model of wood, metal, and drawing, whereas the contemporary curriculum-content model is manufacturing, construction, communication, and transportation.

Zuga identified one of the problems confronting industrial arts as defining the content and describing what knowledge should be taught. She recommended looking to industry and technology as only a partial answer.

The best methods we have for identifying curriculum have to do with the integration of our goals of education and the methods we use to identify what to do and teach in the classroom. . . . Content, then, can be derived from values, when values are taken to be the goals of industrial education. (Zuga, 1986, p. 67)

She urged teachers to identify, select, and further develop the curriculum using a theory base but, in so doing, to include values.

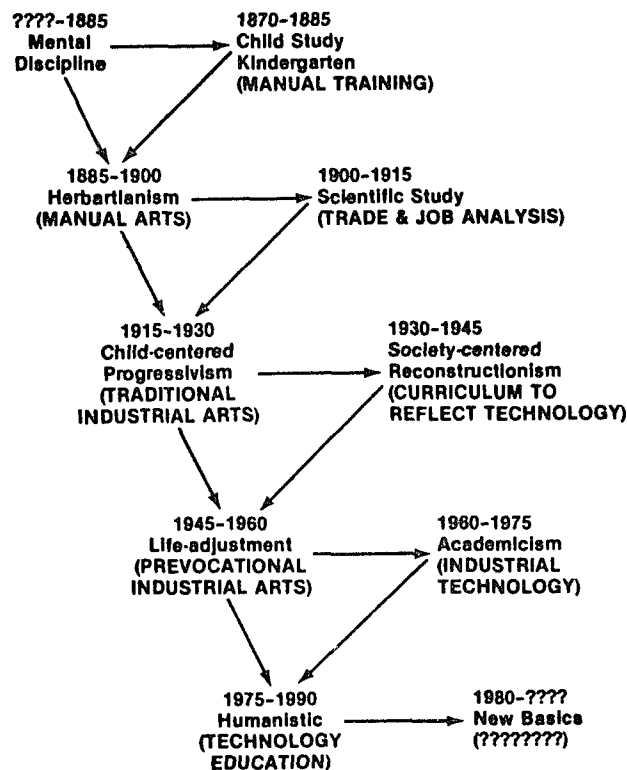


Figure 2.4.--Industrial arts curriculum in relation to a framework of educational thought (from Zuga, 1988).

Burkirk (1986) conducted a study in Nebraska in which he found that "school board presidents had clearer opinions about the content of industrial arts programs than did parents, school administrators,

or school counselors. From a list of 54 items about curriculum content, respondents gave the following 10 topics the highest priority: (a) basic mathematics, (b) greater emphasis on general use than on industrial specifics, (c) environmental impact and natural resources, (d) occupational resources, (e) basic physics, (f) study of future industries, (g) prevocational skills, (h) competency-based curriculum, (i) use of cluster concepts, and (j) study of operating a business.

In 1970, a group of graduate and undergraduate students at West Virginia University were seeking a name for a program designed to help students understand "their technological inheritance and technological future." Thus, "the first program in the history of the Industrial Arts Profession changed its name to reflect contemporary technology" (Lauda & McCrory, cited in Jones & Wright, 1986, p. 15).

In a curriculum report entitled Technology Education: A Modern Focus for Industrial Arts (NASSP, 1985a), the movement to transform industrial arts education into technology education was described as

[an] orderly evolution of the industrial arts curriculum that will reflect the character and serve the needs of the society in which it exists. A brief review of that curriculum evolution, especially in the last 40 years, will show that the recommendation to convert industrial arts education to technology education is consistent with the history of this instructional field. (p. 1)

The report continued, "The wisdom and practicality of changing the focus of industrial arts education are topics of lively debate in industrial arts circles--not only among teachers and supervisors,

but among curriculum theorists as well" (p. 2). There is evidence that a clearer understanding is needed of the structure and implementation of a technology-education curriculum before the movement can be evaluated.

In Technology Education: A Perspective on Implementation (NASSP, 1985b), technology education was defined as "a comprehensive action-based educational program concerned with technical means, their evolution, utilization, and significance with industry, its organization, personnel systems, techniques, resources, and products; and their social/cultural impact" (p. 2). Technology education is designed for all students, regardless of their career goals:

[It] can help the student to:

- Know and appreciate the importance of technology.
- Apply tools, materials, processes and technical concepts safely and efficiently.
- Uncover and develop individual talents.
- Apply problem-solving techniques.
- Apply other school subjects.
- Apply creative abilities.
- Deal with forces that influence the future.
- Adjust to the changing environment.
- Become a wiser consumer.
- Make informed career choices. (NASSP, 1985b, p. 2)

Technology Education: A Perspective on Implementation contained a model showing how technology education should be implemented in grades K through 12, with a specific goal at each of three levels. In grades K through 5/6, the goal is learning reinforcement and technical awareness. In grades 6 through 8/9, the goal is orientation and exploration, whereas preparation in technology is the primary goal for grades 9 through 12.

Gradwell (1988) advocated technology education as a new focus for industrial arts but stressed the importance of agreeing on a common definition of technology and determining the essential core of technology education. He identified the strength of technology education as the hands-on approach for practical construction of projects. The difference between traditional industrial arts projects and technology education is the latter's focus on enhancing imagination and problem-solving ability through structured situations rather than on improving the student's performance with tools.

Throughout the years, industrial arts educators have helped students understand their technical heritage, but this instruction has been geared to the past. Programs have been oriented to materials and projects involved with technical processes but have excluded most content and strategies that deal with transportation. "Programs have not kept pace with the changing technology. Updating laboratories to reflect contemporary technology is cost prohibitive, and alternatives to the problem have not been a high priority for many teachers" (Lauda & McCrory, cited in Jones & Wright, 1986, p. 29).

In May 1986, School Shop, the International Technology Education Association, and Virginia Polytechnic Institute undertook a joint effort to determine the status of industrial arts, technology education, and trade and industrial education (Dugger et al., 1988). State supervisors for industrial arts, technology education, and trade and industrial education were surveyed on such

issues as enrollment levels, teacher numbers and salary levels, program requirements, evaluation procedures, and funding levels. Seventy percent of the state supervisors responded to the survey. Findings indicated that the industrial arts/technology education field is dominated by males; the largest number of these teachers were employed in Indiana, New York, Michigan, Ohio, New Jersey, and Pennsylvania. According to the survey results, some internal and external factors were negatively affecting program quality and quantity. Increased academic requirements and an alarmingly low number of teachers in training programs for the future were cited as causes for concern.

A second survey was conducted by these same groups in April 1987. Sixty-nine percent of trade and industrial supervisors and 65% of technology education supervisors responded to the survey. Data from Michigan indicated a loss of slightly more than 100 teachers from the previous year in both the trade and industrial and the technology/industrial arts fields (Dugger et al., 1988).

Zuga (1986) expressed the concern that "as industrial educators search for the underlying principles of their fields, new programs purporting to fulfill this mission are being promoted" (p. 65). She questioned whether traditional methods, such as occupational analysis, that have been used in curriculum planning are appropriate for today's contemporary goals of industrial education.

Swanson (1985) viewed the problem confronting industrial education as being the responsibility of industrial teacher

educators. He categorized these educators into two groups: (a) those who are narrowly focused on topics such as handicrafts, trades, demonstrations, and projects; and (b) those who are contemporary, wanting to make changes while understanding technological forces in society. Swanson recommended that, to improve industrial education, industrial teacher educators should:

(a) reassess and refine their view of industry; (b) update their understanding of learning, psychology and educational technology; (c) expand industry and industrial job content analysis tools; (d) embrace private-sector industrial training as a program area of industrial education; (e) become increasingly familiar with the changing nature of industrial education; (f) develop and maintain an active network of competent industrial educator colleagues in the private and public sectors; (g) develop purposeful personal plans for continued learning; [and] (h) affirm both the privilege and opportunity to influence others as industrial educators. (pp. 62-63)

Stadt (1985) asserted that "industrial arts has several big jobs to accomplish if it is to survive into the twenty-first century" (p. 64). He posed the following two questions and gave his suggested responses: (a) Shall industrial arts include a prevocational orientation? Stadt recommended dealing with occupations in the same context as other general education courses but with up-to-date facilities and equipment. (b) Shall industrial arts be general education? In the context of understanding technology, educators must decide if the direction will be technology or crafts and home maintenance. If both focuses are desirable, they should be presented separately and labeled accordingly. Stadt concluded,

Industrial arts is one of America's strengths. It would be good for students to have both alternatives. Unless clear

purpose and action plans are determined immediately, industrial arts will lose in the vicious political arena of curriculum. (p. 65)

Summary

Diverse opinions exist about what constitutes staff development, but most accepted definitions include a broad perspective for educators. With the current emphasis on accountability, research-based information on the elements of effective teaching, and learner outcomes, models for inservice education programs frequently appear in educational journals. Notably missing, though, has been the link of inservice to preservice education to form a continuum for teachers, with the expectation for continued growth.

Most writers on the topic have concurred that the staff-development activities teachers have been offered in the past have not met their overall perceived needs. Much of the blame for this situation rests with the general failure to involve teachers in program development; they are merely invited to participate. Another major problem is that many program planners fail to consider the uniqueness of the adult learner. Teachers are taught to recognize students' different learning styles and levels, to enable them to be successful learners; teachers would like similar consideration when they are the learners.

Teachers recognize staff-development practices as effective when those activities are based on their expressed needs and include demonstration, practice, and feedback. Collaboration with

colleagues ranks as a high priority, along with being given a choice of activities and the opportunity to direct one's own professional growth.

A long-range, locally designed plan is an essential element for improving staff development. The needs of personnel, of the school program, and of students should all be considered in the program design.

Little agreement exists on what motivates individuals, but numerous theorists have emphasized content, process, or reinforcement and have linked motivation and incentives. Intrinsic incentives seem to be much more powerful than extrinsic ones, whereas extrinsic incentives or rewards may have some detrimental effects on motivation over a long period. Whether intrinsic or extrinsic incentives are preferred depends on the setting and the individuals involved.

Overall, monetary rewards for participation in staff-development activities have been found to have either insignificant or negative effects, whereas increasing teachers' job tasks or responsibilities has been proven to create intrinsic motivation toward professional growth. Other incentives include reducing class size, recognizing outstanding teaching, and providing more interesting responsibilities.

Staff development can be successful only if developers take a holistic view of the adult. Therefore, staff developers must get to know each teacher and understand his/her place in the developmental sequence. A framework based on adult learning theory is

recommended, which addresses teachers' level of ego, moral, and conceptual development. Changes in teachers' behavior with students and colleagues can be expected only if the preceding conditions are recognized and incorporated into staff-development programs.

If industrial arts is to remain an integral part of the curriculum and career choice for teachers, it must be redefined to reflect current societal values. There is evidence that the number of industrial arts teachers is declining annually and that few educators are being prepared to replace those who retire or chose other employment (Padelford, 1988; Rudnick, 1985). Industrial arts programs geared to the past must be replaced by those reflecting contemporary technology. Professionals in the field need to address this problem, and they should do so before the program areas are replaced with new and increased requirements for students.

CHAPTER III

RESEARCH METHODOLOGY

Introduction

The primary purpose of this study was to identify the types of incentives that would motivate Michigan industrial arts teachers to participate in professional-growth activities. Chapter III contains a description of the methodology employed in conducting this study, including the basic design of the research, the population and sample, research questions, instrumentation, data-collection techniques, and data-analysis procedures.

Design of the Study

In this study a mail survey was used to collect information from a stratified random sample drawn from the population of industrial arts teachers in Michigan. Each step taken in carrying out the study is shown in Figure 3.1.

Population and Sample

The study population comprised the 2,243 industrial arts teachers who were employed in Michigan in 1985, according to State of Michigan data. A stratified sample of approximately 405 teachers was selected as the target group for the study. This sample was proportionate to the population size. Information was available

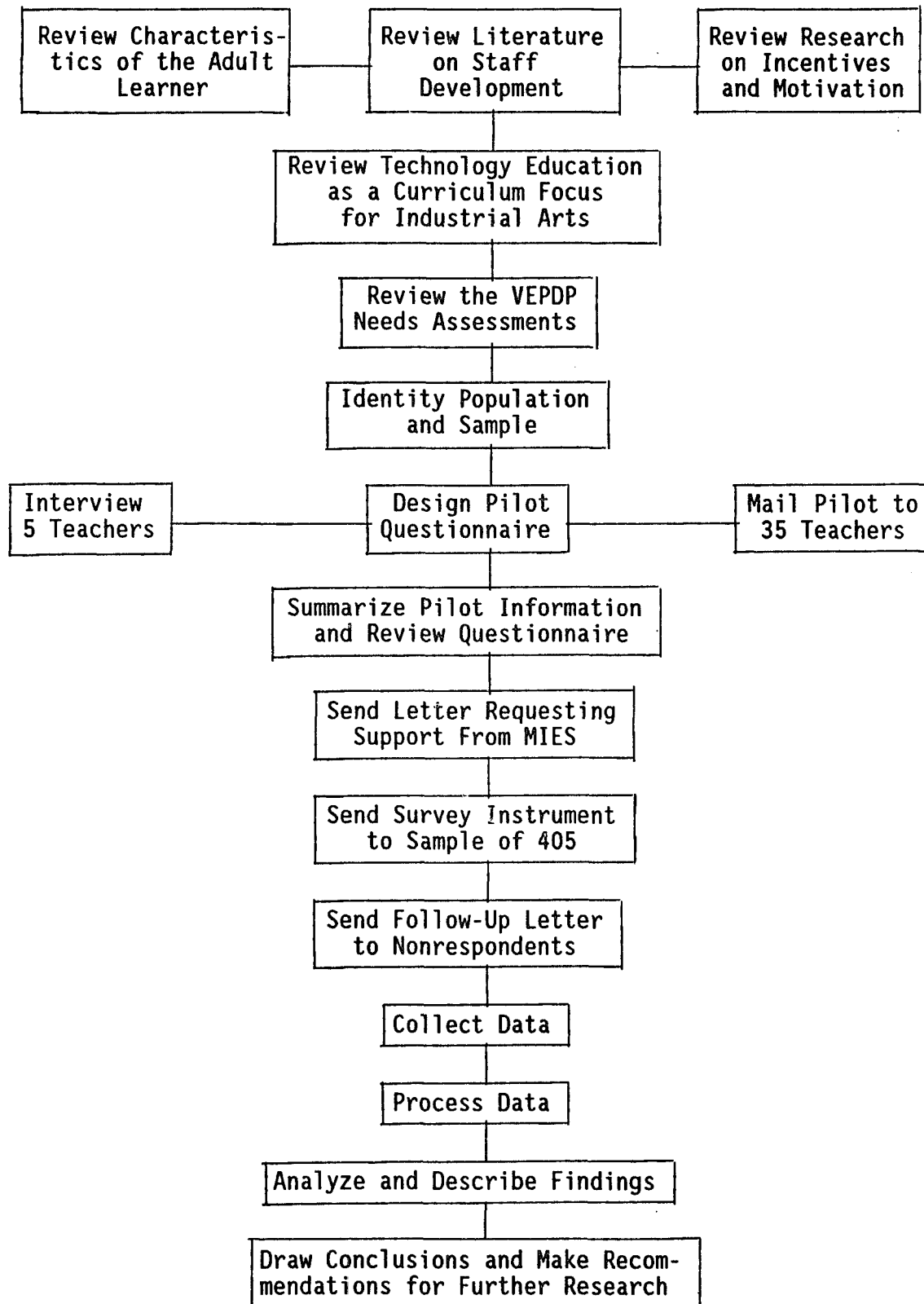


Figure 3.1.--Design of the study.

categorizing the industrial arts teachers by the area of Michigan in which they were employed. Therefore, a stratified sampling procedure was used, based on the 18 Michigan Industrial Education Society (MIES) regions (see Appendix A). The number of individuals selected from each region was based on the percentage of industrial arts teachers in that region. This procedure was used to obtain a representative sample of industrial arts teachers throughout Michigan so that the results would be generalizable to the entire population of industrial arts teachers in the state. Table 3.1 illustrates the number of surveys mailed to industrial arts teachers in each of the 18 MIES regions, using the stratified sampling procedure.

To verify the accuracy of the 1985 list of Michigan industrial arts teachers, the researcher sent a letter to the 53 Career Education Planning District (CEPD) vocational-technical specialists in the state, requesting an updated list of currently employed industrial arts teachers (Appendix B). Thirty-eight (72%) of the CEPD specialists responded to this request, enabling the researcher to partially verify the accuracy of the list of industrial arts teachers currently employed in Michigan. Appendix C illustrates how Michigan is divided into planning districts.

Table 3.1.--Distribution of surveys to industrial arts teachers in the 18 MIES regions.

Region	Description	Surveys Mailed
1	Detroit	28
2	Wayne County	48
3	Jackson, Adrian, Ann Arbor	28
4	Battle Creek, Hillsdale	12
5	Kalamazoo, Portage	32
6	Macomb County	40
7	Oakland County	40
8	Lansing, Brighton	24
9	Grand Rapids	40
10	Genessee County	20
11	Saginaw	16
12	Bay City	16
13	Muskegon	16
14	Charlevoix, Petoskey	10
15	Traverse City	10
16	Sault Ste. Marie	4
17	Marquette, Escanaba	13
18	Calumet, L'Anse	8
Total		405

Research Questions

The following research questions were posed to achieve the objectives of this study and to guide the collection of data:

1. To what extent have Michigan industrial arts teachers participated in professional-development activities during the past 2 years, and what are their reasons for participating?

2. To what extent have Michigan industrial arts teachers participated in activities targeted by the Vocational Education Personnel Development Project between 1985 and 1987?

