RECRUITMENT OF INDUSTRIAL ARTS TEACHERS
IN THE STATE OF OHIO

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

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** ** ** **

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1966

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CHAPTER I

AN INTRODUCTION TO THE PROBLEM

An Abstract

The research described herein was concerned with answering two basic questions: "What have been the prime movers leading students now preparing to teach industrial arts into the field in the State of Ohio?" "How effective has the industrial arts teacher in the field been as a recruitment agent?" Subordinate to these questions were several subproblems including: "How great is the demand for industrial arts teachers in the State of Ohio and will the demand increase or decrease in the immediate future?" "What recruitment efforts are now being made by the teaching profession and how effective have they been?" "What are the characteristics of a good recruitment program?" "Does the industrial arts teacher who is an effective recruiter differ from the "average" industrial arts teacher?" "What suggestions can be made to the eight institutions in the State of Ohio preparing industrial arts teachers to make their recruitment efforts more effective?"

The answer to the initial question was ascertained through the use of a survey instrument administered to
declared industrial arts majors in the seven Ohio institutions preparing industrial arts teachers who cooperated in the study. Such students were asked, in essence, to indicate by rank those who had been most effective or influential in directing them into the industrial arts profession.

Concurrent with this survey was a second, administered to a statistically valid sample of the industrial arts teachers in Ohio, to determine the norm for industrial arts teachers with respect to (1) their relationship to teacher training institutions, (2) professional memberships, (3) areas of industrial arts taught, (4) average age, and (5) the type teaching certificate held. Additional items were years of teaching experience and years teaching industrial arts.

Establishment of this norm was required to proceed with the next phase of the study which was two-fold. First, the identification of those industrial arts teachers in the field (by way of the student survey) who had directed students into industrial arts teacher preparation programs; and secondly, the comparison of this select group with the established norm with particular reference to their relationship with a teacher education institution.

On the basis of the findings and a search of the relevant literature an attempt was made to project an effective recruitment effort for the state of Ohio. Major emphasis was placed upon the identification of factors which have made
some industrial arts teachers more effective in recruitment than others, and the development of a program whereby such assets may be promoted in other teachers in the field mainly through the teacher education institutions.

It is believed that this research has significance for the following reasons: 1. The results may eventually alleviate some of the shortage of industrial arts teachers in the state. 2. Determination of sources of effective recruitment for industrial arts teacher preparation will permit their more intelligent use by the profession. 3. Better recruitment would provide more of an opportunity for selective admission to industrial arts education programs. 4. Greater selectivity of industrial arts students will eventually raise the caliber of teachers in the field. 5. Characteristics of a sound recruitment program will enable teacher education institutions to better their recruitment function. 6. The study will point the way for further meaningful research into the recruitment of industrial arts personnel.

Background

The future development of the American school system depends to a large extent upon the recruitment of good teachers into the profession.1 Such a future looks bleak

when one reads statements similar to that which follows in reference to the recruitment of teachers:

It will be impossible under the present pattern of teacher recruitment and teacher utilization to secure anywhere near enough good teachers for our schools and colleges over the next 15 years.²

While "relatively little has been done, in a systematic manner, to interest outstanding students in preparing for teaching," Richey sees increased supply coming only as a result of—

1. Recruitment of high school youth stimulated by the example set by dedicated and inspired teachers,

2. The Future Teachers of America Club movement,

3. Career days and other guidance efforts,

4. Grants and loans to poor but able students,

5. Community agency participation in recruitment efforts,

6. Evidence of teacher's expression of "enthusiastic pride" in their profession.³

Immediately following World War II the nation witnessed a great influx of veterans into teacher education. It has been established that 4,890 industrial arts teachers were prepared in 1950. While numbers being prepared for secondary teaching nationwide have increased from 54,012 in 1953 to 80,465 in 1960, the proportion of industrial arts teachers


³Richey, op. cit., 432.
being prepared since 1950 has fallen from 5.6 percent to just 5 percent. The number of industrial arts teachers prepared in 1960 was 3,985.4

The National Education Association has indicated that although there will be some easing of teacher supply in the years to come, special areas including science, mathematics, foreign languages, and industrial arts will continue to lack qualified teachers.5 Such figures as cited above appear even more imposing when one considers that many industrial arts teachers in the field have come into the area of industrial arts through being granted emergency certification. Certainly many industrial arts teachers in the state of Ohio fit into this category at the present time.

In addition to the factors cited, approximately one-hundred industrial arts laboratories are closed in the state for the lack of teachers. Normal retirement and attrition rates (industrial arts training provides an excellent background for many jobs in industry as well as for employment in physical and occupational therapy) compound the difficulty as does the growth of industrial arts programs in general. In 1965, 72 percent of the new school facilities built nationwide included shop facilities of some nature. Since 1950

4Roy C. Maul, "Are We Producing Enough Industrial Arts Teachers?" Industrial Arts and Vocational Education (May, 1960), 34-35, 46.

industrial arts programs have expanded some 3 percent until at the present the subject area reaches approximately 28.7 percent of the secondary school population nationwide—an aggregate of 3,361,699 students.6

The teacher in the field has been cited by Scherer as being one of the most effective agents of recruitment.7 It has been inferred by others that one of the determinants for students entering into preparation for industrial arts teaching, along with school principals, parents, friends, and counselors has been the industrial arts teacher.8 Olson in fact, states:

Superior students in the secondary school must be attracted to industrial arts teacher education. These in turn become superior teachers for secondary school programs and there attract superior students from among whom future teachers can be recruited....9

Just how effective the industrial arts teacher teaching really is has not been the subject of research as yet, but it would


9Delmar W. Olson, Technology and Industrial Arts (Columbus, Ohio: Epsilon Pi Tau, Inc., 1957), 237.
seem that it should be. If the industrial arts teacher is indeed an effective recruitment agent, the profession must utilize this tremendous asset.

It may be said that in industrial arts education, "We are confronted with a problem which we have not yet been able to solve. The problem is that of a serious shortage of teachers in relation to the rapidly growing need for them. . . ."¹⁰ Unlike some other fields of the college level, industrial arts does not have the opportunity to recruit freshman or sophomores through contact in required courses in industrial arts. The most effective recruitment must be done, therefore, before entrance into college. Just HOW effective the industrial arts teacher is, what characteristics the effective teacher-recruiter has, and what the teacher education institution's role should be in recruitment are all subjects of this research.