3. What types of professional-development activities do teachers view as relevant?

4. Which methods for technological updating are of interest to industrial arts teachers?

5. When would industrial arts teachers most prefer to participate in professional-development activities?

6. What specific incentives do industrial arts teachers view as important?

7. What types of incentives do local districts provide to encourage participation in professional-growth activities?

8. Is there a significant relationship between the frequency of participation in professional-growth activities and the extent to which incentives are provided locally?

9. Is there a significant relationship between teachers' (a) age, (b) level of education, (c) teaching assignment, (d) years of teaching experience, (e) secondary employment, and (f) size of the school district, and their identification of important incentives?

Seven of the nine research questions were answered using data obtained through the survey instrument. Question 3 was answered from the literature review. Question 2 was answered from data obtained through the VEPDP.

Instrumentation

The researcher developed a survey questionnaire in October 1987, using as a guide the work of Carr (1984), Herzog (1984), Hall (1979), and Lortie (1975). Thus, the list of specific staff-development activities and the list of incentives were adapted from

the previously cited studies. Survey items were designed to gather the appropriate data with which to answer the research questions. The first draft of the survey and an accompanying cover letter were sent to 35 randomly selected industrial arts teachers from Region 7, Oakland County, in November 1987 (see Appendix D). All industrial arts teachers in Oakland County were eligible to be selected for the pilot. Each teacher's name was written on a card, and 35 cards were randomly drawn for the pilot. Thirteen of these teachers completed and returned the pilot instrument, for a 37% response rate. The researcher did not contact nonrespondents.

In addition, the writer asked five industrial arts teachers in Oakland County to participate in a structured interview, using the same survey that had been sent to the randomly selected teachers. All five teachers agreed to participate, and the interviews were conducted in December 1987. Participants were asked to comment on any items that were unclear. They were also encouraged to share their perceptions on the ease or difficulty in answering the questions and to suggest improvements. The researcher carefully noted each individual's comments.

Based on suggestions made during the interviews and written notes on the returned questionnaires, the researcher expanded on or clarified the directions for particular parts of the survey. Specific items were also modified as deemed necessary. Research staff in the Office of Research and Consultation at Michigan State University were also asked to critique the survey instrument. Their suggestions gave the researcher an expanded awareness of the

pertinent details in conducting survey research and in constructing a concise and understandable questionnaire.

The final instrument comprised four parts (see Appendix E). In Part I, Background Information, demographic information was sought about the respondents, including gender, age, size of employing district, number of years taught, specific subject areas currently taught, grade level, percentage of time devoted to industrial arts, other teaching assignments, highest degree earned, other employment, and type of secondary employment.

In Part II, information was requested on the frequency with which respondents had participated in specific types of professional-development activities. Teachers were asked to indicate the number of times they had engaged in the specified activities during the past 2 years. In addition, they were asked to indicate why they had chosen to participate, using the following five-item scale based on Maslow's (1954) hierarchy of needs: 1 = contractual obligation, 2 = friends were participating, 3 = recognition by colleagues, 4 = influence decision makers, 5 = personal choice/professional success.

In Part III, respondents were asked to indicate whether or not 11 listed incentives were currently available to them in their present positions. Items 1 through 5 were examples of extrinsic incentives involving some monetary gain. Items 6 through 11 were, for the most part, nonmonetary incentives involving recognition or time away from the classroom to engage in

professional-growth activities. Using a five-point rating scale (1 = not at all important, 5 = extremely important), participants were also asked to rate the importance of the incentives listed. Respondents could add other incentives that were available or desirable.

Part IV, concerning approaches to technological updating, was based on the research of Hamilton and Wonacott (1984). Participants were requested to indicate their degree of interest in eight approaches to updating (1 = no interest, 5 = exceptional interest). Space was provided on the questionnaire to enable respondents to include other approaches that were not mentioned.

The final survey item sought information regarding the teachers' preferred time for participating in professional-development activities. The choices were: during the school day, after school, weekends, and summer or other vacation time.

Data-Gathering Procedures

The researcher wrote to the president of the Michigan Industrial Education Society, describing the purpose of the study and requesting the support and endorsement of the MIES executive board (see Appendix F). Because many MIES members were potential participants, such an endorsement was desirable. The MIES complied with this request for endorsement (see Appendix F).

In early March 1988, the researcher sent the survey instrument, along with a cover letter explaining the purpose of the study and its endorsement by MIES, to the 405 industrial arts teachers

selected for the sample. The letter emphasized that participants' anonymity would be protected and that their responses would be confidential. Included in the mailing was a postage-paid return envelope in which completed surveys were to be mailed to the researcher.

Each survey instrument was given a five-digit code, to accommodate the two digits indicating the MIES region (01-18) and the three digits (001-305) for the more than 300 eligible participants in some regions. The code was used solely for record-keeping purposes, to enable the researcher to contact nonrespondents. Teachers were asked to respond by March 25, 1988. Since spring break began the next week, follow-up letters were not mailed until April 8 (see Appendix G). The follow-up packet included a letter encouraging teachers to complete and return their questionnaires, another copy of the original cover letter and survey instrument, and another postage-paid envelope. The two mailings yielded 267 usable questionnaires, for a return rate of 66%.

The researcher sent thank-you letters to all respondents. She also informed those who had requested a summary of the study findings when they could expect to receive that information (see Appendix G).

Data-Analysis Procedures

A four-part questionnaire was the main data-collection instrument to answer seven of the nine research questions. Part I, Background Information, requested demographic data. Percentages

were used in reporting the responses. Part II, Participation in Professional Development Activities, sought two levels of responses to 16 questions. Respondents were asked to indicate how often they participated in particular activities; and means were used to summarize these data. Using a Likert-type scale, respondents also indicated their reasons for participating in the identified activities.

In Part III, Local Incentives Provided for Participation in Professional Development Activities, two levels of responses were sought for 11 identified incentives. Respondents were asked to indicate whether the incentives were provided in their local districts and the importance they placed on the individual incentives. Percentages were used to summarize the responses concerning available incentives provided by the districts. Respondents used a Likert-type scale to rate the importance of these identified incentives. Means and frequency counts were used to summarize these responses. Part IV, Approaches for Technological Updating, concerned eight specific approaches to updating. Respondents used a Likert-type scale to indicate their degree of interest in participating in specific types of technological-updating programs. These responses were summarized using means and frequency counts.

The data were analyzed primarily using measures of central tendency and correlation analysis. Means and standard deviations were the main descriptive statistics used for Research Questions 1, 4, 5, 6, and 7. Percentages were used to summarize the information

for Research Question 2. Pearson product-moment correlation was used for Research Question 8, while the chi-square test of independence was used for Research Question 9. The review of literature was used to answer Research Question 3; therefore, no statistic was used for that question.

Pearson's product-moment correlation coefficient is used to determine the magnitude and direction of the relationship between two variables. Correlation coefficients allow one to compare the strength and direction of association between different pairs of variables (Glass & Hopkins, 1984). The Pearson statistic was used to determine if there was a statistically significant relationship between the frequency of teachers' participation in professional-growth activities and the extent to which incentives were provided locally.

Chi-square, a nonparametric statistical test, was used to determine whether there was a statistically significant relationship between teachers' (a) age, (b) level of education, (c) teaching assignment, (d) years of teaching experience, (e) secondary employment, and (f) size of the school district, and their identification of important incentives. The chi-square test is performed with frequency data, and the resulting chi-square value indicates whether the distribution of frequencies differs significantly from group to group (Borg & Gall, 1971). Data were processed using the Statistical Package for the Social Sciences (SPSS) (Nie et al., 1975).

Summary

This chapter contained an explanation of the research design and the procedures followed in conducting the study. The population and the sample were described, the research questions were restated, and the questionnaire developed for the study was discussed. The data-gathering and data-analysis techniques were also explained. Chapter IV contains the results of the analyses of data collected in this study.

CHAPTER IV

RESULTS OF THE DATA ANALYSIS

Introduction

Results of the analysis of data collected to answer the nine research questions are presented in this chapter. The sources of data for this study were (a) the completed survey instruments from Michigan industrial arts teachers who were randomly selected to participate in the study during winter and spring 1988; (b) records of workshop participants, collected by the Vocational Education Personnel Development team at Michigan State University between 1985 and 1987; and (c) a review of literature on teachers' perceptions of relevant professional-development activities.

A stratification process was used to select potential respondents from the 18 Michigan Industrial Education Society (MIES) regions throughout the state. Table 4.1 illustrates the number and percentage of surveys mailed and returned, by region. Sixty-six percent (264) of the 405 mailed surveys were returned and constituted the primary data base for this study. In the following pages, each research question is restated, followed by the results pertaining to that question.

Table 4.1.- -Survey response, by Michigan Industrial Education Society region.

Region	Description	Surveys	Surveys Returned	
			Number	Percent
1	Detroit	28	14	50
2	Wayne County	48	24	50
3	Jackson, Adrian, Ann Arbor	28	17	61
4	Battle Creek, Hillsdale	12	9	75
5	Kalamazoo, Portage	32	20	63
6	Macomb County	40	17	43
7	Oakland County	40	31	78
8	Lansing, Brighton	24	15	63
9	Grand Rapids	40	26	65
10	Genessee County	20	14	70
11	Saginaw	16	15	94
12	Bay City	16	13	81
13	Muskegon	16	10	63
14	Charlevoix, Petoskey	10	5	50
15	Traverse City	10	10	100
16	Sault Ste. Marie	4	3	75
17	Marquette, Escanaba	13	13	100
18	Calumet, L'Anse	8	8	100
Total		405	264	66%

Note: Three surveys were returned with the code removed. The researcher was unable to assign the surveys to the appropriate region; thus, they were not considered in tabulating the results.

Results

Research Question 1: To what extent have Michigan industrial arts teachers participated in professional-development activities during the past 2 years, and what were their reasons for participating?

A mean was computed for each of the 16 items listed as professional-development activities in the questionnaire. The highest mean (15.5) reflected the number of professional journals

read during the past 2 years, followed by participation in an informal teacher/colleague dialogue group within a building or district, with a mean of 8.8.

Respondents attended district or building professional education committee meetings and observed other teachers teaching more than they attended workshops, made presentations, or enrolled in college courses. A summary of participation in the 16 professional-development activities is shown in Table 4.2, rank ordered by the mean. Professional organizations to which respondents belonged were the Michigan Education Association, the National Education Association, various local education associations, the Michigan Industrial Education Society, the National Association of Secondary School Principals, the Michigan Association of Secondary School Principals, the Michigan Occupational Special Needs Association, the Michigan Occupational Education Association, the American Vocational Association, Vocational Industrial Clubs of America, and the Michigan Co-op Coordinators Association. Teachers also mentioned several local and statewide coaching associations.

Appendix I contains Tables 1 through 16, illustrating the frequency of participation during the past 2 years for each of the 16 professional-development activities. The mean and median for each are also provided.

Table 4.2.--Summary of participation in professional-development activities.

Activity	Mean
10. Reading of professional journals (<u>approximate</u> number read in the last 2 years).	15.519
14. Participation in an informal teacher/colleague dialogue group within a building or district.	8.788
12. Number of meetings attended as a member of a district or building professional education committee.	4.652
11. Observations of other teachers teaching.	3.500
1. Participation in local district workshop.	2.697
16. Membership in professional education organizations.	1.682
2. Participation in intermediate, state department or university sponsored workshop.	1.341
3. Participation in a workshop sponsored by the Vocational Educational Personnel Development Project.	1.095
6. Enrolling in a community college or university credit course related to certification or advanced degree.	1.030
9. Attendance at a state, regional, or national convention.	0.951
8. Enrolling in a technical education credit or non-credit course.	0.534
7. Enrolling in a community college or university non-credit course for pleasure.	0.341
4. Making a presentation at a local district workshop.	0.284
13. Number of meetings attended as a member of a state or national task force.	0.235
15. Writing or co-authoring student textbooks or journal articles.	0.148
5. Making a presentation at a regional, statewide, or national convention.	0.117

Table 4.3 was designed to further illustrate the frequency of participation or nonparticipation by industrial arts teachers in the 16 professional-development activities in summary format, rank ordered by total participants. The first two columns show the number of respondents who did and did not participate in 2 years. The next four columns show the number of times individuals participated in each activity. More individuals read professional journals, participated in local district workshops, and were members of professional education organizations than made presentations at conventions, co-authored textbooks or journal articles, and attended meetings as members of state or national task forces.

Respondents were also asked to indicate their reasons for participating in the 16 professional-development activities. Five response categories, based on Maslow's needs hierarchy (contractual obligation, friends were participating, recognition by colleagues, influence decision makers, and personal choice/professional success) were provided. Table 4.4 shows the number of respondents participating in each activity, as well as the number and percentage of teachers indicating each of the five reasons for participating.

Table 4.3.--Frequency of participation and nonparticipation in professional-development activities.

Activity	Number of Individuals ^a		Number of Times ^b			
	Yes	No	1	2-3	4-5	6+
Reading of professional journals (<u>approximate</u> number read in the last 2 years).	220	44	9	40	17	154
Participation in local district workshop.	187	77	39	86	36	26
Membership in professional education organizations.	172	92	57	69	39	7
Participation in intermediate, state department or university sponsored workshop.	164	100	71	71	15	7
Participation in an informal teacher/colleague dialogue group within a building or district.	149	115	13	47	18	71
Number of meetings attended as a member of a district or building professional education committee.	136	128	11	30	25	70
Participation in a workshop sponsored by the Vocational Educational Personnel Development Project.	133	131	54	61	11	7
Attendance at a state, regional, or national convention.	130	134	53	64	11	2
Observations of other teachers teaching.	89	148	29	39	18	30
Enrolling in a community college or university credit course related to certification or advanced degree.	75	189	28	22	8	17
Enrolling in a technical education credit or noncredit course.	52	212	32	15	3	2
Enrolling in a community college or university noncredit course for pleasure.	37	227	22	10	3	2
Making a presentation at a local district workshop.	36	228	23	8	3	2
Number of meetings attended as a member of a state or national task force.	21	243	8	6	5	2
Writing or co-authoring student textbooks or journal articles.	18	246	10	6	1	1
Making a presentation at a regional, statewide, or national convention.	17	247	13	3	0	1

^aNumber of individuals who did or did not participate.

^bNumber of times individuals participated.

Table 4.4.--Reasons for participating in professional-development activities.

Activity	Reasons for Participating									
	¹ N	%	² N	%	³ N	%	⁴ N	%	⁵ N	%
Participation in local district workshop (n = 209)	104	49.8	4	1.9	3	1.4	11	5.3	87	41.6
Participation in intermediate, state department, or university-sponsored workshop (n = 180)	22	12.2	3	1.7	3	1.7	7	3.9	145	80.6
Participation in a workshop sponsored by the Vocational Education Personnel Development Project (n = 151)	2	1.3	2	1.3	4	2.6	2	1.3	141	93.4
Making a presentation at a local district workshop (n = 53)	3	5.7	-	-	7	13.2	12	22.6	31	58.5
Making a presentation at a regional, statewide, or national convention (n = 33)	-	-	-	-	6	18.2	2	6.1	25	75.8
Enrolling in a community college or university credit course related to certification or advanced degree (n = 93)	10	10.8	1	1.1	-	-	-	-	82	88.2

Table 4.4.--Continued.

Activity	Reasons for Participating									
	1 N	%	2 N	%	3 N	%	4 N	%	5 N	%
Enrolling in a community college or university noncredit course for pleasure (n = 58)	2	3.4	1	1.7	1	1.7	-	-	54	93.1
Enrolling in a technical education credit or noncredit course (n = 78)	2	2.6	-	-	-	-	1	1.3	75	96.2
Attendance at a state, regional, or national convention (n = 148)	1	0.7	3	2.0	1	0.7	8	5.4	135	91.2
Reading of professional journals (approximate number read in the last two years) (n = 214)	1	0.5	1	0.5	3	1.4	3	1.4	206	96.3
Observations of other teachers teaching (n = 116)	16	13.8	3	2.6	1	0.9	5	4.3	91	78.4
Number of meetings attended as a member of a district or building professional education committee (n = 135)	36	26.7	3	2.2	10	7.4	17	12.6	69	51.1

Table 4.4.--Continued.

Activity	Reasons for Participating									
	1 N	%	2 N	%	3 N	%	4 N	%	5 N	%
Number of meetings attended as a member of a state or national task force (n = 30)	-	-	-	-	1	3.3	7	23.3	22	73.3
Participation in an informal teacher/colleague dialogue group within a building or district (n = 137)	30	21.9	9	6.6	7	5.1	15	10.9	76	55.5
Writing or co-authoring student textbooks or journal articles (n = 29)	-	-	1	3.4	1	3.4	2	6.9	25	86.2
Membership in professional education organizations (n = 115)	10	8.7	4	3.5	-	-	3	2.6	98	85.2

Key: 1 = Contractual obligation, 2 = Friends were participating, 3 = Recognition by colleagues, 4 = Influence decision makers, 5 = Personal choice/professional success

Research Question 2: To what extent have Michigan industrial arts teachers participated in activities targeted by the Vocational Education Personnel Development Project between 1985 and 1987?

Following a needs assessment conducted during winter 1985, the Vocational Education Personnel Development Project staff offered a series of one-day inservice workshops to industrial arts and vocational instructors and administrators. Project staff kept records of all those who attended the workshops. Of the 2,243 industrial arts teachers employed in Michigan at that time, 492 (22%) attended one or more of the one-day inservice workshops between 1985 and 1987. Table 4.5 gives a breakdown of eligible participants and the number and percentage of teachers from each MIES region who participated.

Research Question 3: What types of professional-development activities do teachers view as relevant?

The review of literature provided the basis for answering Research Question 3. Teachers have been critical of inservice education in its broadest context. They resent that others, often those in authority, select programs for teachers without their input. On the surface it appears that remediation is often the focus. Teachers commonly request input in the selection and design of programs, based on the identified needs of participants.