Development of the Problem

The materials included here will clarify the nature of the problem by delineating it more specifically. Discussion will evolve from the philosophical position of the profession, the theoretical bases for the study, basic assumptions, a precise statement of the problem, major objectives, hypotheses, limitations, delimitations and

definitions of terminology used throughout the text of the study.

Philosophical Position

One of the more stable objectives of industrial arts education at the secondary school level has been vocational guidance. While such an objective has been steadfast through over half a century, few have conceived of recruitment of industrial arts teachers within its context. In addition there has been some feeling that industrial arts at the secondary school level has not had students of a high enough caliber to recruit into the teaching profession. In other instances, academically talented students enrolled in the college preparatory course or track find little time to elect industrial arts for various reasons—primarily the misconception that it is not a subject matter area, but rather a recreational activity.

Olson indicates that it is "certain the new industrial arts cannot be carried on by inferior teachers and probably not by the mediocre."\textsuperscript{11} The effort continues by the profession to raise its status and effectiveness by increasing the quality of its teachers. "... Improved standing (of the industrial arts profession) may result in an increase in the number of young people who decide to enter the profession."\textsuperscript{12}

\textsuperscript{11}Olson, p. 237.

\textsuperscript{12}Diamond, p. 2.
Certainly industrial arts education has come a long way since its relegation to the school basement; certainly it can go further through recruitment of quality students for teacher education.

Theoretical Basis

It has been generally accepted that junior high school exploratory experiences aid in helping the student choose an occupational area. In addition, of course, the student's life experiences tend to shape and direct his vocational choice. Since the child is exposed to formal teaching and to teachers from the time he is but five or six year of age, the teaching profession has ample opportunity to recruit future teachers. Indeed, the Future Teachers of America Clubs have been an effective medium through which to recruit teachers.

The industrial arts teacher, functioning as he does in an informal laboratory situation for the most part, has even more of an opportunity to recruit future teachers, since he can get "closer" to his students than many classroom teachers. The institutions of higher learning bear some responsibility in recruitment efforts also; Richey notes that, "Institutions of higher education should accept greater responsibility for the recruitment and preparation of teachers."\(^\text{13}\) It would appear, then, that a combination of these two elements would prove most effective in future recruitment efforts.

\(^{13}\text{Richey, p. 432.}\)
Basic Assumptions

The assumptions upon which the research was based were neither complex nor illogical. Such assumptions could also be considered as a series of hypotheses, although they were to be accepted here and not empirically tested as such. These assumptions, then, were as follows:

1. A professional responsibility of the industrial arts teacher is recruitment of students for industrial arts teacher preparation. The profession, in short, has the responsibility of self-perpetuation;

2. Some industrial arts teachers are more effective in their recruitment function than others;

3. Those being more successful differ somehow from those who are less effective;

4. There are many agents operative in influencing the high school student in his initial career choice;

5. The institutions of higher learning in Ohio and their industrial arts department chairmen will cooperate in this research effort as will the industrial arts teachers in the field;

6. The teacher recruitment effort of industrial arts departments in the eight institutions preparing industrial arts teachers in Ohio can be improved.
Statement of the Problem

The basic problem researched in this study arose from the need to find an effective, efficient means of recruiting industrial arts teachers in the state of Ohio. The fundamental question which was the subject of this research then, was: "What are the most effective agents of industrial arts teacher recruitment in the state of Ohio and how effective is the industrial arts teacher in such recruitment efforts?" (or, "An appraisal of the effectiveness of the industrial arts teacher as a recruitment agent and other such agents operative in the recruitment of students for industrial arts teacher preparation.")

Sub-problems were stated as follows:

1. What kinds of relationships exist between the successful industrial arts teacher-recruiter and teacher education institutions?

2. How do successful industrial arts teacher-recruiters differ from those industrial arts teachers not as successful?

3. What are optimum recruitment practices for teacher education institutions preparing industrial arts teachers?

4. What agents in addition to the industrial arts teacher are operative in directing students into industrial arts teacher preparation?

5. What is the teacher supply and demand situation of industrial arts teachers in the state of Ohio?
The second part of the research attempted to answer the question **what should be done to increase the effectiveness of the recruitment agents now operative in directing students into industrial arts teaching?** Based upon **what is** the present situation with reference to recruitment of industrial arts teachers (the initial phase of the research), and upon relevant literature, a recruitment program was proposed with particular emphasis upon the industrial arts departments in the teacher education institutions in the state of Ohio. Fundamental concepts and principles were identified which were compared with **what is**, thus making direction for possible improvement clear.

In summary, the research was so designed to determine three fundamental factors: 1. What were the various agents operative in directing students into industrial arts education? 2. How effective was the industrial arts teacher in such efforts and how did the effective industrial arts teacher differ from the norm? and finally, 3. What should be the direction industrial arts departments might take to further the effectiveness of any recruitment efforts they might make?

**Major Objectives**

The following major objectives were cited in an effort to more clearly define the nature of the research. Attainment
of such objectives were to provide the basis for answering the previously stated questions.

1. To systematically review the relevant literature.

2. To determine the need for industrial arts teachers nationwide and in Ohio particularly.

3. To identify agents responsible for students now preparing for industrial arts teaching being directed into the field.

4. To determine the characteristics of a good industrial arts education recruitment program.

5. To determine differences which exist between effective industrial arts teacher-recruiters and the average industrial arts teacher with particular emphasis upon their relationships to teacher education institutions.

6. To determine the effectiveness of broad recruitment efforts made by the teaching profession with present industrial arts majors.

7. To project a proposed recruitment program for the eight institutions in Ohio preparing industrial arts teachers on the basis of the above information.

Delimitations

The research was conceived of as being limited to teacher education--more specifically to the field of industrial arts education, and further to the state of Ohio. The concern of the study resided with agents deemed influential
in directing industrial arts majors now on the campuses of the eight institutions of the state to industrial arts teacher preparation.

No attempt was made to determine REASONS for selecting industrial arts teaching as a career; no attempt was made to ascertain recruitment programs of the individual institutions involved in the study.

Limitations

This research had certain limitations inherent in the nature of the problem, objectives, and populations being dealt with. The following limitations were noted in the research proposal:

1. The writer has opinions relative to phases of the research. In an attempt to avoid pre-conceived ideas from affecting the findings, juries will be employed and pilot surveys run.

2. The survey form imposes a restriction in that it is subject to misinterpretation, and there is no obligation to complete and return it to the investigator. Attempts will be made to insure as large and as accurate a return as possible.