Most teachers want active involvement in developing the purposes and activities of inservice programs, as well as opportunities to select the programs that will strengthen their own levels of competence (Brimm & Tollett, 1974). They prefer demonstration teaching, practical information, and programs that are

Table 4.5.--Participants in Vocational Education Personnel Development Project workshops between 1985 and 1987.

Region	Eligible Teachers	Teachers Participating	
		N	%
1	153	9	6
2	273	39	14
3	146	37	25
4	69	20	29
5	173	48	28
6	213	37	17
7	233	47	20
8	138	31	22
9	218	90	41
10	119	25	21
11	97	10	10
12	96	20	21
13	92	22	24
14	42	6	14
15	40	5	13
16	21	5	24
17	77	24	31
18	43	17	40
Total		492	(22%)

Note: Participants may have attended more than one workshop. Total industrial arts teachers = 2,243 (Michigan Department of Education data: 1985-86 school year).

short and to the point. An in-depth treatment of one concept is preferred over a brief overview of multiple concepts. Teachers want variety in the activities, which they expect to be well-organized. An occasional inspirational speaker is welcomed, along with some type of incentive to attend. Teachers value opportunities to visit other schools and to observe other teachers in similar positions (Davis & Armistead, 1965).

Activities that are personalized are more acceptable to teachers than impersonal ones. To be meaningful, the programs should develop a skill and include a follow-up that sustains the skill with enough practice to the point of transfer (Showers, Joyce, & Bennett, 1987). If the atmosphere does not appear safe for experimenting, the participants feel threatened and are unwilling to take the risks that are often necessary when learning something new (Long, 1977).

Teachers have expressed a strong preference for building-level versus district-focused activities. In her 1977 survey, Holly found teachers preferred talking with other teachers, followed by university classes, reading, self-evaluation, personal activities, and extracurricular activities with students as professional-growth experiences.

Activities teachers have cited as irrelevant inservice experiences include disjointed workshops and courses and faculty meetings held after the normal workday. In a national survey conducted by the National Education Association in 1967, teachers

showed limited enthusiasm for any school-based programs. They gave more positive evaluations to external programs such as university courses. Teachers were discouraged that time was not built into the school year or day for professional-growth experiences and resented being expected consistently to participate after the school day, on weekends, and/or during normally scheduled vacation time.

The literature did not contain further identification of relevant inservice activities. The prevailing message to school administrators and supervisors was the urgent need to improve the school climate and professional growth of teachers. Providing adequate resources in the budget, along with an expectation that staff assume primary responsibility for their own professional growth, seemed to be a high priority. McLaughlin and Berman (1977) concluded that effective staff development depends more on the district's point of view about principals and teachers as learners than on the specific activities that constitute staff-development programs.

Principals' support for professional growth and involvement with the teaching staff in inservice activities were cited as additional factors contributing to improving the image of inservice. The authority to determine the needs and outcomes of professional development should rest with teachers, or it should be "a joint venture entered into by teacher and administrator, both of whom are accountable for the educational programs affecting those they serve" (Winterton, 1977, p. 37). Teachers indicated a preference for personal professional-growth plans they designed and their principals

approved. In addition, teachers felt empowered when they were able to evaluate staff-development activities and their own improvement as a result of those activities. In summary, teachers viewed professional-development activities as relevant when they were (a) based on identified needs, (b) well organized, (c) building-level versus a district focus, (d) short programs with practical information, (e) conducted in an atmosphere safe for experimenting, and (f) single-concept programs with demonstration teaching.

Research Question 4: Which methods for technological updating are of interest to industrial arts teachers?

A summary of the responses given by the industrial arts teachers who participated in this study is provided in Table 4.6. The mean and median were computed for each of the eight approaches listed in the questionnaire, along with the number and percentage of respondents in each of five categories indicating degree of interest, using a Likert-type scale ranging from 1 (no interest) to 5 (exceptional interest). Participation in industry observations was the approach that received the most interest, with a mean score of 4.1, followed by attendance at workshops, conferences, or seminars, with a mean score of 4.0; enrolling in university or college coursework received the lowest mean score (2.9). It should be noted that five of the six top choices for updating were industry-based approaches.

Space was provided in the questionnaire for respondents to suggest other approaches to technological updating. The additional approaches respondents listed included (a) keeping current with the literature, (b) taking university courses in technology education

Table 4.6.--Percentage of respondents indicating various degrees of interest in selected approaches to technological updating.

Approach to Updating	Degree of Interest (%)					Mean	Median
	1	2	3	4	5		
Participation in work-experience internships (n = 252)	10.7	15.1	25.0	35.3	13.9	3.266	3.468
Enrolling in university and college coursework (n = 253)	13.0	23.7	30.8	25.7	6.7	2.893	2.929
Attendance at workshops, conferences, or seminars (n = 255)	2.4	7.1	16.1	38.8	36.7	3.984	4.131
Participation in industry observations (n = 255)	3.5	5.1	21.8	40.8	38.8	4.063	4.226
Participation in an education and industry staff exchange (n = 255)	6.3	13.3	26.3	30.2	23.9	3.522	3.636
Part-time employment with opportunities for technological training (n = 255)	12.2	14.1	20.1	30.2	23.5	3.388	3.623
Participation in locally designed programs (n = 251)	9.2	18.3	32.7	28.7	11.2	3.143	3.189
Participation in industry training programs (n = 254)	3.9	11.0	22.8	34.6	27.6	3.709	3.852

Key: 1 = No interest, 2 = Limited interest, 3 = Moderate interest, 4 = Significant interest, 5 = Exceptional interest.

offered locally and specifically for instructors, (c) participating in General Motors summer workshops, and (d) being self-employed. One respondent commented that the approaches listed were fine for those who had been teaching up to 15 years, but after more than 20 years one tends to "burn out."

In Table 4.7, response categories 1 and 2 have been combined to indicate no interest, and response categories 3 through 5 have been combined to reflect respondents' interest in specific approaches to technological updating. The approaches are listed in rank order from the greatest to the least interest respondents expressed in each approach. Participation in industry observations and attendance at workshops, conferences, and seminars were rated the highest, while enrolling in university and college coursework received the lowest rating, although more than 60% indicated interest.

Table 4.7.--Interest versus lack of interest in specific approaches to technological updating.

Approach	Combined Responses (%)	
	1 & 2 No Interest	3-5 Interest
Industry observations	8.6	91.4
Workshops, conferences, seminars	9.5	90.6
Industry training programs	14.9	85.0
Education/industry staff exchange	19.6	80.4
Work-experience internships	25.8	74.2
Part-time employment	26.3	73.8
Locally designed programs	27.5	72.6
University/college coursework	36.7	63.2

Research Question 5: When would industrial arts teachers most prefer to participate in professional-development activities?

Study participants were asked, "When would you most prefer to participate in professional-development activities?" Their responses are shown in Table 4.8. During the school day was the preferred time, while weekends were ranked the least preferred, with less than 20% checking that response. Twenty-four of the respondents added their own comments under this question. See Appendix J for a summary of those comments.

Table 4.8.--Times at which respondents preferred to participate in professional-development activities.

Time Preference	N	%
During the school day	183	70.4
Summer or other vacation time	83	31.9
After school	65	25.0
Weekends	47	18.0

Note: The total exceeds 100% as respondents frequently checked more than one item.

Research Question 6: What specific incentives do industrial arts teachers view as important?

Eleven incentives for participating in professional-development activities were listed on the survey instrument. Respondents were requested to indicate the importance to them of each incentive, using a five-point rating scale from 1 (not at all important) to 5 (extremely important). The mean score for each item was computed. The percentage of teachers choosing each of the five responses is

shown in Table 4.9, along with the mean importance rating and standard deviation for each item. To illustrate further the importance placed on incentives, responses 1 and 2 were combined, as were responses 3 through 5.

The incentive respondents preferred most was advancement on the salary schedule for accumulation of continuing education units (mean = 3.8), followed by reimbursement for workshop fees (mean = 3.8). The least preferred incentives were potential to become a department head or teacher coordinator (mean = 2.9) and building-or district-level recognition (mean = 3.0). It should be noted that the top three responses were monetary incentives. Space was provided on the questionnaire for respondents to include "other" incentives available to them or those they found to be desirable. A summary of those incentives is provided in Appendix K.

Research Question 7: What types of incentives do local districts provide to encourage participation in professional-growth activities?

Only 4 of the 11 incentives listed on the questionnaire were provided by 50% or more of the respondents' districts. Reimbursement for workshop fees was available in 69.8% of the respondents' districts. The least available incentives was reimbursement for membership fees in professional organizations (provided by only 15.7% of the respondents' districts). Table 4.10 provides a summary of the incentives provided by the respondents' school districts, rank ordered in terms of the degree to which they were provided.

Table 4.9 .--Percentage of respondents indicating importance of each incentive, rank ordered by the mean.

Incentive	Importance of Incentives (%)					Mean	S.D.	Not Important Responses 1&2	Important Responses 3-5
	1	2	3	4	5				
Advancement on salary schedule for accumulation of continuing education units	6.1	3.0	11.3	27.3	52.4	4.169	1.131	9.0	91.0
Reimbursement for workshop fees	6.4	8.1	22.2	28.2	35.0	3.774	1.195	14.5	85.4
Tuition reimbursement for university courses	10.2	11.5	19.2	23.0	35.4	3.619	1.339	21.7	77.6
Decision-making voice locally	10.0	8.2	26.0	26.9	28.8	3.562	1.263	18.2	81.7
Released time to work on independent staff-development projects	5.0	14.9	29.4	30.3	20.4	3.462	1.122	19.9	80.1
Reimbursement for time outside of the workday spent in attending professional activities	10.7	11.6	29.3	24.0	24.4	3.400	1.268	22.3	77.7
Ability to achieve a master or lead teacher status	15.5	15.5	31.9	19.2	17.8	3.085	1.297	31.0	68.9
Extended released time from classroom or sabbatical status	12.7	18.4	33.8	21.1	14.0	3.053	1.212	31.0	68.9
Reimbursement for membership fees in professional organization	18.1	15.9	31.4	18.6	15.9	2.982	1.310	34.0	65.9
Building- or district-level recognition	18.8	20.6	25.7	19.7	15.1	2.917	1.328	39.4	60.5
Potential to become department head or teacher coordinator	17.3	22.6	31.9	11.9	16.4	2.876	1.297	39.9	60.2

Key: 1 = Not at all important, 2 = Not very important, 3 = Somewhat important, 4 = Very important, 5 = Extremely important

Table 4.10.--Percentage of respondents indicating certain incentives are provided by their school districts.

Incentive	Is Incentive Provided?	
	Yes (%)	No (%)
Reimbursement for workshop fees	69.8	30.2
Extended released time from classroom or sabbatical status	56.4	43.6
Decision-making voice locally	55.4	44.6
Potential to become department head or teacher coordinator	54.6	45.4
Building- or district-level recognition	39.4	60.6
Released time to work on independent staff-development projects	37.8	62.2
Reimbursement for time outside of the workday spent in attending professional activities	29.5	70.5
Tuition reimbursement for university courses	26.7	73.3
Advancement on salary schedule for accumulation of continuing education units	26.1	73.9
Ability to achieve a master or lead teacher status	20.9	79.1
Reimbursement for membership fees in professional organization	15.7	84.3

Some respondents made marginal notes on their surveys, providing information beyond what was requested. Many of these notes were written in the space provided for additional incentives,

even though they did not relate directly to incentives. Some of the notes include:

"In this district there are very few incentives other than one's own professional conscience."

"Superintendent wants merit pay. All I want is to be a very good teacher to the students."

The lack of financial support for teachers was reflected in several comments, such as:

"I hate to sound negative, but you'll be hard pressed to find many school systems that will reimburse a teacher for anything."

"A \$50 maximum a year for workshop fees is insufficient."

The inability to leave the classroom was expressed by several teachers, who stated:

"[It is] very difficult to leave my students for the day because we do not have qualified industrial arts subs; therefore, when I'm gone students do classroom work [written]."

"My district urges us to attend conferences, but leaving an industrial arts lab in a sub's hands means problems."

"What about a district which says 'yes' you can go, 'yes' we will pay, 'but' Fridays are hard to get subs--so you can't be gone on Fridays. Most conferences are Friday-Saturday."

Other teachers noted a lack of professional-development activities suited to their perceived needs. Some commented that:

"Industrial arts classes need to be offered in southeast Michigan; only vocational classes are available."

"Increase number and quality of workshops."

"School exchange or visitation days."

"Information/idea swap shop day."

"Programs at MIES that teach something new."

One respondent shared his rationale for pursuing an advanced degree: "[My] main incentive for seeking [an] advanced degree is to provide a means to advance out of teaching." Some others made statements indicating a need, such as "Local or regional groups that help get monies for programs." "Help in getting programs funded by the state like vocational education."

Research Question 8: Is there a significant relationship between the frequency of participation in professional-growth activities and the extent to which incentives are provided locally?

A statistically significant relationship was found between the category of workshops and the category of nonmonetary incentives. The procedure used to determine that relationship is described in detail.

The professional-development activities were categorized on the survey instrument as workshops (Items 1-3), presentations (Items 4-5), coursework (Items 6-8), and other professional-development activities (Items 9-16). Tables 4.11 through 4.14 show the total participation for each category. This information by categories highlights the frequency of participation for the four groups of incentives.

Table 4.11.--Participation in workshops (Items 1-3) (N = 264).

Total Workshops	N	%
0	46	17.4
1-5	127	48.1
6-10	67	25.4
11-15	13	4.8
16-20	3	1.2
21-25	1	0.4
26-30	3	1.2
31-40	3	1.2
41-46	1	0.4
Mean = 5.133 Median = 3.776		

Table 4.12.--Participation in group presentations (Items 4-5)
(N = 264)

Total Presentations	N	%
0	223	84.5
1	20	7.6
2	12	4.5
3	3	1.1
4	2	0.8
5	1	0.4
6	1	0.4
12	1	0.4
22	1	0.4
Mean = 0.402 Median = 0.092		

Table 4.13.--Participation in coursework (Items 6-8) (N = 264).

Total Coursework	N	%
0	151	57.2
1	31	11.7
2	25	9.5
3	20	7.6
4	10	3.8
5	3	1.1
6	6	2.3
7	3	1.1
8	5	1.9
9	1	0.4
10-15	4	1.6
20-25	2	0.8
26-30	1	0.4
31-50	2	0.8
Mean = 1.905 Median = 0.374		

Table 4.14.--Participation in other professional-development activities (Items 9-16) (N = 264).

Total Other Activities	N	%
0	16	6.1
1-5	28	10.6
6-10	25	9.5
11-15	33	12.6
16-20	16	6.1
21-25	17	6.4
26-30	18	6.8
31-40	33	12.7
41-50	26	9.8
51-60	13	5.1
61-70	6	2.3
71-80	5	2.0
81-90	6	2.4
91-100	3	1.2
101-150	10	4.0
151-200	6	2.4
201-250	2	0.8
251-282	1	0.4
Mean = 35.473 Median = 24.750		

Table 4.15 reflects the respondents' total frequency of participation in professional-development activities. Totals ranged from 0 to 300. The mean was 42.9 and the median 30.5. Of the 264 respondents, 14 or 5.3% had not attended or participated in any of the 16 activities listed in Part II of the questionnaire during the past 2 years.

Table 4.15.--Total participation in 16 professional-development activities (N = 264).

Total Activities	N	%
0	14	5.3
1-5	11	4.2
6-10	19	7.2
11-15	25	9.5
16-20	30	11.4
21-25	14	5.3
26-30	19	7.2
31-40	32	12.1
41-50	27	10.2
51-60	25	8.7
61-70	13	4.9
71-80	6	2.3
81-90	5	1.9
91-100	3	1.1
101-150	13	4.9
151-200	6	2.3
201-250	2	.8
251-300	2	.8
Mean = 42.913		Median = 30.500

For the purposes of summarizing the information, the researcher divided the incentives into monetary incentives (Items 1-5) and nonmonetary incentives (Items 6-11). Although the data for each

item were tabulated individually, for summary purposes the four professional-development categories and a summary total were used. The incentives were similarly grouped as monetary incentives, nonmonetary incentives, and total incentives.

To determine the extent to which districts provided monetary incentives (Items 1-5) and nonmonetary incentives (Items 6-11) to the respondents, the researcher counted all the "yes" and "no" responses to each incentive item. The sum for each item was then tabulated. Table 4.16 shows the sum of monetary incentives provided by respondents' districts. The mean was 2.1 and the median 2.1. Eighteen respondents or 7.4% indicated receiving no monetary incentives. Twenty-one teachers did not respond to the items regarding monetary incentives.

Table 4.16.--Sum of monetary incentives provided by districts
(N = 243).

Incentives Provided	N	%
0	18	7.4
1	56	23.0
2	75	30.9
3	65	26.7
4	29	11.9

Mean = 2.128

Median = 2.133

Table 4.17 shows the sum of nonmonetary incentives provided by the respondents' districts. The mean was 2.6 and the median 2.6. Twenty-nine respondents or 12% indicated receiving none of the six

nonmonetary incentives listed in the questionnaire. Twenty-three teachers did not respond to any of the questions regarding nonmonetary incentives.

Table 4.17.--Sum of nonmonetary incentives provided by districts
(N = 241).

Incentives Provided	N	%
0	29	12.0
1	42	17.4
2	45	18.7
3	56	23.2
4	34	14.1
5	27	11.2
6	8	3.3
Mean = 2.568		Median = 2.580

When both monetary and nonmonetary incentives were considered together, the researcher found that the average respondent received 4.7 incentives; only four teachers reported receiving no incentives (see Table 4.18). Just one respondent reported receiving 10 incentives, and no one reported receiving all 11 incentives listed on the questionnaire.

Table 4.18.--Sum of monetary and nonmonetary incentives provided by districts (N = 241).