3. The time factor represents a limitation. In order for data to be as accurate and current as possible when viewed in light of present demand for industrial arts teachers, data should be received during the present school year (1965-1966).
Such limitations as were initially cited were worked within with little difficulty.

Hypotheses

Initially, two specific hypotheses were clearly stated:

1. Effective recruiting agents are significantly different from the average industrial arts teacher with reference to their relationships to teacher education institutions. Their ties with a teacher education institution are more numerous than the average industrial arts teacher.

2. Better than 15 percent of the industrial arts majors in the eight institutions preparing industrial arts teachers in the state of Ohio rank the industrial arts teacher as being most influential in directing them into industrial arts teacher preparation.

Two other hypotheses were developed during the initial phases of the research:

3. Effective teacher-recruiters are in the younger age brackets, since their youth would permit them to "get closer" to their students and hence influence their career decision more readily.

4. Teacher-recruiters would more frequently be teachers of mechanical drawing and electronics, since college-bound students tend to enroll in these subjects more frequently as preparation for engineering and other technical vocations.
Definition of Terms

Words being subject to interpretation without previous or concurrent clarification from the investigator, there was the ever-present problem of misunderstanding; therefore, succinct, clearly understood terms were used throughout the study. In order to lessen such misunderstanding on the part of the reader here, however, the following list of words and terms are defined as they were used in the research.

Field agent or agent. Good defines such an agent or person as "An individual presenting a school for the purpose of securing enrollments." In the context of this research the term was expanded to include all those persons directly and indirectly responsible for influencing enrollment—particularly into industrial arts teacher preparation.

Industrial Arts Education. "Those phases of general education which deal with industry—its organization, materials, occupations, processes, and products—and with the problems resulting from the industrial and technological nature of society."

Recruitment. "The process of attracting and persuading capable persons to prepare for and to enter the teaching profession; usually associated with such appeals to high


school graduates and college students." While there is more involved in recruitment than merely the agent, in this research considerable emphasis is placed upon him.

Selective Admission. The "admission of applicants to an educational institution (or subject major) by selection on the basis of residence, predictive tests, scholastic aptitude, fitness or probable future success." Selective Admission. The "admission of applicants to an educational institution (or subject major) by selection on the basis of residence, predictive tests, scholastic aptitude, fitness or probable future success."  

Subject major. "... preparation for teaching THAT area or as professional preparation for graduation and certification." Such "majoring" entails required courses.

Supply and demand. "The ratio between the number of available teachers and the number of vacancies."  

Teacher-recruiter. Those teachers in the field who, in the context of this study have been given credit for directing students into industrial arts teacher preparation programs by the students themselves.

Design of the Study

The discussion which follows will endeavor to provide the reader with a concise, written description of the nature of the data sought, the research methodology, methods of obtaining data, development of survey instruments, identification of the samples, and procedures used in data analysis.

16 Good, op. cit., p. 452.  
17 Ibid., p. 457.  
18 Ibid., p. 328.  
19 Ibid., p. 542.
Research Methodology

Often there is more than one means of achieving a desired objective, and frequently a number of different approaches to a given problem will produce better results than a single unitary approach. With this in mind, various research techniques were employed in securing data included in this report.

Chapter II of this report was based on a kind of historical research which involved a systematic review of research studies, textbooks, special publications, and others. Emphasis was placed upon developmental patterns and concepts to produce a clear picture of the situation as it had developed until the time of this study.

The descriptive survey technique was employed to determine (1) a profile or norm of the industrial arts teachers in the field, (2) the agents responsible for students entering into the industrial arts profession, and (3) the characteristics of the industrial arts teachers who have been effective in their recruitment role as indicated by industrial arts majors. The information obtained from these surveys (three) provided the basis data used to describe what presently exists relative to industrial arts teacher recruitment in the state of Ohio.

The latter phase of the study dealt with what should be, and as such can be classified as philosophical research.
The determination of what was through survey forms and what should be from relevant literature and the surveys both, led to a projected program of what might be done to make recruitment efforts more effective in industrial arts teacher education.

Collectively, the research methods were used to establish an understanding of the relationship which existed between teacher, teacher education institutions, and recruits for industrial arts teacher education. In addition, ordering of such phenomenon into a meaningful pattern had to be done.

Methods of Obtaining Data

Several means of obtaining data became evident initially. Such information as was needed relative to the supply and demand picture for industrial arts teachers in the state had to be obtained through an interview with the state specialist for industrial arts education. In addition, library research was appropriate for determining much basic information relative to recruitment, and the criteria for successful recruitment efforts.

Enough survey instruments for industrial arts majors, a return self-addressed, stamped envelope, cover letter, and directions to the teacher education staff for the admission of such instruments were all mailed as a package on the first of April, 1966. Although a cover letter was enclosed, personal contact was made with all but one of the industrial
arts department chairmen representing the teacher education institutions in the state at the convention of industrial arts teacher educators held at Miami University, April 7-8, 1966. Two of the department chairmen concerned returned their completed instruments at this time; the remainder expressed willingness to assist the investigator by administering survey instruments to the industrial arts majors in their departments upon their return from the convention.

Instrumentation

As indicated earlier, there were two different survey instruments utilized in this study. One (A) was directed at a statistically valid sample of industrial arts teachers in the state and at the select group of teachers which was identified as recruiting agents by students now in college preparing to become industrial arts teachers. This instrument sought to determine (1) professional memberships, (2) relationships with a teacher training institution, (3) areas of industrial arts taught, (4) age, and, finally, (5) the number of years of teaching experience. The second instrument (B) was administered to the college students majoring in industrial arts education through the cooperation of the industrial arts department chairman. This instrument sought to determine such recruitment agents as had been responsible for these students being directed into the field of industrial arts education.
Before either was used, a jury was employed to eliminate confusing questions and statements and in general to make the instrument more effective. Items included on both instruments were more clearly defined through additional relevant literature and reading also. The face validity approach was used in validating both instruments; "A" was presented to industrial arts majors at The Ohio State University who were enrolled in Education 440 (an introductory course in industrial arts education). The purpose of the instrument was explained and the students asked to cooperate in completing it. A reviewed copy was presented to the committee for approval. The instruments were judged to have face validity on the basis of the extent to which they ascertained answers to the questions previously stated under the section entitled "Statement of the Problem," page 11.

Both instruments were initially developed to be easily coded in preparation for the IBM 7094 computer. After several conferences with personnel at the computer center, however, it was deemed as rapid to treat the incoming data with key-sort cards. The populations concerned numbered 310, 306, and 69 each of which was deemed too small to economically justify initial punching and treatment of the material by computer. Instrument "B" underwent the same basic sequence described earlier with the exception that a jury of eight teacher educators constituted the sample population. Samples of both instruments, cover letters, a follow-up letter and
directions for administering instrument "B" are included in the Appendix.

Preliminary Surveys

Although correspondence with the industrial arts department chairmen from the eight teacher education institutions in Ohio preparing industrial arts teachers was followed by personal contact with these men a few days later at Miami University, three had to be contacted by telephone some two weeks later to encourage their cooperation. Finally, all but one responded. Most chairmen spoken to were enthusiastic concerning the study and indicated a desire to better their recruitment efforts. All asked for a copy of the abstract upon the completion of the study.

Survey forms for the random sample of industrial arts teachers in the field were sent shortly afterward in order to obtain the norm desired for later comparison with selected teacher-recruiters. Upon receipt of the names of industrial arts teachers who had been instrumental in recruiting present students into industrial arts education, survey form "A" was sent to this select group in the state of Ohio.

The entire student population to be surveyed numbered between 450 and 500. The number required for a sample which would reflect the total population of the some 2,259 industrial arts teachers in the state was set at 339 which would yield a confidence level of .05. While 306 were received,
and this confidence level not met, the number was so near that the confidence level was much higher than .05 and was therefore considered satisfactory by the investigator.

Analysis of the Data

Measures used to treat responses were frequency, the relative frequency or percentage, ratings, and frequency distributions. In most instances the statistical interpretation merely involved counts, percentages, and ratings and their significance. Some rank correlations were sought. The reliability of the samples were judged through the use of the "Table of Sample Size Required for Finite Populations, for Confidence Limits and Specified Reliability Limits in Sampling Attributes in Per Cent." Since the total number of industrial arts majors now in college could not be determined, the number was estimated or approximated at 500. Using this figure, the sample of 310 easily reflects a .05 level of confidence. The random sample of the 2,259 industrial arts teachers in the field also approached very nearly the .05 level of confidence concerning its ability to reflect the total population. The small sample of 69 from a total population of 84 cited teacher-recruiters made it impossible to determine reliability statistically; however, since the return was more than four-fifths it was judged to reflect the total population concerned.
The Chi-square test for two independent samples was used in comparing various characteristics of the two teacher populations. The Spearman Rank Correlation Coefficient was used also to compare variables which could be ranked. Correlation was expressed in terms of Pearson's Product Moment; that is, a reliability coefficient. All data, except free response questions, will be presented in tabular form; appropriate explanations concerning the interpretation of such data will follow each table.

Plan of Procedure

The following plan of procedure indicates the sequence of steps followed in the data-collection process. Satisfactory completion of each of these steps provided adequate data to answer the questions raised by the research. These steps were:

1. Preliminary review of the literature (this had been done to establish a basis for the research proposal).

2. An intensive, comprehensive review of the literature as a basis for Chapter II.

3. Contact with the State Department of Education industrial arts specialist to determine the status of industrial arts teacher supply and demand in the state of Ohio.

4. Identification of sample populations for survey purposes.
5. Construction of survey instruments followed by testing, revision, and submission for committee approval.
6. Final revision for coding purposes.
7. Sending of survey instruments with approved cover letters.
8. Follow-up letters written, approved, and sent after a reasonable time-lapse; telephone follow-up in some instances.
9. Collection, tabulation and interpretation of the data.
10. Projection of a recruitment program made for the benefit of industrial arts departments in the eight institutions involved in the study.
11. Conclusions and recommendations made from the data collected.
It should be pointed out that in some instances the cited steps were taking place concurrently.

Outline of the Dissertation

Chapter I. Introduction to the Problem
Chapter II. Review of Literature and Related Research
Chapter III. Presentation and Analysis of the Data
Chapter IV. Implications and Projected Program of Recruitment
Chapter V. Summary, Conclusions, and Recommendations
Significance of the Study

Industrial arts as a part of general education will not grow if the profession itself does not replenish its teaching corps through active recruitment and selection. Recruitment becomes the first step in alleviating the shortage which has existed in Ohio for several years.

Effective agents for recruitment must be found and capitalized upon in order to insure that the future demand for industrial arts teachers will be satisfied. Selection, if made possible by recruitment of greater numbers of students, will enable the upgrading of the entire profession. In addition to retirements, attrition, and the growth of the industrial arts offerings, emergency certificated teachers testify to the seriousness of the problem of recruitment in industrial arts education.

This study, in attempting to ascertain recruiting agents in general, and effective industrial arts teacher-recruiters in particular and their relationship to teacher education institutions, may prove helpful in projecting a meaningful program of recruitment for industrial arts teachers in the state of Ohio and the nation as well. The use to which any significant findings are put is dependent in the last analysis upon the professional industrial arts person—be he teacher or administrator.
CHAPTER II

REVIEW OF THE LITERATURE AND RELATED RESEARCH

Background

Industrial arts as a subject area has its roots in the fertile soil of nineteenth century America. The Manual Training Movement, imported from Russia in 1878, was the basis from which industrially oriented handwork sprang in the ensuing years. First Scandinavian Sloyd—a general education import—then manual arts, in turn, affected manual training. The Industrial Education Movement of the early 1900's and finally the Industrial Arts Movement itself shaped the field still further.

The emphasis in manual training, since it had been a vocational subject in Russia, continued to be skill-oriented in the United States despite claims of its Fathers that it was now "general education." Since the student was not being trained for a specific-trade, his manual education was therefore general—but none-the-less skill-oriented. The teacher in this instance was a highly skilled technician, tradesman, or artisan who taught primarily took skills.

While Sloyd purported to be general education in its conception, and philosophically supported handwork as general
education, the emphasis in the training of teachers for the subject was still the development of a "very high standard of technical performance."¹ The effect of the Manual Arts Movement was merely to broaden the scope of technical proficiency to be held by the teacher—design was emphasized. For the first time, however, emphasis was taken off of tool skills and placed upon the end product—a beginning in the breakdown of the narrow concentration upon hand skill development.