Incentives Provided	N	%
0	4	1.7
1	12	5.0
2	27	11.2
3	31	12.9
4	41	17.0
5	38	15.8
6	35	14.5
7	27	11.2
8	12	5.0
9	13	5.4
10	1	0.4
Mean = 4.710		Median = 4.645

Pearson product-moment correlations were used to determine whether there was a statistically significant relationship between the frequency of teachers' participation in the 16 professional-development activities listed on the questionnaire and the extent to which the 11 identified incentives were provided locally. Using this information, a 3 x 5 correlation matrix was designed to determine how each of the five professional-development categories correlated with each of the three incentive categories.

The Pearson product-moment correlation procedure revealed a statistically significant relationship between the professional-development category of workshops and the group of nonmonetary incentives, with a variance of 6.8%. No statistically significant relationships were found in the other categories, as shown in Table 4.19.

Table 4.19.--Results of Pearson correlation between five categories of frequency of participation in professional-growth activities and three categories of incentives provided by districts.

Activity	Nonmonetary Incentives		Monetary Incentives		Total	
	R Corr.	R ² Coeff. of Determin.	R Corr.	R ² Coeff. of Determin.	R Corr.	R ² Coeff. of Determin.
Workshops	.2615*	.0684	.0874	.0076	.2341*	.0548
Presentations	.0994	.0099	-.0315	.0010	.0562	.0032
Coursework	-.0097	.0001	-.0003	.0000	-.0098	.0001
Other	.1162	.0135	.0366	.0013	.0997	.0099
Total activities	.1430	.0204	.0436	.0019	.1228	.0151

*Significant at the .01 level.

The relationship between each of the 16 professional-development activities and the types of incentives was examined. The significance level was set at .01 for each activity (see Table 4.20).

Table 4.20.--Results of Pearson correlation between 16 professional-growth activities and nonmonetary versus monetary incentives.

Activity	Nonmonetary Incentives	Monetary Incentives	Total
Participation in local district workshops	.2278*	.0230	.2048
Participation in intermediate, state department, or university-sponsored workshops	.1867*	.1022	.0845
Participation in a workshop sponsored by the Vocational Education Personnel Development Project	.1637*	.1466	.0171
Making a presentation at a local district workshop	.0740	-.0299	.0441
Making a presentation at a regional, statewide, or national convention	.1183	-.0281	.0902
Enrolling in a community college or university credit course related to certification or advanced degree	.0350	.0381	.0031
Enrolling in a community college or university noncredit course for pleasure	.0615	-.1472*	-.0857
Enrolling in a technical education credit or noncredit course	-.0748	.0368	-.0380
Attendance at a state, regional, or national convention	.1703*	.0424	.1279

Table 4.20.--Continued.

Activity	Nonmonetary Incentives	Monetary Incentives	Total
Reading of professional journals	.0375	.0041	.0334
Observations of other teachers teaching	.0915	.1441	.0526
Number of meetings attended as a member of a district or building professional education committee	.1682*	-.0109	.1573
Number of meetings attended as a member of a state or national task force	.1287	-.0029	.1258
Participation in an informal teacher/colleague dialogue group within a building or district	.0355	-.0210	.0145
Writing or co-authoring student textbooks or journal articles	-.0191	.0585	.0394
Membership in professional education organizations	.2116*	-.0117	.1999

*Significant at the .01 level.

No statistically significant difference was found between the strength of the association between nonmonetary and monetary incentives and the following professional-growth activities:

Presentations

Making a presentation at a local district workshop

Making a presentation at a regional, statewide, or national convention

Coursework

Enrolling in a community college or university credit course related to certification or advanced degree

Enrolling in a technical education credit or noncredit course

Other Professional Activities

Reading of professional journals

Observations of other teachers teaching

Number of meetings attended as a member of a state or national task force

Participation in an informal teacher/colleague dialogue group within a building or district

Writing or co-authoring student textbooks or journal articles

A statistically significant correlation was found between provision of incentives and participation in the three types of workshops listed on the survey instrument; enrolling in community college or university noncredit course for pleasure; attending state, regional, or national conventions; attending district- or building-level meetings, and membership in professional education organizations, although the percentage of variance was small. The correlation between provision of incentives and enrolling in a community college or university noncredit course for pleasure was negative, indicating that the greater the availability of incentives, the lower the rate of participation.

To determine which of the individual 11 incentives contributed to participation in professional-growth activities, the researcher reviewed data concerning the correlation between the 11 incentives and total participation in the 16 professional-growth activities.

As shown in Table 4.21, a significant correlation was found between two incentives (potential to become department head or teacher coordinator and decision-making voice locally) and participation in professional-growth activities.

Table 4.21.--Results of Pearson correlation between 11 incentives and participation in professional-growth activities.

Incentive	Correlation
Reimbursement for membership in professional organization	.0756
Reimbursement for workshop fees	-.0321
Reimbursement for time outside of the workday spent in attending professional activities	-.1053
Tuition reimbursement for university courses	.0831
Advancement on salary schedule for accumulation of continuing education units	.0831
Ability to achieve a master or lead teacher status	.0252
Extended released time from classroom or sabbatical status	.0434
Potential to become department head or teacher coordinator	.1547**
Building- or district-level recognition	.1065
Decision-making voice locally	.1209*
Released time to work on independent staff-development projects	.0014

*Significant at the .05 level.

**Significant at the .01 level.

Research Question 9: Is there a significant relationship between teachers' (a) age, (b) level of education, (c) teaching assignment, (d) years of teaching experience, (e) secondary employment, and (f) size of the school district, and their identification of important incentives?

A chi-square test of independence was computed to determine whether respondents in various demographic categories differed in their ratings of the importance of the various incentives. For this analysis, it was necessary to recode some of the categories because too many empty cells appeared when the original categories from the survey instrument were used. The recoded categories were as follows:

Age:

From:	22-29	30-37	38-45	46-55	over 55
To:	22-37	38-45	46+		

Total Enrollment:

From:	under 500	500-1000	1000-3000	3000-5000	5000-7500
	over 10,000				
To:	less than 1000	1000-3000	3000-5000	5000+	

Years Taught:

From:	1-5	6-10	11-15	16-20	21-25	over 25
To:	1-15	16-20	21-25	over 25		

Degree:

From:	B.A./B.S.	M.A.	Ed.S.	Ph.D.
To:	B.A./B.S.	M.A.+		

Importance of Incentives:

From:	1 = not at all important	2 = not very important
	3 = somewhat important	4 = very important
	5 = extremely important	
To:	1+2 = not important	3 = somewhat important
	4+5 = very important	

The chi-square test of independence was recomputed, using the recoded categories. The researcher established the level of significance at .05 or less. Results of the cross-tabulations of the six demographic variables and the identified importance of the 11 incentives are shown in Tables 4.22 through 4.28. Level of significance is shown in each table.

The only incentive for which a statistically significant difference was found among respondents in the three age groups was extended released time from the classroom or sabbatical status. As shown in Table 4.22, 15.6% of those in the 22-37 age group indicated this incentive was not important, whereas twice as many respondents in the 38-45 and 46+ groups (34.1% and 35.7%, respectively) indicated this incentive was not important.

Table 4.22.--Results of cross-tabulation between importance of extended released time from classroom or sabbatical status and respondents' age group (N = 228).

Age	Importance of Incentive						Row Total	
	Not Important		Somewhat Important		Very Important			
22-37	7	15.6	23	51.1	15	33.3	45	19.7
38-45	29	34.1	29	34.1	27	31.8	85	37.3
46+	35	35.7	25	25.5	38	38.8	98	43.0
Column total	71	31.1	77	33.8	80	35.1	228	100.0

Chi-square = 11.0867

df = 4

Significance = .0256

The only incentive on whose importance respondents with different levels of education differed significantly was released time to work on independent staff-development projects (Table 4.23). Only 15.5% of the respondents with an advanced degree indicated this incentive was not important, whereas 31.7% of those with a B.A./B.S. degree indicated it was not important.

Table 4.23.--Results of cross-tabulation between importance of released time to work on independent staff-development projects and respondents' level of education (N = 221).

Educational Level	Importance of Incentive						Row Total	
	Not Important		Somewhat Important		Very Important			
B.A./B.S.	19	31.7	16	26.7	25	41.7	60	27.1
M.A.+	25	15.5	49	30.4	87	54.0	161	72.9
Column total	44	19.9	65	29.4	112	50.7	221	100.0

Chi-square = 7.2491 df = 2 Significance = .0267

Respondents with different teaching assignments within industrial arts and years of teaching experience did not differ significantly in their identification of the importance of any of the 11 incentives. Hence the results of these analyses are not presented here in tabular form.

A statistically significant difference was found between respondents with and those without secondary employment in their identification of the importance of three of the incentives. As

shown in Table 4.24, a statistically significant difference was found between those with and without secondary employment and the importance of extended released time from classroom or sabbatical status. Twenty-two percent of those with another job in addition to a full-time teaching assignment indicated released time was not important, whereas almost twice as many of those without secondary employment (38%) indicated this incentive was not important.

Table 4.24.--Results of cross-tabulation between importance of extended released time from classroom or sabbatical status and respondents' secondary employment (N = 227).

Secondary Employment	Importance of Incentive						Row Total	
	Not Important		Somewhat Important		Very Important			
Yes	20	21.5	40	43.0	33	35.5	93	41.0
No	51	38.1	36	25.9	47	35.1	134	59.0
Column total	71	31.3	76	33.5	80	35.2	227	100.0

Chi-square = 9.0869 df = 2 Significance = .0106

A statistically significant difference was also found between those with and those without secondary employment and the importance of building- or district-level recognition. As shown in Table 4.25, 17.6% of the teachers with secondary employment indicated this was a somewhat important incentive, whereas 31.7% of those without secondary employment indicated the incentive was somewhat important.

Table 4.25.--Results of cross-tabulation between importance of building- or district-level recognition and respondents' secondary employment (N = 217).

Secondary Employment	Importance of Incentive						Row Total	
	Not Important		Somewhat Important		Very Important			
Yes	45	49.5	16	17.6	30	33.0	91	41.9
No	41	32.5	40	31.7	45	35.7	126	58.1
Column total	86	39.6	56	25.8	75	34.6	217	100.0

Chi-square = 8.0356 df = 2 Significance = .0180

The incentive of having a decision-making voice locally was twice as important to those without secondary employment as it was to teachers with another job. Table 4.26 shows the findings in each category.

Table 4.26.--Results of cross-tabulation between importance of having a decision-making voice locally and respondents' secondary employment (N = 218).

Secondary Employment	Importance of Incentive						Row Total	
	Not Important		Somewhat Important		Very Important			
Yes	24	25.8	19	20.4	50	53.8	93	42.7
No	16	12.8	38	30.4	71	56.8	125	57.3
Column total	40	18.3	57	26.1	121	55.3	218	100.0

Chi-square = 7.0323 df = 2 Significance = .0297

A statistically significant difference was found for only one incentive (advancement on the salary schedule for accumulation of continuing education units) when analyzed by the size of the respondents' school district. About 20% of the teachers in districts with 5000+ enrollments indicated this incentive was not important. Just 6.7% of the respondents in the under 1000 category, 6.3% of those in the 1000-3000 category, and 2.4% of the teachers in the 3000-5000 enrollment category indicated this incentive was not important (see Table 4.27).

Table 4.27.--Results of cross-tabulation between importance of advancement on salary schedule for accumulation of continuing education units and size of respondents' school districts (N = 215).

Enrollment Size	Importance of Incentive						Row Total	
	Not Important		Somewhat Important		Very Important			
Under 1000	3	6.7	8	17.8	34	75.6	45	20.0
1000-3000	5	6.3	9	11.3	66	82.5	80	37.2
3000-5000	1	2.4	3	7.3	37	90.2	41	19.1
5000+	10	20.4	3	6.1	36	73.5	49	22.8
Column total	19	8.8	23	10.7	173	80.5	215	100.0

Chi-square = 14.6583

df = 6

Significance = .0231

Summary

Results of the data analyses provided answers to the nine research questions of the study. A brief discussion followed each of the research questions. Tables were used to present the data for

eight of the research questions. A narrative was used to answer Research Question 3 as the review of literature was the source for that question.

A summary of the survey respondents by region was presented to show the number and percentage of those responding to the mailed questionnaire. A summary of participation by industrial arts teachers in professional-development activities was presented, rank ordered by the mean and grouped by frequency. Other tables contained summary information by number and percentages.

Industrial arts teachers' preferences for the eight approaches to technological updating were presented by their ratings on a scale of 1-5, with the mean and median included. Their preference for time to participate in professional growth was presented using percentages. Teachers' rating of incentives by importance was presented using a scale of 1-5, the mean, and standard deviation. The responses were further combined to emphasize important versus not important responses.

A summary table listing the 11 incentives was used to present the availability of incentives to the respondents. The incentives and professional-development activities were grouped into categories and presented in that manner to illustrate the relationship between the two groups. Each activity and incentive was also shown individually in a summary table showing the correlation with each other and the level of significance. The demographic variables were presented in individual tables when they correlated with any of the incentives.

A summary of the major findings is presented in Chapter V. Conclusions drawn from the findings are discussed, and recommendations for further research are set forth.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The primary purpose of this study was to identify the types of incentives that would motivate Michigan industrial arts teachers to participate in professional-growth activities. The researcher's specific objectives were as follows:

1. To identify the frequency with which industrial arts teachers have participated in professional-growth activities and their reasons for participating.
2. To identify those professional-development activities that teachers consider most relevant.
3. To assess the interest of industrial arts teachers in participating in specific approaches to technological updating and their preferred time to participate.
4. To determine which incentives industrial arts teachers have identified as important motivators and the degree to which incentives are currently provided.
5. To assess whether a relationship exists between frequency of participation in professional-growth activities and the availability of local incentives.

6. To determine whether there is a relationship between teachers' age, level of education, teaching assignment, years of teaching experience, size of district, and presence of secondary employment, and their identification of important incentives.

A mail survey was used to obtain information from a stratified random sample of industrial arts teachers in the state.

Procedures

The study population comprised the 2,243 industrial teachers who were employed in Michigan in 1985. A stratified sample of 405 teachers was selected as the target group for the study. A four-part questionnaire was sent to teachers representing the 18 Michigan Industrial Education Society regions throughout the state. A 66% (N = 267) response was received.

The data were analyzed primarily using measures of central tendency and correlation analysis. Means, medians, and standard deviations were the main descriptive statistics used. The chi-square test of independence and Pearson product-moment correlations were used to determine relationships between variables.

Profile of Respondents

A summary of the demographic characteristics of the 264 survey respondents is provided as background information. One hundred percent of the respondents were male; 19% were between the ages of 22 and 37, 37% were between 38 and 45, and 43% were 46 years or older. Twenty-eight percent had taught 1 to 15 years, 29% had taught 16 to 20 years, and 44% had taught 21 or more years.

Seventy-one percent had attained a master's or higher degree, whereas 29% had a bachelor's degree.

The employment status of the respondents can be summarized as follows: 36% worked in districts with 1,000 to 3,000 students, 23% in districts with 5,000 or more students, 22% in districts with fewer than 1,000 students, and 19% in districts with 3,000 to 5,000 students. Fifty-eight percent were teaching at the high school level, 26% in middle or junior high school, and 16% at both high school and middle or junior high levels. Fifty-seven percent had a full-time teaching schedule in industrial arts; the remaining 43% had less than full-time teaching assignments, with the remaining time primarily assigned to mathematics or science. The greatest percentage of teachers had assignments in woods (53%) and drafting and design (51%). The smallest percentage taught in technology-related industrial arts courses. Only 3% were assigned to communications technology, 4% transportation technology, 6% manufacturing technology and graphic arts, and 7% construction technology and plastics.

Forty-two percent of the respondents reported being employed elsewhere in addition to their full-time teaching position. Of those with two jobs, 65% indicated the other job was related to their specific technical or vocational skill area.

Findings

In this section, each research question is restated, followed by the results for that question.

Research Question 1. To what extent have Michigan industrial arts teachers participated in professional-development activities during the past 2 years, and what were their reasons for participating?

Industrial arts teachers reported reading professional journals as their most frequent professional-growth activity, followed by participating in an informal teacher/colleague dialogue group within the building or district. But 44% reported not having participated in a teacher dialogue group during the past two years.

These findings support those of Holly's (1977) research, which indicated that a high priority with teachers for professional growth was talking with other teachers. Ainsworth (1974), along with Wood and Thompson (1980), listed teacher sharing as an important component of effective inservice education.

Ninety-four percent of the respondents who participated in the activities listed indicated that their reasons for participating in the 16 professional-growth activities were a personal choice or professional success. This finding supports the work of Hamilton and Wonacott (1984), which indicated that personal values or professionalism are the most powerful forces for professional growth.

Only when asked why they participated in local district workshops was teachers' highest response other than personal choice. In that instance, contractual obligation was the largest response (50%). Even though participating in an informal teacher/colleague dialogue group was the second most frequent activity reported by respondents, 22% indicated the reason for participation as

contractual obligation, while 56% indicated personal choice and 11% cited influencing decision makers.

More than 50% of those surveyed responded that they had not participated in the following activities during the past two years: (a) making a presentation at a local or district workshop; (b) making a presentation at a regional, statewide, or national convention; (c) enrolling in a community college or university credit or noncredit course; (d) attending a state, regional, or national conference; or (e) observing other teachers teaching. Seventeen percent reported they had not read a professional journal in two years.

Research Question 2. To what extent have Michigan industrial arts teachers participated in activities targeted by the Vocational Education Personnel Development Project between 1985 and 1987?

Twenty-two percent of the eligible industrial arts teachers participated in the activities targeted for them. The greatest percentages of workshop attendees at the Vocational Education Personnel Development Project target activities for industrial arts teachers were from Region 18, the Calumet, L'Anse area (40%), and Region 9, the Grand Rapids area (41%). The lowest percentages of attendees were from Region 1, Detroit (6%), and Region 11, Saginaw (10%).

Research Question 3. What types of professional-development activities do teachers view as relevant?

The review of literature on teachers' perceptions of effective staff-development activities was the basis for formulating some summary statements about teachers' preferences regarding staff

development. Most important to teachers was involvement in developing the purposes and activities of inservice programs. They preferred demonstration teaching, practical information, and programs that are short and to the point. From the review of literature, the specific activities did not appear as important as the process, the environmental-setting climate, and the conditions set forth by district administrators, who often have responsibility for planning staff-development programs.

Research Question 4. Which methods for technological updating are of interest to industrial arts teachers?

Seventy percent of the survey respondents indicated that their preference for participating in professional development would be during the school day, followed by 32% indicating summer or other vacation time.

Research Question 5. When would industrial arts teachers most prefer to participate in professional-development activities?

More than 80% of the survey respondents indicated moderate to strong interest in attending workshops, conferences, and seminars, and participating in industry observations, education/industry staff exchange and industry training programs as preferred approaches to technological updating. The least preferred was enrolling in university or college courses, yet more than 60% indicated interest in this activity.

Research Question 6. What specific incentives do industrial arts teachers view as important?

The incentive most preferred by industrial arts teachers was advancement on the salary scale. This finding does not support the

research as cited in the ERIC Clearinghouse Synthesis of 1980, which indicated that extra pay for training had either negative or insignificant effects. Also of importance was reimbursement for workshop fees, followed by a decision-making voice locally. The least important incentives were the potential to become department head or teacher coordinator and building- or district-level recognition, but 60% indicated an interest in these incentives. It should be noted that monetary incentives are most important to industrial arts teachers.

Research Question 7. What types of incentives do local districts provide to encourage participation in professional-growth activities?

Seventy percent of the districts represented in the study provided reimbursement for workshop fees--more than any other incentives listed. From the information the respondents provided, it appears that local contracts provided for extended released time or sabbatical status for teachers as 56% indicated the availability of that incentive, followed by the ability to have a decision-making voice locally (55%) and the potential to become a department head or teacher coordinator (55%). The least available incentive was reimbursement for membership fees in professional organizations (16%).

Research Question 8. Is there a significant relationship between the frequency of participation in professional-growth activities and the extent to which incentives are provided locally?

When grouped by categories, the only statistically significant relationship found was between the professional-development category

of workshops and nonmonetary incentives as a group. If the survey sample was less than 40, no statistically significant relationship would be found. No other statistically significant relationships were found between the frequency of participation in professional-development activities and the extent to which incentives were provided.

Individually, statistically significant correlations were found between nonmonetary incentives and (a) participation in local district workshops; (b) participation in intermediate school district, state department, or university-sponsored workshops; (c) participation in a workshop sponsored by the Vocational Education Personnel Development Project; (d) attendance at a state, regional, or national convention; (e) meetings attended as a member of a district or building professional-education committee, and (f) membership in professional education organizations.

In addition, a statistically significant, although negative, correlation was found between monetary incentives and enrolling in a community college or university noncredit course for pleasure.

Two out of the 11 incentives, potential to become department head or teacher coordinator and a decision-making voice locally, contributed to the respondents' participation in professional-growth activities. Having a decision-making voice locally was significant at the .01 level, whereas the potential to become department head or teacher coordinator was significant at the .05 level. The incentives most preferred were least available to industrial arts teachers.

Research Question 9. Is there a significant relationship between teachers' (a) age, (b) level of education, (c) teaching assignment, (d) years of teaching experience, (e) secondary employment, and (f) size of the school district, and their identification of important incentives?

The demographic categories of age, level of education, teaching assignment, years of teaching experience, secondary employment, and size of the school district were used to determine whether respondents in the various categories differed in their ratings of the importance of the various incentives. With the level of significance set at .05 or less, a statistically significant difference was found between respondents in the 22-37 age group and those in the 38-45 and 46+ groups. Twice as many of the respondents 38 years of age and older indicated that the incentive, released time or sabbatical status, was not as important as indicated by those 22 to 37 years old.

Using the variable, levels of education, statistical significance was found with the incentive released time to work on independent staff-development projects. Fewer of those with an advanced degree (15.5%) indicated the incentive was not important, whereas 32% of those with a B.A./B.S. degree indicated it was not important. No statistical significance was found with the variable, different teaching assignments within industrial arts.

A statistically significant difference was found between respondents with and those without secondary employment in their identification of the importance of three of the incentives. Extended released time from classroom or sabbatical status was not

important to 22% of those with secondary employment and 38% of those without such employment. Thirty-two percent of those without secondary employment indicated building or district-level recognition was somewhat important, whereas 18% of those with secondary employment indicated such recognition was somewhat important. The incentive of having a decision-making voice locally was twice as important to those without secondary employment as those with it.

A statistically significant difference was found between teachers from different sizes of school districts and the incentive, advancement on the salary schedule for the accumulation of continuing education units. More teachers (20%) employed in larger districts (5000+ students) than those employed in districts with fewer students indicated this incentive was not important.

Conclusions

Based on the findings of this study, several conclusions seem warranted.

1. Overall, Michigan industrial arts teachers have been actively engaged in professional growth primarily through reading professional journals, participating in informal teacher/colleague dialogue groups within a building or district, and attending meetings as members of district or building professional education committees. It is concluded that these activities are either the most preferred activities and/or most accessible to industrial arts teachers.

2. The reason most frequently cited for participating in professional-growth activities was personal choice/professional success. For just one activity, participating in local district workshops, was the highest response other than this. In that instance, contractual obligation was the reason given. It is concluded that industrial arts teachers choose to participate except when local contract language mandates attendance at specific activities.

3. Approximately one-fourth of the industrial arts teachers were able to participate in the Vocational Education Personnel Development Project activities targeted for them, which were based on a statewide needs assessment.

4. A conclusion drawn from the review of literature regarding the types of professional-development activities that teachers view as relevant is that the process of staff development is more important to teachers than the individual activities. Teachers have a preference for the format and focus but also want responsibility for their own professional growth.

5. Industrial arts teachers preferred industry-designed staff-development experiences for technological updating over ones designed locally. They were less interested in work-experience internships and part-time employment as well as enrolling in university or college courses. But nearly one-half were currently employed elsewhere, and nearly three-fourths had advanced degrees. It is concluded that industrial arts teachers as a group would be

willing to participate in all eight approaches presented for technological updating.

6. Since industrial arts teachers indicated a preference for attending staff-development activities during the work day, it is concluded that planning activities or programs during other times would not attract a significant number of industrial arts teachers.

7. All 11 incentives were identified as important motivators for nearly two-thirds of the survey respondents. When rank ordered, the top choice was advancement on the salary schedule for the accumulation of continuing education units, followed by reimbursement for workshop fees and tuition reimbursement for university courses. Therefore, it is concluded that monetary incentives are preferred over nonmonetary incentives.

8. Incentives were not widely available to Michigan industrial arts teachers responding to the survey. Less than one-half of those listed were available to one-half of the respondents. It is concluded that there is a gap between the most preferred incentives and the most available as reported by respondents.

Industrial arts teachers' favoring extrinsic, monetary incentives does not support some of the literature on incentives and motivation. McGraw (1978) and McCullers (1978) found that rewards may have detrimental effects on motivation over a long period, whereas Farrar (1981) concluded that pay-related incentives appeared to hold the most potential for elementary and secondary school teachers when related to performance motivation. Since one-third of the Michigan industrial arts teachers surveyed indicated that

building/district-level recognition was not important, this raises some questions regarding the methods currently being used to provide recognition. Spuck (1974) found that teachers preferred recognition in the form of material or monetary inducements, support and recognition from the community, pleasant physical conditions, pride in workmanship, social interaction with peers, agreement with district goals and policy, ability or opportunity to influence school policy, and environment/working conditions.

9. A relationship was found between the professional-development activity of workshops as a category and the category of nonmonetary incentives. It is concluded that nonmonetary incentives of a decision-making voice locally and the potential to become a teacher coordinator or department head were those that contributed to their participation in professional-growth activities. It should be noted that their preference was monetary incentives as motivators, but they were not available.

10. Overall, fewer young industrial arts teachers are not interested in extended released time from the classroom or sabbatical status than their more mature colleagues. More individuals with advanced degrees are interested in released time to work on independent staff-development projects than those with a B.A./B.S. Advancement on the salary scale was less important to those employed in larger districts than those from smaller districts. Respondents without another job appeared to have more of an interest in recognition and having a decision-making voice

locally than those who held another job. It is further concluded that no other relationships exist between the remaining demographic variables and the identification of important incentives.

Recommendations

The findings and conclusions of this study lead to the following recommendations of importance to those responsible for supporting the professional growth of industrial arts teachers. Those responsible entities may include, but are not limited to: the individual teacher, professional organizations, the employer, teacher-training institutions, and public and private training and development agencies.

1. Teachers should be given the opportunity to choose the activity most appropriate for their individual development based on their self-perceived needs.

2. Individual plans for professional growth should be encouraged and supported.

3. Staff-development activities should be offered primarily during the work day.

4. When group activities for staff development are offered, they should be based on teacher needs assessments. Teachers should have an integral part in the planning and evaluation of such activities.

5. Administrators and/or others responsible for teacher-recognition programs need to be aware that one-third of the industrial arts teachers indicated building- or district-level

recognition was not important. More information should be obtained to determine the reasons for these responses. The effectiveness of current programs should be evaluated, with attention to the research on the types of recognition preferred by teachers.

6. Industrial arts teachers were not convinced that their administrators were committed to and supportive of their professional growth. An effort to communicate the commitment should be pursued to demonstrate that support exists.

7. The potential of incentives as motivators exists; therefore, serious thought should be given by policy makers to include these incentives as options for staff. There is evidence that a gap exists between the most preferred and most available incentives. A closer alignment between the two is recommended.

8. It is recommended that educational institutions collaborate with industry in providing staff-development opportunities for industrial arts teachers as a means for technological updating.

9. Since talking to other teachers is an important activity for industrial teachers as well as supportive of other research indicating that teachers value this activity, more of these opportunities should be made available to teachers. There is a need to further legitimize this as a staff-development activity.

Topics and questions for further research follow.

1. Those interested in conducting a similar study should consider using a random sample of all Michigan teachers to clarify issues raised in this study, such as the value of monetary versus nonmonetary incentives.

2. Further research is suggested to determine the types of professional journals read by teachers and the carry-over into classroom instruction.

3. It is suggested that teachers who do not participate in professional-development activities be interviewed to determine their reasons for nonparticipation.

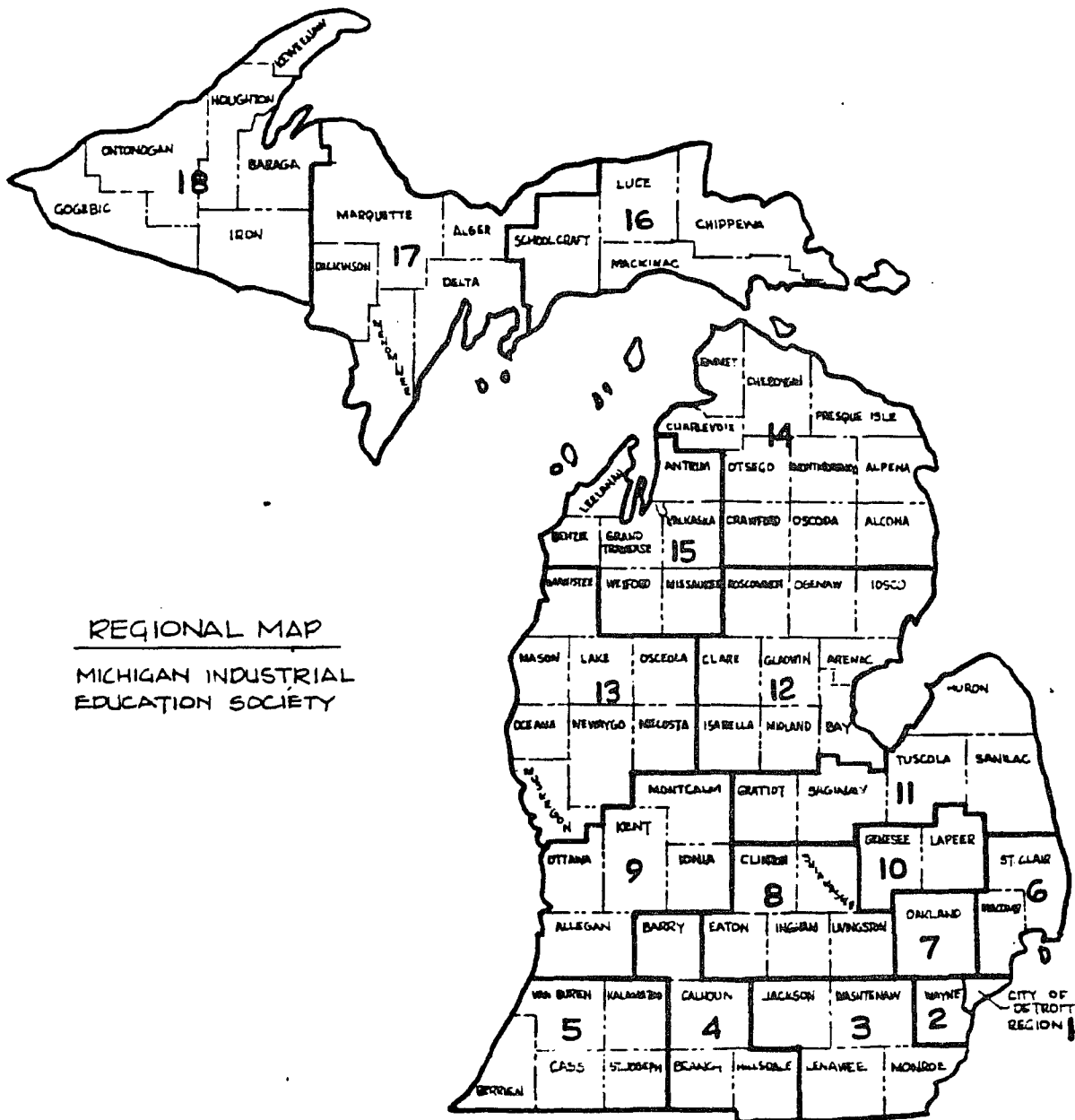
4. Further research is suggested to determine teachers' preference for developing their own professional-growth plans and the type of support they require.

5. Further information would be helpful in determining why industry-based training programs are preferred over locally designed programs.

APPENDICES

APPENDIX A

REGIONAL MAP--MICHIGAN INDUSTRIAL EDUCATION SOCIETY



APPENDIX B

**LETTER SENT TO CAREER EDUCATION PLANNING DISTRICT (CEPD)
VOCATIONAL-TECHNICAL SPECIALISTS**

MICHIGAN STATE UNIVERSITY

COLLEGE OF EDUCATION • DEPARTMENT OF TEACHER EDUCATION

EAST LANSING • MICHIGAN • 48824-1034

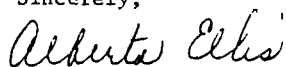
March 1, 1988

As a doctoral student at Michigan State University, I am in the process of collecting data for my dissertation. The topic I have chosen is "An Identification of Incentives That Motivate Michigan Industrial Arts Teachers to Participate in Professional Growth Activities." I plan to survey, through a random sampling process, industrial arts teachers throughout the state of Michigan.

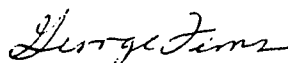
Would you please assist me by providing me with a current list of the industrial arts teachers employed in your CEPD for the 1987-88 school year? It would be of tremendous help to me to verify the accuracy of my sample prior to mailing out the questionnaire. Please send the information to me at: 5081 Timber Ridge, Clarkston, MI 48016.