While teacher education institutions had begun to train manual arts teachers as early as 1889, many teachers of the subject were tradesmen. As the philosophical base for the area continued to evolve, the Industrial Education Movement of the first two decades of the twentieth century hindered the concurrent development of practice in the field. The scarcity of trained people for industry, the rapid industrialization of the country, the approaching World War, strict immigration laws, and child and female labor laws all led to pressure upon the public schools to produce vocationally trained people. When the first federal legislation was finally passed supporting vocational education at the high school level, many industrial arts teachers, in an effort to receive federal funds, claimed they were now teaching vocational education.

The result, of course, was additional emphasis upon skill development. When it was realized that the industrial arts teacher was for the most part ill-equipped to teach vocational education as evidenced by the poor results, the province of trade training was left wholly to vocational Trade and Industrial Education. Teachers of industrial arts began to be weaned away from skill training through the influence of Dewey and Bonser and more and more recruits for teacher training came from the secondary schools—youth without industrial experience in the trades. Trade experience was (and still is) considerable valuable for the industrial arts teacher however, but rather for the insights and understandings it provided than for the tool or machine skills alone.

World War II further drained away professional industrial arts teachers who found it financially rewarding to work in industry. At the conclusion of hostilities, however, they returned, and many other tradesmen with them, to industrial arts teaching. The results was a renewed emphasis upon how-to-do-it rather than the "why," and a narrowing of the perspective of industrial arts by its practitioners. Theoretically, even today, while the field supports the utilization of activity and the project merely as means and not ends in themselves, the teacher often falls into the trap of teaching for skills, for the great majority of the texts from which he works are skill-oriented or "how-to-do-it"
books. Exceptions to this are Earl's *Experiments with Materials and Products of Industry* and *America's Industries* by Gerbracht and Robinson

While industrial arts has come a long way with its theoretical foundation, the practitioner in the field has lagged behind in his application of such theory. Industrial arts still draws teachers from the trades in great numbers as shall be noted later. For the first time in its history industrial arts education is now receiving federal funds. Much research is being done as a result, much of it aimed at narrowing the gap between theory and practice by arriving at a tenable structure for curriculum. The teacher for the "new" industrial arts cannot be, in the words of Olson, "inferior . . . and probably not . . . mediocre."²

The life blood of the industrial arts of the future lies in the ability of its teachers. Strangulation of the profession can easily take place if it cannot replenish its teaching ranks with such quality teachers as Elson has indicated. This supply of industrial arts teachers must first be viewed in its larger context—nationwide supply and demand for teachers.

Supply and Demand of Teachers--Nationwide

"In measuring the demand for teachers in a given state, the first essential is to fix upon an accepted definition of the term "demand." Such a definition is equally essential at this juncture. "Total demand" can be said to indicate the total number of job vacancies available at any one time. Such a number does not consider the teacher who quits one system to join another. "Current demand" is more commonly used; this term connotes the number of positions vacant which will have been filled by "new" teachers. In national studies of supply and demand, "unfilled" positions are not included in demand since it is felt that a supply in most instances DOES exist, but the teachers in question do not care to be hired. Whether valid or not, then, the demand figure most commonly used represents that number of jobs taken by "new" teachers.1

"Need" by comparison, reflects those jobs which have not been filled, but are available and presumably are being actively recruited. This figure may not represent current demand, however, and "affords no dependable picture of such demand."5


4Ibid., pp. 10-12.

5Ibid., p. 13.
Indicated below is the formula which is commonly used by the National Education Association to determine demand:

\[ X + a + b + c + d + e + f + g + h + i + j + k + l + m + n \]

\[ \begin{align*}
X & = \text{Demand for inexperienced graduates for teacher education in a particular year for a specific position} \\
 a & = \text{The number of positions filled as a result of retirement} \\
 b & = \text{The number of positions filled as a result of death or illness} \\
 c & = \text{The number of positions filled as a result of withdrawals for continued study} \\
 d & = \text{The number of positions filled as a result of marriage and withdrawal} \\
 e & = \text{The number of positions filled as a result of resignation or dismissal} \\
 f & = \text{The difference between new positions created by new school services and the number abolished by curtailment of services} \\
 g & = \text{The difference between new positions created by population increase and the number abolished by population decrease} \\
 h & = \text{The difference between new positions created by decreases in class size or teaching load and the number abolished by corresponding increases} \\
 i & = \text{The difference between new positions created by leaves of absence and those eliminated by corresponding returning teachers} \\
 j & = \text{The difference between new positions created by those withdrawing to teach in another state and those eliminated by employing teachers from another state.} \\
 k & = \text{The difference between new positions created by those entering other occupations and those abolished by those re-entering teaching from another occupation} \\
\end{align*} \]

\[ \text{ibid.}, \text{p. 18.} \]
Those recruited through examinations and other non-teachers college sources

The number of acceptable unemployed available

A margin of safety

Demand is categories further by the National Education Association in the following manner:

1. Those needed to replace other who, for all reasons, leave classroom service at the end of the preceding year;
2. Those need to relieve overcrowded classrooms;
3. Those needed to serve increasing enrollment;
4. Those needed to give essential instruction and educational services not now provided;
5. Those needed to replace the least competent teachers now in service.

Historical Development of Teacher Supply

With the depression of the early thirties came an oversupply of teachers. Many entered the field because of the relative security involved. Other reasons for such oversupply were:

1. The general decrease in other available jobs;
2. "Re-adjustment in industry"--the re-entry into teaching by some who had left it;
3. Teacher salaries and working conditions had improved;
4. There had been a general increase in teachers' status;
5. In-service education had raised the level of those originally poorly trained;
6. Increased provisions for tenure;
7. The previous heavy demand of the twenties had lured some

8. School enrollment remained static

9. There was a demand for better prepared teachers

10. Attendance at a teachers college was better than unemployment

11. The change from normal school to teachers college with attendant status had occurred

12. A marked increase in high schools graduating youths with concurrent availability of recruits for the teaching profession was taking place.

Such over-supply led to a good deal of experimentation in the profession at this time.

A 1931 bulletin of the National Education Association Research Division indicated a shortage of 7,448 trained teachers among 33 states, even though supply exceeded demand of teachers by 27,493. The picture in Ohio during these years was reported by Anderson and Foster—

Data regarding supply and demand . . . show that the demand was greater than supply for teachers of vocational education, agriculture, Industrial arts, home economics, commercial subjects and music.

Their study indicated that industrial arts, even in 1930, was a "critical area." More than half of the "new"

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8 Earl W. Anderson and Richard R. Foster, Teacher Supply and Demand in Ohio, 1929-1930 (Columbus, Ohio: The Ohio State University, 1932), p. 154. Author's underlining.
industrial arts teachers that year had neither a major or minor in industrial arts.  