If you have any questions concerning this request, you may reach me by telephone at (313) 623-9085 (Home). Thank you in advance for your

Sincerely,



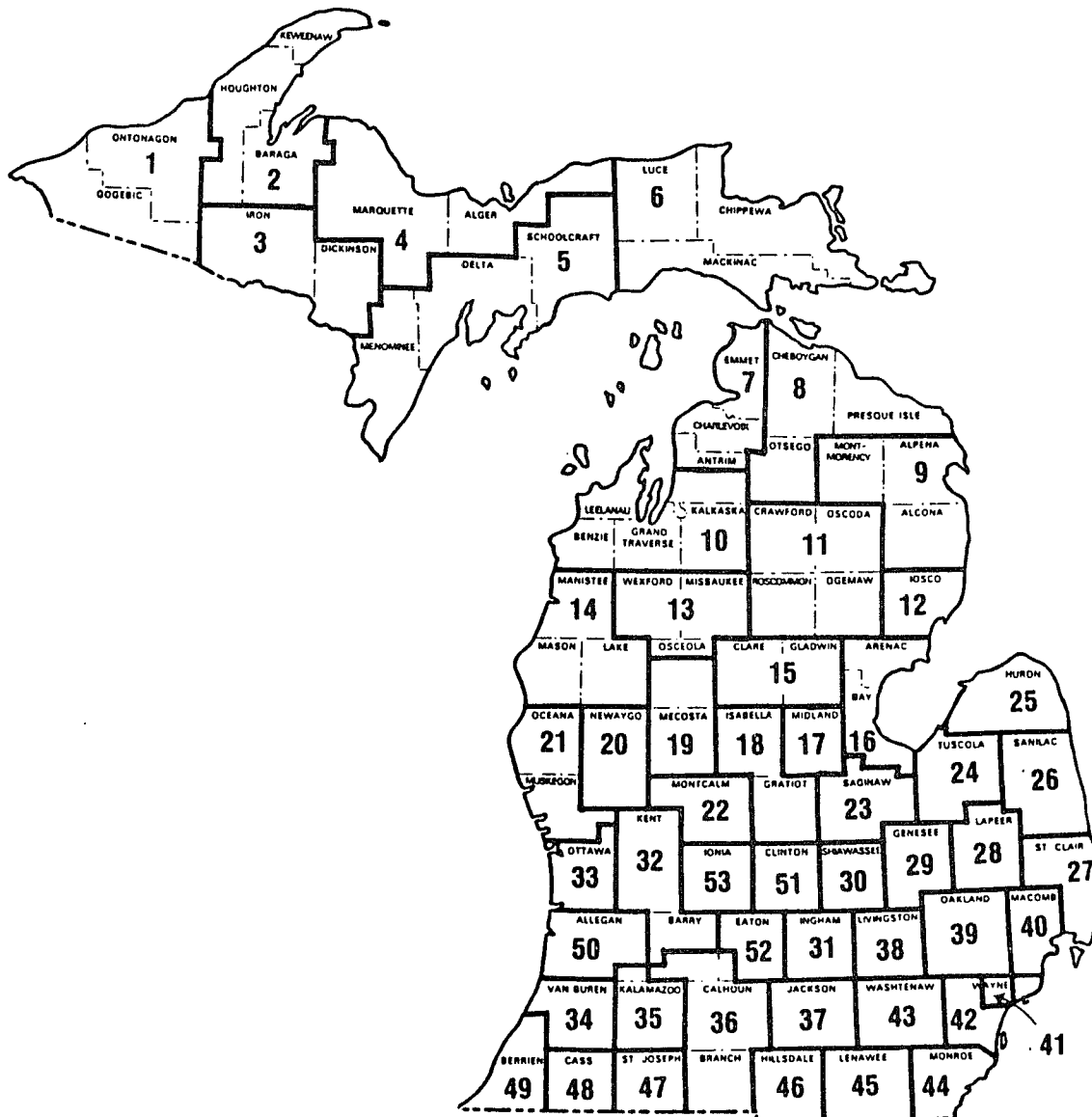
Alberta Ellis

Dr. George Ferns, Professor
Dissertation Committee Chairperson

APPENDIX C

MICHIGAN CAREER EDUCATION PLANNING DISTRICTS

CAREER EDUCATION PLANNING DISTRICTS



APPENDIX D

PILOT COVER LETTER AND SURVEY INSTRUMENT

MICHIGAN STATE UNIVERSITY

COLLEGE OF EDUCATION • DEPARTMENT OF TEACHER EDUCATION

EAST LANSING • MICHIGAN • 48824-1014

November 30, 1987

Dear Industrial Arts Teacher,

As a doctoral student at Michigan State University, I am in the process of collecting data for my dissertation. The topic I have chosen is "An Identification of Incentives That Motivate Michigan Industrial Arts Teachers to Participate in Professional Growth Activities." My plans to collect data include a random sampling of the approximately 2,400 industrial arts teachers by Michigan Industrial Education Society (M.I.E.S.) regions through a mailed questionnaire.

I am hopeful that the data I collect will provide valuable information to employers, staff developers, and others responsible for planning growth activities for industrial arts teachers. As a participant in staff development programs, your input can be considered in the future to determine the types of programs to be made available for you locally and statewide.

The first step in the process is to pilot test the questionnaire with a small sampling of industrial arts teachers to determine the appropriateness of the questions and the validity of the instrument. The official projected period of time for data gathering will be November, 1987 to January, 1988. The four-page questionnaire should take you approximately 20 to 30 minutes to complete. Your completion and return of the questionnaire is based on your choice to participate in the survey. If during the data gathering period you wish to have your input excluded from the final tabulation and analysis, you may contact me and I would be amenable to any such request.

Would you please assist me by taking the time to fill out the enclosed questionnaire and return it in the enclosed stamped envelope by December 11, 1987? The information you share will be treated in strict confidence and all respondents will remain anonymous.

After completing the dissertation, I would be willing to share the results with you within the restrictions mentioned previously. If you wish to receive this information, please so indicate on the questionnaire.

Thank you in advance for your cooperation.

Sincerely,



Alberta Ellis

Enclosure

PART I
Background Information

Directions: The purpose of this part of the survey instrument is to obtain some general information regarding your current employment and status. Please respond by checking the category that best describes your current status or supply the requested information in the space provided.

1. What is your sex? ☐ Male ☐ Female

2. What is your age?
☐ 22-29 ☐ 30-37 ☐ 38-45 ☐ 46-55 ☐ over 55

3. What is the total enrollment of your employing school district? ☐ under 500
☐ 500-1,000 ☐ 1,000-3,000 ☐ 3,000-5,000 ☐ 5,000-7,500
☐ 7,500-10,000 ☐ over 10,000

4. How many years have you taught? ☐ 1-5 ☐ 6-10 ☐ 11-15
☐ 16-20 ☐ 21-25 ☐ over 25

5. What subjects/areas are you currently teaching?

☐ Auto Mechanics	☐ Communications Technology
☐ Construction Technology	☐ Drafting and Design
☐ Electricity and Electronics	☐ General Industrial Arts
☐ Graphic Arts	☐ Manufacturing Technology
☐ Metals	☐ Plastics
☐ Power Mechanics	☐ Transportation Technology
☐ Woods	☐ Other (Describe _____)

6. What level are you currently teaching?
☐ Middle School/Junior High ☐ High School

7. What percentage of your teaching schedule is devoted to Industrial Arts? _____%

8. If not 100 percent, what other classes are you currently teaching? _____

9. What is the highest level degree you currently possess?
☐ B.A./B.S. ☐ M.A. ☐ Ed.S. ☐ Ph.D.

10. Are you currently employed elsewhere?
☐ During the school year ☐ Summer ☐ Both

11. Is your other employment related to a technical skill area?
☐ Yes ☐ No

PART II
Participation in Professional Development Activities

Directions: The following items represent activities that are categorized as professional growth experiences. Please indicate the frequency of your participation during the past two years by filling in the space provided. Using the key that follows, please circle the primary reason for your participation.

KEY: 1 = Contractual Obligation 3 = Recognition by colleagues 5 = Personal/professional success
 2 = Friends were participating 4 = Influence decision makers

Activity	How Often	Reasons for Participating				
		1	2	3	4	5
WORKSHOPS						
1. Participation in district workshop.						
2. Participation in intermediate, state department or university sponsored workshop						
3. Participation in a workshop sponsored by the Vocational Educational Personnel Development Project.						
CONVENTIONS						
4. Attendance at a state, regional, or national convention.						
PRESENTATIONS						
5. Making a presentation at a local district workshop.						
6. Making a presentation at a regional, statewide, or national convention.						
PROFESSIONAL ORGANIZATIONS						
7. Membership in professional education organizations. Please list: _____						
8. Reading of professional journals (approximate number read in the last three years).						
COURSEWORK						
9. Enrolling in a university credit course related to certification or advanced degree.						
10. Enrolling in a university credit or non-credit course for pleasure.						
11. Enrolling in a technical education credit or non-credit course.						
OTHER PROFESSIONAL ACTIVITIES						
12. Observations of other teachers teaching.						
13. Number of meetings attended as a member of a district or building professional education committee.						
14. Number of meetings attended as a member of a state or national task force.						
15. Participation in an informal teacher/colleague dialogue group within a building or district.						
16. Writing or co-authoring student textbooks or journal articles.						

Other Activities: _____

PART III
Local Incentives Provided for Participation
in Professional Development Activities

Directions: Some local school districts currently provide incentives for staff participation in professional development activities. Please indicate whether or not these incentives are available in your district by checking the YES or NO column. Also, please note the effectiveness by circling your response using the key that follows.

KEY: 1 = Extremely Effective
 2 = Considerable

3 = Somewhat
 4 = Very Little

5 = Not Effective

Incentives	Provided In Your District		Effectiveness of Incentives				
	YES	NO					
1. Reimbursement for membership fees in professional organization.			1	2	3	4	5
2. Reimbursement for workshop fees.			1	2	3	4	5
3. Reimbursement for time outside of the workday spent in attending professional activities.			1	2	3	4	5
4. Tuition reimbursement for university courses.			1	2	3	4	5
5. Advancement on salary schedule for accumulation of continuing education units.			1	2	3	4	5
6. Ability to achieve a master teacher status.			1	2	3	4	5
7. Extended released time from classroom or sabbatical status.			1	2	3	4	5
8. Potential to become department head or teacher coordinator.			1	2	3	4	5
9. Building or district level recognition.			1	2	3	4	5
10. Decision-making voice locally.			1	2	3	4	5
Please list others available or desirable:							
1.							
2.							
3.							

PART IV
Perception of An Innovation

1. There is a current national movement underway to adjust the focus of industrial arts education toward a concentration on the study and understanding of technology and its role in our lives. Using the seven statements listed below, circle the stage that best describes your feelings toward this innovation. Feel free to add additional comments under the expression of concern.

Stages of ConcernExpressions of Concern

- | | |
|------------------|--|
| a. Awareness | I am not concerned about the innovation. |
| b. Informational | I would like to know more about it. |
| c. Personal | How will teaching technology education affect me? |
| d. Management | I seem to be spending all my time gathering and preparing new materials. |
| e. Consequence | How is my teaching of technology affecting my students? |
| f. Collaboration | I am concerned about relating and sharing what I am doing with what other instructors are doing. |
| g. Refocusing | I have some ideas about technology education that would work even better. |

2. A list of ways teachers may obtain technological updating have been identified. Please indicate the approaches you would chose for your personal technical updating by circling the degree of your interest for each item using the following key:

KEY: 1 = No interest 3 = Moderate interest 5 = Exceptional interest
2 = Limited interest 4 = Significant interest

<u>Approaches for Updating</u>		<u>Degree of Interest</u>				
1.	Work experience internships	1	2	3	4	5
2.	University and college course work	1	2	3	4	5
3.	Workshops, conferences, seminars	1	2	3	4	5
4.	Industry observation	1	2	3	4	5
5.	Education and industry staff exchange	1	2	3	4	5
6.	Part-time employment	1	2	3	4	5
7.	Locally designed programs	1	2	3	4	5
8.	Industry training programs	1	2	3	4	5
9.	Others. (Please specify) _____	1	2	3	4	5
		1	2	3	4	5

3. When would you most prefer to participate in professional development activities?

_____ During the school day.

_____ Weekends

_____ After school

_____ Summer or other vacation time

APPENDIX E

FINAL COVER LETTER AND SURVEY INSTRUMENT

MICHIGAN STATE UNIVERSITY

COLLEGE OF EDUCATION • DEPARTMENT OF TEACHER EDUCATION
March 9, 1988

EAST LANSING • MICHIGAN • 48824-1034

Dear Industrial Arts Teacher,

As a doctoral student at Michigan State University, I am in the process of collecting data for my dissertation. The topic I have chosen is "An Identification of Incentives That Motivate Michigan Industrial Arts Teachers to Participate in Professional Growth Activities." My plans to collect data include a stratified random sampling of the approximately 2,400 industrial arts teachers by Michigan Industrial Education Society (M.I.E.S.) regions through a mailed questionnaire.

I am hopeful that the data I collect will provide valuable information to employers, staff developers, and others responsible for planning growth activities for industrial arts teachers. As a participant in staff development programs, your input can be considered in the future to determine the types of programs to be made available for you locally and statewide.

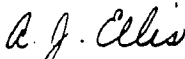
You have been selected in the sampling process to be one of the respondents. The four-page questionnaire should take approximately 20 to 30 minutes to complete. The official period for data gathering will be March, 1988. Your completion and return of the questionnaire is based on your choice to participate in the survey. If during the data gathering period you wish to have your input excluded from the final tabulation and analysis, you may contact me and I would be amenable to such a request.

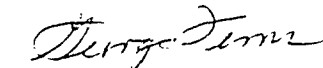
Would you please assist me by taking the time to fill out and return the enclosed questionnaire by March 25, 1988 in the enclosed stamped envelope? The information you share will be treated in strict confidence and all respondents will remain anonymous. If you have any questions regarding the survey, you may reach me at (313) 625-4402 (Work) or (313) 623-9085 (Home).

After completing the dissertation, I would be willing to share the results with you within the restrictions mentioned previously. If you wish to receive this information, please so indicate on the questionnaire.

Thank you in advance for your cooperation.

Sincerely,


A. J. Ellis


Dr. George Ferns, Professor
Dissertation Committee Chairperson

Enclosures

PART I
Background Information

Directions: The purpose of this part of the survey instrument is to obtain some general information regarding your current employment and status. Please respond by (✓) checking the category that best describes your current status or supply the requested information in the space provided.

1. What is your sex? ☐ Male ☐ Female
2. What is your age? ☐ 22-29 ☐ 30-37 ☐ 38-45 ☐ 46-55 ☐ over 55
3. What is the total enrollment of your employing school district? ☐ Do not know
☐ under 500 ☐ 500-1,000 ☐ 1,000-3,000 ☐ 3,000-5,000
☐ 5,000-7,500 ☐ 7,500-10,000 ☐ over 10,000
4. How many years have you taught? ☐ 1-5 ☐ 6-10 ☐ 11-15
☐ 16-20 ☐ 21-25 ☐ over 25
5. What subjects/areas are you currently teaching?

☐ Auto Mechanics	☐ Communications Technology
☐ Construction Technology	☐ Drafting and Design
☐ Electricity and Electronics	☐ General Industrial Arts
☐ Graphic Arts	☐ Manufacturing Technology
☐ Metals	☐ Plastics
☐ Power Mechanics	☐ Transportation Technology
☐ Woods	☐ Other (Specify _____)
6. What level are you currently teaching?
☐ Middle School/Junior High ☐ High School
7. What percentage of your teaching schedule is devoted to Industrial Arts? %
8. If not 100 percent, what other classes are you currently teaching? _____

9. What is the highest level degree you currently possess?
☐ B.A./B.S. ☐ M.A. ☐ Ed.S. ☐ Ph.D.
10. Are you currently employed elsewhere? ☐ Yes ☐ No If yes, indicate when.
☐ During the school year ☐ Summer ☐ Both
11. Is your other employment related to a technical or vocational skill area?
☐ Yes ☐ No

(Over)

PART II
Participation in Professional Development Activities

Directions: The following items represent activities that are categorized as professional growth experiences. Please indicate the frequency of your participation during the past two years by filling in the space provided. Using the key that follows, please circle the primary reason for your participation. Do not circle more than one.

KEY: 1 = Contractual Obligation 3 = Recognition by colleagues 5 = Personal choice/
 2 = Friends were participating 4 = Influence decision makers Professional success

Activities	How Often	Reasons for Participating				
WORKSHOPS						
1. Participation in local district workshop.		1	2	3	4	5
2. Participation in intermediate, state department or university sponsored workshop.		1	2	3	4	5
3. Participation in a workshop sponsored by the Vocational Educational Personnel Development Project.		1	2	3	4	5
PRESENTATIONS						
4. Making a presentation at a local district workshop.		1	2	3	4	5
5. Making a presentation at a regional, statewide, or national convention.		1	2	3	4	5
COURSEWORK						
6. Enrolling in a community college or university credit course related to certification or advanced degree.		1	2	3	4	5
7. Enrolling in a community college or university non-credit course for pleasure.		1	2	3	4	5
8. Enrolling in a technical education credit or non-credit course.		1	2	3	4	5
OTHER PROFESSIONAL ACTIVITIES						
9. Attendance at a state, regional, or national convention.		1	2	3	4	5
10. Reading of professional journals (<u>approximate</u> number read in the last two years).		1	2	3	4	5
11. Observations of other teachers teaching.		1	2	3	4	5
12. Number of meetings attended as a member of a district or building professional education committee.		1	2	3	4	5
13. Number of meetings attended as a member of a state or national task force.		1	2	3	4	5
14. Participation in an informal teacher/colleague dialogue group within a building or district.		1	2	3	4	5
15. Writing or co-authoring student textbooks or journal articles.		1	2	3	4	5
16. Membership in professional education organizations. Please list: _____		1	2	3	4	5

Other Activities:

PART III
Local Incentives Provided for Participation
in Professional Development Activities

Directions: Some local school districts currently provide incentives for staff participation in professional development activities. Please indicate whether or not these incentives are available in your district by checking the YES or NO column. Also, please note the importance to you by circling your response using the key that follows.

KEY: 1 = Not at all Important
 2 = Not very Important

3 = Somewhat Important
 4 = Very Important

5 = Extremely Important

Incentives	Provided In Your District		Importance of Incentives				
	YES	NO	1	2	3	4	5
1. Reimbursement for membership fees in professional organization.							
2. Reimbursement for workshop fees.							
3. Reimbursement for time outside of the workday spent in attending professional activities.							
4. Tuition reimbursement for university courses.							
5. Advancement on salary schedule for accumulation of continuing education units.							
6. Ability to achieve a master or lead teacher status.							
7. Extended released time from classroom or sabbatical status.							
8. Potential to become department head or teacher coordinator.							
9. Building or district level recognition.							
10. Decision-making voice locally.							
11. Released time to work on independent staff development projects							
Please list other incentives available or desirable:							
1. _____							
2. _____							
3. _____							

(Over)

PART IV
Approaches for Technological Updating

1. A list of ways teachers may obtain technological updating has been identified. Please indicate the approaches you would choose for your personal technical updating by circling the degree of your interest for each item using the following key:

KEY: 1 = No interest 3 = Moderate interest 5 = Exceptional interest
 2 = Limited interest 4 = Significant interest

Approaches for Updating	Degree of Interest				
1. Participation in work experience internships.	1	2	3	4	5
2. Enrolling in university and college coursework.	1	2	3	4	5
3. Attendance at workshops, conferences or seminars.	1	2	3	4	5
4. Participation in industry observations.	1	2	3	4	5
5. Participation in an education and industry staff exchange.	1	2	3	4	5
6. Part-time employment with opportunities for technological training.	1	2	3	4	5
7. Participation in locally designed programs.	1	2	3	4	5
8. Participation in industry training programs.	1	2	3	4	5
9. Others. (Please specify)_____	1	2	3	4	5

2. When would you most prefer to participate in professional development activities?

_____ During the school day.

_____ Weekends

_____ After school

_____ Summer or other vacation time

APPENDIX F

CORRESPONDENCE WITH MICHIGAN INDUSTRIAL EDUCATION
SOCIETY PRESIDENT

March 3, 1988

Mr. Dennis E. Hill, President
Michigan Industrial Education Society
60908 Waschull Drive
Washington, MI 48904

Dear Mr. Hill:

As a doctoral student at Michigan State University, I am in the process of collecting data for my dissertation. The topic I have chosen is "An Identification of the Incentives that Motivate Michigan Industrial Arts Teachers to Participate in Professional Growth Activities." My plan to collect data includes a stratified random sampling of the approximately 2,400 industrial arts teachers in Michigan. I am hopeful that the data I collect will provide valuable information to employers, staff developers, professional organizations such as M.I.E.S., and others responsible for planning growth activities for industrial arts teachers.