In summing up seventeen studies of supply and demand for the years 1926 through 1931, Cooke noted an over-supply in high school English, history, French, and Spanish. "Subjects frequently listed as under supplied were high school science, physical education, music, industrial arts, and commercial subjects."  

As the economy regained its vigor and jobs became available once again, the supply of new teachers tapered off. By 1937, although over-supply threatened in some subjects areas and in some locales, the NEA initiated the Future Teachers of American Movement. An outgrowth of the 1937 Horace Mann Centennial meeting of the NEA at Detroit, Michigan the initial aim of the FTA was to provide a "definite preparation of the student thru practice to take part in the professional organizations in which he will spend his mature life. . . ." The initial emphasis was toward college students preparing to teach.  

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9Ibid., p. 118.  
10Cooke, p. 12.  
The first yearbook of the Future Teachers of America, published four years later in 1941, listed the organization's purposes:

1. To develop among young people who are preparing to be teachers an organization which should be an integral part of state and national associations;

2. To acquaint teachers in training with the history, ethics, and program of the organized teaching profession;

3. To give teachers in training practical experience in working together in a democratic way in the problems of the profession in the community;

4. To interest the best young men and women in education as a lifelong career;

5. To encourage careful selection of persons admitted to schools which prepare teachers, with emphasis on both character and scholarship;

6. To seek thru the dissemination of information and thru higher standards of preparation to bring teachers supply and demand into a reasonable balance.12

The last three stated purposes have grown in importance until today much of the professional recruitment effort of the teaching profession rests upon its functioning effectively.

A shortage of qualified teachers became apparent shortly after the initiation of hostilities with the Axis powers in 1941 and 1942. The North Central Association of Secondary Schools and Colleges in the latter year prepared

12Ibid.
the following recommendations to ease such shortages:

1. a. State surveys of supply and demand be made concurrently with registration of qualified people;
   
   b. Oversupplied fields lend people to under-supplied fields
   
   c. Trained people in other fields be used (engineers for shop, for example)

2. Temporary certificates be issued;

3. Former teachers be re-inducted into teaching;

4. Conservation of present teachers by better faculty use;

5. Increase wages to recruit and retain teachers;

6. Well qualified prospective teachers enrolled in high school or college and superior persons in other fields be encouraged to enter the teaching profession in greater numbers. Scholarships, subsidies, and guidance be more effectively utilized;

7. Reciprocity be fully adopted.¹³

At the outset of the war 50-75,000 new teachers were required yearly; by 1946-47 about one of eight public school teachers were emergency certificated people.¹⁴

The return of veterans coupled with the educational allowances of the G.I. Bill saw college enrollments soar.


Four years later when the great bulk of veterans graduated, teacher supply was "actually in excess of the needs of the high school so that a comfortable supply of active candidates remained after some . . . selected to seek other occupations." The next five years, however, saw a 60 percent drop in the production of teachers, so that in 1955 only 48,916 were prepared.

A new concept of national defense began to evolve with the launching of Sputnik I in 1957 when education was seen for the first time by many as the key to technological growth. National concern fostered a nationwide campaign to recruit more science and mathematics teachers. The National Defense Education Act of 1958 was the initial federal act which reflected this concern; others have followed.

The supply of industrial arts teachers, meanwhile, had hit its peak in 1950 and by the time of Sputnik was 30.6 percent below it. The lowest production of industrial arts teachers after the peak was in 1955 when only 2,177 new industrial arts teachers were produced. A second peak was reached in 1960 when 3,985 industrial arts teachers were prepared nationally. Since that time there has been

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approximately a 10-15 percent decrease and leveling off to an average of about 3,700 per year.\(^6\)

The 1960 Teacher Supply and Demand in Public Schools Research Bulletin of the NEA noted the loss of prepared teachers between entry into college (with teaching as a career goal) and employment in the classroom. Such loss "has been in the order of 25-40%—in some years it has been more than 50% in the fields of most critical shortage."\(^7\) Maul estimated in 1960, that approximately 30 percent of those who had prepared to teach industrial arts did not enter the field. Though this would seem to be a high percentage, only seven years earlier 46.7 percent of those prepared to teach industrial arts entered the classroom or laboratory.\(^8\)

Figures recently released by the Department of Labor indicate that in the decade ahead persistent shortages will occur in "some" secondary school areas—notably science, mathematics, and the foreign languages.\(^9\)

\(^6\)Roy C. Maul, "Are We Producing Enough Industrial Arts Teachers?" Industrial Arts and Vocational Education, (May, 1960), 28.


Supply and Demand of Industrial Arts Teachers—Ohio

The need for industrial arts teachers must be viewed from three different perspectives: the numbers being currently prepared to teach industrial arts, the number indicated by school superintendents as being needed, and the number of temporarily or emergency certificated teachers in industrial arts education. In each case the trends are not encouraging.

Emergency Certificated Teachers

In the fall of 1965 Ohio had 9.1 percent of its teachers working with sub-standard certificates while the national average for such teachers stood at 4.5 percent.20 The trend nationwide has been toward a reduction of this percentage as can be noted in Table 1. Prior to 1963 in Ohio the number of temporarily certificated teachers within each subject area was not available from the State Department of Education; however, as of that year such a breakdown was made. Table 2 indicates the numbers of temporarily certified teachers of industrial arts since 1963. The laws governing the issuance of temporary or emergency teaching certificates for industrial arts teachers was amended

December 31, 1964 because of the "critical shortage of teachers in the industrial arts area."\textsuperscript{21}

\textbf{TABLE 1}

\textbf{PERCENT OF SUB-STANDARD CERTIFICATED PUBLIC SCHOOL TEACHERS NATIONWIDE, 1961-1965}

<table>
<thead>
<tr>
<th>Year</th>
<th>1961</th>
<th>1962</th>
<th>1963</th>
<th>1964</th>
<th>1965</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of all teachers</td>
<td>6.3</td>
<td>5.5</td>
<td>5.3</td>
<td>5.0</td>
<td>4.8</td>
</tr>
<tr>
<td>Percent of all at secondary level</td>
<td>4.4</td>
<td>4.3</td>
<td>4.2</td>
<td>4.1</td>
<td>4.0</td>
</tr>
</tbody>
</table>