As a former vocational instructor and administrator, I am sensitive to the decline in the number of industrial arts teachers currently employed in our state. It is my hope, as I am sure it is yours, that this downward trend will soon be reversed.

I am attaching the cover letter and survey instrument that I will be sending out shortly and am asking for the support and endorsement of your organization. Many of your members may be selected in the sampling process as respondents. I would be willing to share the compiled results with your organization after I complete my research.

If you have questions, please feel free to contact me at (313) 625-4402 (W) or (313) 623-9085 (H). As I am working within some tight timelines, I am optimistic that I will receive your response soon.

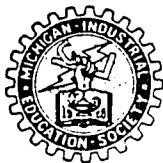
Thank you in advance for your cooperation.

Sincerely,

Alberta Ellis

Attachments

Home Address: 5081 Timber Ridge
Clarkston, MI 48016



MICHIGAN INDUSTRIAL EDUCATION SOCIETY

ORGANIZED IN THE INTEREST OF INDUSTRIAL EDUCATION IN 1928

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Washington, MI 48094
313/781-3609

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President-Elect
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Tecumseh, MI 49286
517/423-7392

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Convention Chairperson
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Treasurer
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313/651-7362

JOHN C. HOVIS
Chairman
10635 Clark Road
Livonia, MI 48019
313/625-5369

13 March, 1988

Ms. Alberta Ellis
5081 Timber Ridge
Clarkston, MI 48016

Dear Ms. Ellis:

I am pleased to inform you that the board of directors of the Michigan Industrial Education Society (MIES) approved your request for support and endorsement from the MIES for collecting data for your doctoral dissertation.

As you offered in your letter to me dated March 3, we would like to be informed of the results after you complete your research.

If I can be of any further assistance, please contact me at your convenience.

Sincerely,

Dennis E. Hill, President
Michigan Industrial Education Society

APPENDIX G

FOLLOW-UP CORRESPONDENCE

MICHIGAN STATE UNIVERSITY

COLLEGE OF EDUCATION • DEPARTMENT OF TEACHER EDUCATION

EAST LANSING • MICHIGAN • 48824-1034

April 8, 1988

Dear Industrial Arts Teacher,

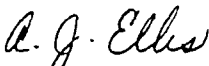
On March 9 I sent a cover letter and questionnaire to you requesting that you participate as a respondent in my data collection for my dissertation. If you have completed the questionnaire and returned it, I want to thank you for taking the time and giving your input.

If you have not already done so or have merely misplaced the questionnaire, I am enclosing another copy along with the cover letter. Your prompt return in the postage paid, self addressed enveloped, will be greatly appreciated.

Your response is very important to my research. The greater the number of respondents, the more meaningful the information will be not only to my personal research, but to the industrial arts teaching profession in the state of Michigan.

Thank you for your support.

Sincerely,



A. J. Ellis

Attachments

May 1988

Dear Industrial Arts Teacher,

Thank you for your cooperation in responding to the questionnaire sent to you during the time period of March-April 1988. I received an overall response of 66% from teachers like yourself throughout the state of Michigan.

Currently I am writing my dissertation and analyzing the data I received through the statewide survey. If you indicated a desire to receive the results, you can expect to receive that information no later than May 1989. I hope to meet that deadline for completing my dissertation and graduating from Michigan State University.

Your cooperation and input are greatly appreciated. Best wishes for continued success as an industrial arts teacher.

Sincerely,

A. J. Ellis

APPENDIX H

CORRESPONDENCE FROM UNIVERSITY COMMITTEE ON
RESEARCH INVOLVING HUMAN SUBJECTS (UCRIHS)

MICHIGAN STATE UNIVERSITY

UNIVERSITY COMMITTEE ON RESEARCH INVOLVING
HUMAN SUBJECTS (UCRIHS)
238 ADMINISTRATION BUILDING
(517) 355-2186

EAST LANSING • MICHIGAN • 48824-1046

November 17, 1987

Ms. Alberta Ellis
5081 Timber Ridge
Clarkston, Michigan 48016

Dear Ms. Ellis:

Subject: Proposal Entitled, "An Identification of Incentives that
Motivate Michigan Industrial Arts Teachers to Participate
in Professional Growth Activities"

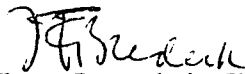
I am pleased to advise that I concur with your evaluation that this project is exempt from full UCRIHS review, and approval is herewith granted for conduct of the project.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval prior to November 17, 1988.

Any changes in procedures involving human subjects must be reviewed by the UCRIHS prior to initiation of the change. UCRIHS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to my attention. If I can be of any future help, please do not hesitate to let me know.

Sincerely,



Henry E. Bredeck, Ph.D.
Chairman, UCRIHS

HEB/jms

cc: Dr. George W. Ferns

APPENDIX I

TABLES SHOWING FREQUENCY OF PARTICIPATION IN PROFESSIONAL-DEVELOPMENT ACTIVITIES

Table I.1.--Participation in local district workshop.

Number of Workshops	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	77	29.2	29.2
1	39	14.8	43.9
2	68	25.8	69.7
3	18	6.8	76.5
4	33	12.5	89.0
5	3	1.1	90.2
6	8	3.0	93.2
7	1	0.4	93.6
8	1	0.4	93.9
10	2	0.8	94.7
12	3	1.1	95.8
14	3	1.1	97.0
16	2	0.8	97.7
20	4	1.5	99.2
23	1	0.4	99.6
40	1	0.4	100.0
Total	264	100.0	

Mean = 2.697

Median = 1.735

Table I.2.--Participation in intermediate, state department, or university-sponsored workshop.

Number of Workshops	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	100	37.9	37.9
1	71	26.9	64.8
2	63	23.9	88.6
3	8	3.0	91.7
4	13	4.9	96.6
5	2	0.8	97.3
6	3	1.1	98.5
10	1	0.4	98.9
11	1	0.4	99.2
12	1	0.4	99.6
20	1	0.4	100.0
Total	264	100.0	

Mean = 1.341

Median = 0.951

Table I.3.--Participation in a workshop sponsored by the Vocational Education Personnel Development Project.

Number of Workshops	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	131	49.6	49.6
1	54	20.5	70.1
2	50	18.9	89.0
3	11	4.2	93.2
4	10	3.8	97.0
5	1	0.4	97.3
6	4	1.5	98.9
10	1	0.4	99.2
11	1	0.4	99.6
12	1	0.4	100.0
Total	264	100.0	

Mean = 1.095

Median = 0.519

Table I.4.--Making a presentation at a local district workshop.

Numer of Presentations	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	228	86.4	86.4
1	23	8.7	95.1
2	6	2.3	97.3
3	2	0.8	98.1
4	2	0.8	98.9
5	1	0.4	99.2
10	1	0.4	99.6
11	1	0.4	100.0
Total	264	100.0	

Mean = 0.284

Median = 0.079

Table I.5.--Making a presentation at a regional, statewide, or national convention.

Number of Presentations	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	247	93.6	93.6
1	13	4.9	98.5
2	2	0.8	99.2
3	1	0.4	99.6
11	1	0.4	100.0
Total	264	100.0	

Mean = 0.117

Median = 0.034

Table I.6.--Enrolling in a community college or university credit course related to certification or advanced degree.

Number of Courses	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	189	71.6	71.6
1	28	10.6	82.2
2	14	5.3	67.5
3	8	3.0	90.5
4	6	2.3	92.8
5	2	0.8	93.6
6	8	3.0	96.6
7	1	0.4	97.0
8	4	1.5	98.5
10	1	0.4	98.9
11	1	0.4	99.2
20	1	0.4	99.6
30	1	0.4	100.0
Total	264	100.0	

Mean = 1.030

Median = 0.198

Table I.7.--Enrolling in a community college or university non-credit course for pleasure.

Number of Courses	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	227	86.0	86.0
1	22	8.3	94.3
2	6	2.3	96.6
3	4	1.5	98.1
4	2	0.8	98.9
5	1	0.4	99.2
11	1	0.4	99.6
20	1	0.4	100.0
Total	264	100.0	

Mean = 0.341

Median = 0.081

Table I.8.--Enrolling in a technical education credit or noncredit course.

Number of Courses	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	212	80.3	80.3
1	32	12.1	92.4
2	11	4.2	96.6
3	4	1.5	98.1
4	1	0.4	98.5
5	2	0.8	99.2
11	1	0.4	99.6
50	1	0.4	100.0
Total	264	100.0	

Mean = 0.534

Median = 0.123

Table I.9.--Attendance at a state, regional, or national convention.

Number of Conventions	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	134	50.8	50.8
1	53	20.1	70.8
2	61	23.1	93.9
3	3	1.1	95.1
4	7	2.7	97.7
5	4	1.5	99.2
8	1	0.4	99.6
11	1	0.4	100.0
Total	264	100.0	

Mean = 0.951

Median = 0.485

Table I.10.--Reading of professional journals (approximate number read in the last two years).

Number of Journals Read	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	44	16.7	16.7
1	9	3.4	20.1
2	21	8.0	28.0
3	19	7.2	35.2
4	10	3.8	39.0
5	7	2.7	41.7
6	10	3.8	45.5
7	1	0.4	45.8
8	5	1.9	47.7
9	2	0.8	48.5
10	17	6.4	54.9
12	11	4.2	59.1
13	1	0.4	59.5
14	2	0.8	60.2
15	3	1.1	61.4
16	1	0.4	61.7
18	4	1.5	63.3
20	16	6.1	69.3
21	3	1.1	70.5
23	1	0.4	70.8
24	23	8.7	79.5
25	6	2.3	81.8
26	1	0.4	82.2
29	1	0.4	82.6
30	9	3.4	86.0
31	1	0.4	86.4
36	4	1.5	87.9
40	11	4.2	92.0
45	2	0.8	92.8
48	6	2.3	95.1
50	5	1.9	97.0
60	3	1.1	98.1
80	2	0.8	98.9
99	3	1.1	100.0
Total	264	100.0	

Mean = 15.519

Median = 9.735

Table I.11.--Observations of other teachers teaching.

Number of Observations	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	148	56.1	56.1
1	29	11.0	67.0
2	30	11.4	78.4
3	9	3.4	81.8
4	7	2.7	84.5
5	11	4.2	88.6
6	6	2.3	90.9
7	1	0.4	91.3
8	1	0.4	91.7
10	9	3.4	95.1
12	1	0.4	95.5
15	3	1.1	96.6
20	3	1.1	97.7
21	1	0.4	98.1
50	1	0.4	98.5
99	4	1.5	100.0
Total	264	100.0	

Mean = 3.500

Median = 0.392

Table I.12.--Number of meetings attended as a member of a district or building professional education committee.

Number of Meetings	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	128	48.5	48.5
1	11	4.2	52.7
2	20	7.6	60.2
3	10	3.8	64.0
4	19	7.2	71.2
5	6	2.3	73.5
6	12	4.5	78.0
7	2	0.8	78.8
8	5	1.9	80.7
9	2	0.8	81.4
10	13	4.9	86.4
12	7	2.7	89.0
15	5	1.9	90.9
17	1	0.4	91.3
19	1	0.4	91.7
20	11	4.2	95.8
21	1	0.4	96.2
24	2	0.8	97.0
25	2	0.8	97.7
27	1	0.4	98.1
30	2	0.8	98.9
36	1	0.4	99.2
50	1	0.4	99.6
60	1	0.4	100.0
Total	264	100.0	

Mean = 4.652

Median = 0.864

Table I.13.--Number of meetings attended as a member of a state or national task force.

Number of Meetings	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	243	92.0	92.0
1	8	3.0	95.1
2	5	1.9	97.0
3	1	0.4	97.3
4	3	1.1	98.5
5	2	0.8	99.2
6	1	0.4	99.6
13	1	0.4	100.0
Total	264	100.0	

Mean = 0.235

Median = 0.043

Table I.14.--Participation in an informal teacher/colleague dialogue group within a building or district.

Number of Dialogues	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	115	43.6	43.6
1	13	4.9	48.5
2	35	13.3	61.7
3	12	4.5	66.3
4	9	3.4	69.7
5	9	3.4	73.1
6	9	3.4	76.5
7	2	0.8	77.3
8	5	1.9	79.2
9	1	0.4	79.5
10	13	4.9	84.5
12	2	0.8	85.2
15	1	0.4	85.6
16	1	0.4	86.0
18	1	0.4	86.4
20	10	3.8	90.2
21	2	0.8	90.9
24	2	0.8	91.7
25	2	0.8	92.4
30	3	1.1	93.6
40	3	1.1	94.7
50	2	0.8	95.5
80	2	0.8	96.2
99	10	3.8	100.0
Total	264	100.0	

Mean = 8.788

Median = 1.614

Table I.15.--Writing or co-authoring student textbooks or journal articles.

Number of Writings	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	246	93.2	93.2
1	10	3.8	97.0
2	4	1.5	98.5
3	2	0.8	99.2
5	1	0.4	99.6
10	1	0.4	100.0
Total	264	100.0	

Mean = 0.148

Median = 0.037

Table I.16.--Membership in professional education organizations.

Number of Organizations	Absolute Freq.	Relative Freq. (%)	Cumulative Freq. (%)
0	92	34.8	34.8
1	57	21.6	56.4
2	45	17.0	73.5
3	24	9.1	82.6
4	27	10.2	92.8
5	12	4.5	97.3
6	3	1.1	98.5
8	1	0.4	98.9
9	1	0.4	99.2
10	1	0.4	99.6
12	1	0.4	100.0
Total	264	100.0	

Mean = 1.682

Median = 1.202

APPENDIX J

INDIVIDUAL COMMENTS TO RESEARCH QUESTION 5

Part IV of Survey Questionnaire: Approaches for
Technological Updating

Additional comments respondents provided to the question of time preference for participation in professional-development activities follow:

Anytime depending on the situation if reimbursed for time and expenses.

Any and all the times listed.

Not interested in any program during the summer, vacation time or weekends.

The time period would depend on the type of activity.

Industry puts on seminars during the work day when staff is normally alert, not after they've worked all day and looking forward to relaxed time.

During the school day since not reimbursed for attending on own time.

During January and February--slow months.

Summer or vacation--ha, ha.

Only during the school day. After school is my time.

During the school day--too busy any other time.

Any time would be okay and is needed.

No--summer.

Summer is best time and after school is second best time.

Depending on the quality of the development activity, anytime would be acceptable.

After school, weekends, if worthwhile.

Never on weekends, maybe after school.

If I believe that the activity is of importance to my teaching, students and/or district, I attend no matter what the time. Usually summer attendance is limited because I have to work. I always go out of my way to obtain information which may help me become a better teacher and help me keep up-to-date to help my students.

Paid, anytime.

No weekends.

Right after school.

Whenever.

No weekends.

No, after school or during the school day. Yes, weekends. Prefer summer or vacation time.

Short sessions during the school day. Long sessions during the summer or vacation time.

APPENDIX K

SUMMARY OF OTHER INCENTIVES FROM SURVEY RESPONDENTS

Part III of Survey Questionnaire

Summary of other incentives identified by industrial arts teachers:

Released time for M.I.E.S. convention, repair and maintenance, industrial arts fairs, department heads, company-sponsored training.

Stipends for summer in-service.

Reimbursement for conference attendance, vocational certification, participation in contests, competitions, project fairs, technical courses.

Merit pay.

Support by superintendent in acquiring grants.

Encouragement by school board to attend professional-development activities.

Salary scale incentive for classes beyond a master's, but not a specific program.

Travel time for department heads.

Graduate credit for attending a number of workshops, conferences, etc.

Master's degree status for 40 or more graduate hours.

Teacher contract including attendance requirement for professional development.

REFERENCES

REFERENCES

- Ainsworth, B. (1974). Stated perceptions of teachers regarding in-service programs. Unpublished doctoral dissertation, University of Maryland.
- American Industrial Arts Association. (1985). Technology education: A perspective on implementation. Reston, VA: Author.
- Amundson, K. J. (1987). Rewarding excellence: Teacher compensation and incentive plans [Monograph].
- Angius, D. (1974). The appropriateness of selected in-service education practices as perceived by secondary school educators. Unpublished doctoral dissertation, University of the Pacific.
- Argyris, C. (1960). Understanding organizational behavior. Homewood, IL: Dorsey Press.
- Association for Supervision and Curriculum Development. (1985, February). Characteristics of effective professional development [Newsletter].
- Barlow, M. L. (1967). History of industrial education in the United States. Illinois: Chas. A. Bennett Co.
- Barnard, C. I. (1938). The functions of the executive. Cambridge, MA: Harvard University Press.
- Berman, B., & Friederwitzer, F. (1981, Winter-Summer). A pragmatic approach to inservice education. Action in Teacher Education, 3, 51-58.
- Berman, P., & McLaughlin, M. W. (1978). Federal programs supporting educational change: Vol. 8. Implementing and sustaining innovations. Santa Monica, CA: Rand.
- Bishop, L. (1977). Visualizing a staff development plan. In R. A. Edelfelt & C. W. Beegle (Eds.), Staff development: Staff liberation. Charlottesville: University of Virginia.
- Bjorkquist, D. C. (1986). What are the problems of industrial arts? Journal of Industrial Teacher Education, 24(1).