\textbf{TABLE 2}

\textbf{NUMBER OF TEMPORARILY CERTIFICATED INDUSTRIAL ARTS TEACHERS, 1963-1965}

<table>
<thead>
<tr>
<th>Year Issued</th>
<th>1963</th>
<th>1964</th>
<th>1965</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Certified</td>
<td>177</td>
<td>202</td>
<td>245</td>
</tr>
</tbody>
</table>

The present requirements for such certification are indicated below.

\begin{itemize}
  \item a. An applicant having a Bachelors degree, with or without Ohio certification or professional education, having work experience which in the judgment of the recommending superintendent will qualify him as reasonably well prepared in the
\end{itemize}

\textsuperscript{21}Bulletin from the Ohio State Department of Education dated December 15, 1964, p. 5.
lab shop, safety, and subject matter. A full statement of such experience, signed by the applicant and the superintendent, must be attached to the application.

b. An applicant having no less than 90 semester hours (3 years) of college credit with at least nine hours in industrial arts.

c. An applicant holding a certificate in Vocational Agriculture.

d. An applicant qualified to teach a trade subject in a Vocational class approved by the Director of the Division of Vocational Education or Supervisor, may be temporarily certificated to teach the subject in an industrial arts shop which is under supervision of a fully qualified and certificated Industrial Arts Teacher. A statement over the signature of the superintendent confirming such supervision must be attached to the application. This type of application will not be approved if he would be the only Industrial Arts teacher in the school.

All such applicants MUST complete at least six semester hours either in Industrial Arts or professional education in order to renew the certificate the following year.22

Gyuro in his study concerning the temporarily certificated industrial arts teacher in the state of Ohio noted,

A major conclusion which can be made at this time is that there are proportionally too many temporarily certificated industrial arts teachers in the state of Ohio.23

While the exact number of industrial arts teachers was not known at the time of this study, Towers and Ray four years

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22Ibid.

23Steven J. Gyuro, "Temporary Certification in Industrial Arts: A Description of the Temporarily Certified Industrial Arts Teacher in the State of Ohio" (unpublished Master's thesis, The Ohio State University, Columbus, 1964), p. 64.
earlier had hypothesized in their status study of industrial arts in Ohio that the proportion of temporarily certificated industrial arts teachers in the field was approximately 10 percent.\textsuperscript{24} In 1965-1966 this percentage was indeed 10.9 percent; in fact, people temporarily certified to teach industrial arts comprised over 10 percent of the total number of temporary certificates issued that year.

The effect of this horde of substandard teachers in any subject field would be detrimental—industrial arts education is no exception. With particular reference to the recruitment activities of these teachers, Gyuro notes that

\begin{quote}
... these individuals are teaching at a level which is vital to the future of the students. The ninth and tenth grades are in the career forming years of school, and demand a qualified individual to help guide (them).\textsuperscript{25}
\end{quote}

Production of Industrial Arts Teachers

The production of industrial arts teachers in the state of Ohio has reflected the nationwide picture to a large degree. Immediately following the war many veterans prepared themselves to teach industrial arts. At the time, some leaders in the field were forced to issue warnings concerning the possible oversupply of industrial arts teachers. There followed a period of decline and then a general increase


\textsuperscript{25}Gyuro, p. 67.
until the peak of 1960 mentioned earlier. Table 3 indicates the production of industrial arts teachers over a period of twelve years in Ohio.

### TABLE 3

NUMBER OF INDUSTRIAL ARTS TEACHERS PREPARED IN COLLEGES AND UNIVERSITIES IN THE STATE OF OHIO, 1954-1965

<table>
<thead>
<tr>
<th>Year</th>
<th>'54</th>
<th>'55</th>
<th>'56</th>
<th>'57</th>
<th>'58</th>
<th>'59</th>
<th>'60</th>
<th>'61</th>
<th>'62</th>
<th>'63</th>
<th>'64</th>
<th>'65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number prepared</td>
<td>99</td>
<td>89</td>
<td>106</td>
<td>125</td>
<td>139</td>
<td>148</td>
<td>158</td>
<td>150</td>
<td>151</td>
<td>144</td>
<td>125</td>
<td>141</td>
</tr>
</tbody>
</table>


While some programs of industrial arts teacher preparation have increased their enrollment, others have declined. Production does not, of course, reflect the attrition which takes place between college graduation and entrance into the teaching profession. Such attrition in industrial arts education has been estimated to be approximately 30 percent nationwide.26 The industrial arts teacher finds himself equipped to enter many other better paying vocations upon graduation. Ostlund has indicated that much of the shortage of industrial arts teachers lay in the fact that he is

26Maul, p. 28.
thus equipped and, "therefore when precipitating factors occur coupled with low academic prestige" he is predisposed to leave teaching.27

Need for Industrial Arts Teachers

Figures available which indicate the need for teachers in specific areas as indicated by school superintendents each year in the state of Ohio would seem to point clearly toward a crisis in industrial arts. The trend can be more clearly seen in Table 4.

<table>
<thead>
<tr>
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</thead>
<tbody>
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While total figures are not yet available for 1965-1966, the number of industrial arts teachers needed in 1964 represented 16 percent of the total state need for secondary teachers.

Thus it becomes evident from these three aspects of teacher supply and need that the industrial arts field must

act shortly if it is to do anything but fade away. While other subject areas are adding the fifth-year requirement and becoming increasingly selective, industrial arts in Ohio is slowly spiraling downward. This would seem to be the situation in most other states, for Gardner in a recent article stated, "The supply of teachers has been very critical for the last few years and we have not done very much to correct this growing problem."

It is doubtful that many school superintendents and local school boards can become enthusiastic concerning future industrial arts facilities or even support present programs with the knowledge that industrial arts teachers are so difficult to obtain that 10 percent of the time they will be forced to employ a sub-standard teacher or close the program altogether.

Factors Affecting Career Choice

There are many factors operating on those who qualify to enter teacher preparatory programs. Perhaps the primary factor can be said to be the status of the teaching profession itself.

Status

While the "school-marm" stereotype has faded considerably and a renewed interest has been accorded education in

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general, teaching is not perceived by many as one of the more "glamorous" professions. Teaching is not attractive to them because

1. It is impossible to support families and educate one's own children on a teacher's salary,
2. Salary forces "moonlighting" on outside jobs,
3. There is little prestige in teaching,
4. The nature of the job itself,
5. The limited opportunity for growth.²⁹

Whether a given person perceives teaching as negatively as does the above source is largely dependent upon the source of his vision.