- Borg, W. K., & Gall, M. D. (1971). Educational research: An introduction. New York: McKay.
- Brimm, J. L., & Tollett, D. (1974, March). How do teachers feel about inservice education? Educational Leadership, 31.
- Burskirk, D. (1986). Rating industrial arts content, school board presidents surveyed. School Shop, 46(5).
- Bush, R. N. (1970). Curriculum-proof teachers. In L. J. Rubin (Ed.), Improving in-service education: Proposals and procedures for change. Boston: Allyn & Bacon.
- Carnegie Forum on Education. (1986). A nation prepared: Teachers for the 21st century. The Chronicle of Higher Education.
- Calder, B. J., & Straw, B. M. (1975). Interaction of intrinsic and extrinsic motivation: Some methodological notes. Journal of Personality and Social Psychology, 31(1).
- Carr, G. H. (1984). Characteristics of Florida vocational educators and their receptivity to and attitude toward educational change and innovation. Dissertation Abstracts International, 46A. (University Microfilms No. 85-05, 286)
- Chisholm, G. B. (1980). Job motivation and the need fulfillment deficiencies of educators. Paper presented at a symposium of the American Educational Research Association National Convention, Boston, MA.
- Christensen, J. (1981). Professional development: What do teachers think? Action in Teacher Education. The Journal of the Association of Teacher Educators, 3(1).
- Clark, P. B., & Wilson, J. Q. (1961). Incentive systems: A theory of organizations. Administrative Science Quarterly, 6(2), 129-166.
- Cook, G. E. (1982). Teachers as learners: Approaches to professional education. (ERIC Document Reproduction Service No. ED 219 801)
- Deci, E., & Porac, J. (1978). Cognitive evaluation theory and the study of human motivation. The hidden costs of rewards. New York: Wiley.
- Devaney, K., & Thorn, L. (1975). Exploring teacher centers. San Francisco, CA: Far West Laboratory for Educational Research & Development.

- Dugger, W. E., Jr., Fowler, F. S., Jones, A. H., & Starkweather, K. N. (1987). State supervisors give views. School Shop, 46, 6.
- Edelfelt, R. A., & Beegle, C. W. (1977). Staff development: Staff liberation. University of Virginia.
- Edelfelt, R. A., & Laurence, G. (1975). In-service education: The state of the art. Rethinking in-service education (National Education Association publication).
- ERIC Clearinghouse on Educational Management. (1980). Synthesis of research on staff development. Educational Leadership, 31(2).
- Erikson, E. H. (1950). Childhood and society. New York: Norton.
- Evans, R. N., & Terry, D. R. (1971). Changing the role of vocational teacher education. Bloomington, IL: McKnight & McKnight.
- Farr, J. L. (1976). Incentive schedules, productivity and satisfaction in work groups: A laboratory study. Organizational Behavior and Human Performance, 17.
- Farrar, S. M. (1981). Teacher performance motivation. Paper presented at the American Educational Research Association annual meeting, Los Angeles, CA. (ERIC Document Reproduction Service No. ED 206 096)
- Fraser, G. S. (1969). Organizational properties and teacher reactions. Paper presented at the American Educational Research Association annual meeting, Los Angeles, CA.
- Geering, A. D. (1980). The current state of research on motivation. (ERIC Document Reproduction Service No. ED 196 911)
- Glass, G. V., & Hopkins, K. D. (1984). Statistical methods in education and psychology. Englewood Cliffs, NJ: Prentice-Hall.
- Gould, R. L. (1978). Transformations: Growth and change in adult life. New York: Simon & Schuster.
- Gradwell, J. B. (1988, February). Twenty years of technology education. The Technology Teacher, 47.
- Greenwood, P. W., Mann, D., & McLaughlin, M. W. (1975). Federal programs supporting education change: Vol. 3. The process of change. Santa Monica, CA: Rand.

- Hamilton, J. B., & Wonacott, M. E. (1984). Updating teachers for tomorrow's technology: A strategy for action. Columbus: The National Center for Research in Vocational Education, The Ohio State University.
- Harris, B. M. (1980). Improving staff development through inservice education. Boston: Allyn & Bacon.
- Havelock, R. G., et al. (1969). Planning for innovation. Ann Arbor: University of Michigan, Center for Research on Utilization of Scientific Knowledge.
- Herzberg, F. (1968, January/February). One more time: How do you motivate employees? Reprinted from Harvard Business Review in Motivation and Control in Organizations.
- Herzog, B. J. (1984). Factors that motivate effective Wisconsin teachers to engage in continuing professional development. Dissertation Abstracts International, 46A. (University Microfilms No. 85-05, 286).
- Holly, M. L. (1977). A conceptual framework for personal-professional growth. Unpublished doctoral dissertation, Michigan State University.
- Holly, M. L., & Blackman, C. (1981). Building a conceptual framework for professional development. Journal of the Association of Teacher Educators, 3(1).
- Hord, S. M., Rutherford, W. L., Huling-Austin, L., & Hall, G. E. (1987). Taking charge of change. Arlington, VA: Association for Supervision and Curriculum Development.
- Houle, C. O. (1963). The inquiring mind. Madison: The University of Wisconsin Press.
- Householder, D. L. (1988). Industrial teacher education in transition. Paper presented at the Mississippi Valley Industrial Teacher Education Conference, Texas A & M University.
- Hull, W. L. (1975). Installing innovations via inservice education. Theory Into Practice, 14(1).
- Hunter, M. (1988). Create rather than await your fate in teacher education. Teacher evaluation: Six prescriptions for success. Arlington, VA: Association for Supervision and Curriculum Development.

- International Technology Education Association. (1985a). Technology education: A perspective on implementation. Reston, VA: Author.
- International Technology Education Association. (1985b). Standards for technology education programs. South Holland, IL: Goodheart-Wilcox.
- Ivancevich, J. M., et al. (1977). Organizational behavior and performance. Santa Monica, CA: Goodyear.
- Jackson, P. W. (1970). Old dogs and new tricks. In L. J. Rubin (Ed.), Improving in-service education: Proposals and procedures for change. Boston: Allyn & Bacon.
- Jersild, A. T. (1955). When teachers face themselves. New York: Teachers College, Columbia University.
- Johnson, M. (1975). Looking back at thinking ahead: 87 educators in session. Rethinking in-service education (National Education Association publication).
- Johnston, G. S., & Yeakey, C. C. (1977, Winter). Administrators' and teachers' preferences for staff development. Planning and Changing, 8.
- Jones, L. L., & Hayes, A. E. (1980). How valid are surveys of teacher needs? Educational Leadership, 37(5).
- Jones, R. E., & Wright, J. R. (1986). Implementing technology education. Glencoe, IL: American Council on Industrial Arts Teacher Education.
- Joyce, B. (1977). A memorandum for the future. In B. Dillon-Peterson (Ed.), Staff development/organization development. Association for Supervision and Curriculum Development Yearbook. Arlington, VA: Association for Supervision and Curriculum Development.
- Joyce, B., & Rubin, L. (1987). Annual conference highlights. The Developer. National Staff Development Council.
- Joyce, B., & Showers, B. (1980). Improving inservice training: The messages of research. Educational Leadership, 37(5).
- Joyce, B. R., & others. (1976). Interviews: Perceptions of professionals and policy makers. Stanford Center for Research and Development in Teaching.

- Juntune, J. (1985). Staff development for gifted education. Workshop notes. Clarkston, Michigan.
- Katz, D., & Kahn, R. L. (1966). The social psychology of organizations. New York: Wiley.
- Knowles, M. S. (1980). The modern practice of adult education from pedagogy to andragogy. Chicago: Follett Publishing Company.
- Kruglanski, A. W., Riter, A., Arazi, D., Agassi, R., Montegio, J., Peri, I., & Peretz, M. (1975). Effects of task-intrinsic rewards upon extrinsic and intrinsic motivation. Journal of Personality and Social Psychology, 31(4), 699-705.
- Kruglanski, A. W., Riter, A., Amitai, A., Margolin, B.S., Shabtai, L., & Zaksh, D. (1975). Can money enhance intrinsic motivation? A test of the content-consequence hypothesis. Journal of Personality and Social Psychology, 31(4), 744-750.
- Krupp, J. A. (1981). Adult development. Implications for staff development (Adult Development Center Project RISE). CN: Adult Development Center.
- Krupp, J. A. (1982). The adult learner: A unique equity. CN: Adult Development Center.
- Landrith, H. P. (1977, February). Systems approach to in-service education. Paper presented at the Annual Meeting of the Association of Teacher Educators, Atlanta, GA. (ERIC Document Reproduction Service No. ED 135 737).
- Lauda, D. P., & McCrory, D. L. In Jones, R. E., & Wright, J. R. (1986). Implementing technology education. Glencoe, IL: American Council on Industrial Arts Teacher Education.
- Laurence, G. (1974). Patterns of effective inservice education. A state of the art summary of research on materials and procedures for changing teacher behaviors in inservice education. Tallahassee Division of Elementary and Secondary Education. (ERIC Document Reproduction Service No. ED 176 424)
- Leiberman, A., & Miller, L. (1984). Teachers their world and their work. Arlington, VA: Association for Supervision and Curriculum Development.
- Levinson, D., et al. (1978). The seasons of a man's life. New York: Knopf.

- Lippitt, R., & Fox, R. (1971). Effective classroom learning. In L. J. Rubin (Ed.), Improving in-service education: Proposals and procedures for change. Boston: Allyn & Bacon.
- Long, D. H. (1977). Competency-based staff development. Staff development: Staff liberation. Charlottesville: University of Virginia.
- Lortie, D. C. (1975). Schoolteacher. A sociological study. Chicago: The University of Chicago Press.
- MacDonald, J. B. (1977). Scene and context: American society today. In R. A. Edelfelt & C. W. Beegle (Eds.), Staff development: Staff liberation. Charlottesville: University of Virginia.
- Madsen, K. B. (1964). Theories of motivation. Cleveland, OH: Allen.
- Maley, D. (1985). Technology education--A holistic approach in a general education framework. International Conference of American Industrial Arts Association, San Diego, CA.
- Maslow, A. H. (1954). Motivation and personality. New York: Harper & Brothers.
- McCrorry, D. L. (1987). Technology education: Industrial arts in transition, A review and synthesis of the research (Information Series No. 325). Columbus: ERIC Clearinghouse on Adult, Career, and Vocational Education, National Center for Research in Vocational Education, The Ohio State University.
- McCullers, J. C. (1978). Issues in learning and motivation. The hidden costs of rewards. New York: Wiley.
- McGregor, D. M. (1954). The human side of enterprise: Adventures in thought and action. Proceedings of the Fifth Anniversary Convocation of the School of Industrial Management, M.I.T., Cambridge, MA, April 9, 1957.
- McLagan, P. (1987, July). Who can plan? You can! Training and Development Journal, pp. 27-33.
- McLaughlin, M., & Berman, P. (1977). Retooling staff development in a period of retrenchment. Educational Leadership, 35(3).
- McLaughlin, M. W., & Marsh, D. D. (1978). Staff development and school change. Teachers College Record, 80(1).

- Meade, E. J. (1971). No health in us. In L. J. Rubin (Ed.), Improving inservice education: Proposals and procedures for change. Boston: Allyn & Bacon.
- Michigan Department of Education. (1979). Facts about Michigan teacher certification. Lansing: Michigan Department of Education.
- Mitchell, D. E., & Peters, M. J. (1988, November). A stronger profession through appropriate teacher incentives. Educational Leadership, 46, 74.
- Murray, E. J. (1964). Motivation and emotion. Englewood Cliffs, NJ: Prentice-Hall.
- National Association of Secondary School Principals. (1985). Technology education: A modern focus for industrial arts (Curriculum Report). Reston, VA: Author. (ERIC Document Reproduction Service No. ED 256 034)
- National Education Association and Ohio Education Association. (1977). Inservice planning manual. Educators Digest. (ERIC Document Reproduction Service No. ED 133 329)
- Neugarten, B. L., & Neugarten, D. A. (1987, May). The changing meaning of age. Psychology Today, 21, 5.
- Nie, N. H., Hull, H. C., Jenkins, C. H., Steinbrenner, K., & Bent, D. H. (1975). Statistical package for the social sciences (2nd ed.). New York: McGraw-Hill.
- O'Connor, A. B. (1982). Staff development: The problems of motivation. The Journal of Continuing Education in Nursing, 13(2).
- Oja, S. N. (1986). Adult development is implicit in staff development. Reprinted from The Journal of Staff Development (National Staff Development Council), 1(2).
- Opinion Research Corporation. (1986, July). Employee training in America. American Society for Training and Development. Training and Development Journal.
- Padelford, H. (1987, July). Interview, Eastern Michigan University, Ypsilanti.
- Pinder, C. C. (1976). Additivity versus nonadditivity of intrinsic and extrinsic incentives: Implications for work motivation, performance and attitudes. Journal of Applied Psychology, 61, 6.

- Richburg, R. W., & Drazenovich, J. M. (1987, December). Staff development on Saturdays in Hibbing, Minnesota. The Developer (National Staff Development Council).
- Rodman, B. (1987, August). Nevada creates teacher dominated licensing board. Education Week.
- Rogers, C. (1969). Freedom to learn. Columbus, OH: Merrill.
- Rosenfeld, A., & Stork, E. (1987, May). The prime of our lives. Psychology Today, 21, 5.
- Rubin, L. J. (1971). Improving in-service education: Proposals and procedures for change. Boston: Allyn & Bacon.
- Rubin, L. (1978). Perspectives on preservice and inservice education. Urbana-Champaign: National Council of States on Inservice Education, University of Illinois at Urbana-Champaign.
- Rudnick, J. (1985). The future of industrial arts in Michigan. Michigan Industrial Education Society Journal, 45(1).
- Schaefer, J. M. (1986). A descriptive study of educators as adult learners in staff development activities. Unpublished doctoral dissertation, Michigan State University.
- Schon, D. A. (1967). Technology and change. New York: Dell.
- Schtechty, P. C., & Ingwerson, D. W. (1987, April). A proposed incentive system for Jefferson County teachers. Phi Delta Kappan, 68.
- Sergiovanni, T. J. (1985). Teacher career ladders: Myths and realities in implementation. Teacher Education and Practice, 2(1).
- Sergiovanni, T. J., & Elliott, D. (1965). Educational and organizational leadership in elementary schools. Englewood Cliffs, NJ: Prentice-Hall.
- Sheehy, G. (1976). Passages: Predictable crises of adult life. New York: Dutton.
- Showers, B., Joyce, B., & Bennett, B. (1987). Synthesis of research on staff development: A framework for future study and a state-of-the-art analysis. Educational Leadership, 45(3).

- Sieber, S. D. (1979). Incentives and disincentives for knowledge utilization in public education--A synthesis of research. Washington, DC: National Institute of Education.
- Sievert, N. W. (1975). Career education and industrial education. Boston: Houghton-Mifflin.
- Sinetar, M. (1987, March-April). The actualized worker. The Futurist, 21.
- Skinner, B. F. (1972). Cumulative record: A selection of papers (3rd ed.). New York: Appleton-Century-Crofts.
- Snyder, K., & Anderson, R. H. (1986). Managing productive schools toward an ecology. University of South Florida: Academic Press.
- Spuck, D. W. (1974). Reward structures in the public high school. Educational Administration Quarterly, 10(1).
- Stadt, R. W. (1985). Getting industrial arts in order. Journal of Industrial Teacher Education, 22(3).
- Stein, J. (1969). Random House dictionary of the English language. New York: Random House.
- Sudman, S., & Bradburn, N. M. (1986). Asking questions. San Francisco: Jossey-Bass.
- Swanson, R. A. (1985). Industrial education: Fix it, leave it alone or junk it? Journal of Industrial Teacher Education, 22(3).
- Technology Education: A modern focus for industrial arts. (1985) NASSP Curriculum Report, 14(4).
- Theordorson, G. A., & Theordorson, A. G. (1970). A modern dictionary of sociology. London: Methuen.
- Tyler, R. W. (1970). In-service education of teachers: A look at the past and future. In L. J. Rubin (Ed) Improving in-service education: Proposals and procedures for change. Boston: Allyn & Bacon.
- West, S. C. (1977). How research helps staff development: In schools and in big business. Staff development: Staff liberation. Charlottesville: University of Virginia.
- Wilber, G. O., & Pendered, N. C. (1973). Industrial arts in education (4th ed.). New York: Intext.

- Winterton, W. (1977, March-April). Let's get serious about inservice. Journal of Teacher Education, 28, 35-37.
- Wonacott, M. E., & Hamilton, J. B. (1983). Updating teachers for tomorrow's technology: Programs and practices. Columbus: The National Center for Research in Vocational Education: The Ohio State University.
- Wood, F. H., & Thompson, S. R. (1980). Guidelines for better staff development. Educational Leadership, 37(5).
- Zanardelli, W. R. (1984). New technology demands new kinds of training. Washington, DC: U.S. Department of Education, National Institute of Education.
- Zuga, K. F. (1985). Identifying the role of values in industrial arts education. Journal of Industrial Teacher Education, 22(3).
- Zuga, K. F. (1986). Evolving theory of curriculum in industrial education. Journal of Industrial Teacher Education, 23(3).