Socio-economic Group

DeLong recognized this when he wrote that professional recruitment efforts

Have not taken into account the social pressures on students. The class operating structure in American life or the climate of opinion in various age groups. The choice of a career is made, as is any other behavioral choice, in the dynamic human interaction of a cultural setting with its values, its conflicts, and its status system.³⁰


In speaking about the socioeconomic source of teachers, Havighurst and Neugarten noted that prior to 1920, "teachers were recruited in large numbers from middle-class urban families and from rural families of probably upper-middle and lower-middle class." 1 The authors further stated that

Teaching has always offered an avenue of opportunity for certain groups of young people, especially rural groups, the over-all proportion of teachers who came from lower status levels was probably smaller some decades ago than at present. As America became increasingly urban; as the educational system mushroomed, with greater need for teachers; with the growth of teacher training institutions; and with an increased proportion of young people obtaining college education; and as more occupations became available to women, a change has resulted in the social composition of the teaching profession.

Studies indicate considerable variability according to the region of the country and size and type college attended concerning social origin of teachers; however, a large group continue to come from business and professional families, a significant proportion from families of skilled laborers and farmers. The over-all majority, however, are coming increasingly from lower-middle and upper-middle classes. 2

Whitney (1927), Elsbree (1939), Greenhoe (1941), Best (1948), Valentine (1950), and Wagenshein (1950) all further support this observation. Only one generalization can safely be made concerning the socioeconomic source of teachers however, and that would be that the two extremes of the socioeconomic continuum are not represented to any significant degree in teaching. It should be kept in mind also that the social

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2 Ibid., p. 359.
origin of the teacher is not synonymous with his adult social status, although it may affect his ability to communicate and teach certain other socioeconomic groups in the classroom setting.

Richey and Fox in a study of various factors associated with the selection of teaching as a career, surveyed 1,676 students in a required English composition course at Indiana University in 1951. Their conclusions follow:

1. Younger women, older men students preferred teaching

2. Those whose parents were in lower income brackets were more likely to prefer teaching than those whose parents were in the upper income brackets.

3. Students from small high schools were more inclined to choose teaching than those from large high schools

4. Those whose fathers were skilled or unskilled laborers, farmers, or school teachers or administrators seemed to be more interested in teaching as a vocation than those whose fathers were in other occupations.

5. There seemed to be little connection between the amount of schooling of either mothers or fathers and the selection of teaching as a vocation

6. More women than men who had relatives with a teaching background selected teaching as a vocation.

7. Nearly half of all the women and more than half of all the men had given little or no consideration to the selection of teaching as a vocation.

8. Two-thirds of the men and more than half the women had received little or no assistance from teachers in selecting a vocation.
9. Students were far more influenced by their parents than by other persons in making their vocational selection. For all groups the relative rank given was parents, friend in the vocation, teacher, relative, friend outside the vocation, other persons, minister. For those selecting teaching, a teacher ranked next in importance to the parents as the one influencing their choice.

10. There was a substantial relationship between the amount of experience of a teaching nature, such as camp counseling, which the students had had and their tendency to select teaching as a vocation.

11. Fourteen percent of the group rated teaching as more desirable or much more desirable than other vocations requiring four years of college; 40 percent rated it as comparable, and about 45 percent as less desirable or much less desirable.

12. On all personal characteristics, students who expected to teach rated teachers higher than did those who did not expect to teach.

13. Fifty percent of more of the students agreed that:
   a. A community has the right to expect a teacher to take an active part in various, [sic] community activities.
   b. Teachers should discuss controversial issues in the classroom.
   c. Teachers should advise pupils on personal problems whenever the occasion arises.
   d. Making a high salary is not of first importance in considering a vocation.
   e. A teacher does not have the obligation to live in the community where he or she teaches.
   f. Teaching offers greater cultural opportunities than do most other occupations.
   g. Being of service to mankind is of first importance in considering a vocation.

14. Most students did not favor community control of teacher behavior, although those who planned to teach were slightly less hostile toward control than the others.
15. Nearly 4 of 5 not planning to teach had made that decision before they graduated from high school. On the other hand, only 27 percent of those planning to teach had made their decisions before they graduated from high school. The largest group (36%) made their decision to teach while at the college level.

16. Responses to the undesirable features in teaching mentioned most frequently comparatively low pay.

17. Responses to desirable features of teaching were: security, pay advancement possibilities, working conditions, environment and hours; opportunity for social service; and chance to work with young people.

Parental Influence

While the authors and others agree that parental influence upon career choice is great, there is disagreement as to just how great such influence is. Stier states that the family has greater influence upon career choice of elementary school teachers than one secondary education people. While the degree of influence exerted by parents is subject to debate, that they are influential in career choice is evident. Shea, in his study to determine such influence, found a definite correlation between college attendance and the IQ


and occupation of the student's parents. Parental aspirations were reflected in the child and it appeared to Shea to be a question of "favorable generalized parental attitudes" which most affected educational mobility and college attendance of their children.

With particular reference to teaching as a career choice, a second study by Richey and Fox was carried out to determine opinions of high school students with regard to teachers and teaching as a career. Seventy-four high schools in the State of Indiana participated in the study—a population of 3,905 students. The authors found that 52 percent indicated parental influence as being most decisive in their selection of an occupation.

Teacher Influence

While only 9 percent stated they had received much help from teachers in selecting a vocation in the Richey and Fox study, other research has indicated the teacher to be highly effective in affecting career choice of students.

Maxwell in his dissertation concerning factors influencing college bound public high school seniors to choose,

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37 Ibid., 51-52.

ignore, or reject teaching as a career noted that almost one-half (47.6 percent) of his selected population of 1,329 responded that teachers were of the greatest influence regarding their opinions concerning teaching as a career. (Parental influence was indicated by 17.3 percent of the population.)

An additional study noted that

More than one out of two students beginning their professional preparation for teaching indicated that teachers led the list of persons exerting the "single most important influence" in their decision to enter the teaching profession.

More specifically, the age of the student has been cited as being pivotal with respect to his attitude toward teaching and his career-making decision. Nutting's study, often referred to in the literature, indicated a decided negative change in the attitude of children toward teaching between the sixth and ninth grades. Although he also noted an improvement in this negative attitude by the sophomore year of college, this is most often too late to help the teaching profession in its recruitment efforts.

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Riccio and others have indicated that career choice takes place by girls earlier than boys. Girls choose their career in the junior high school or in the early years of high school; boys by comparison often do not make their career decision until they have entered college or in the later years of high school at the earliest.  

The effectiveness of the teacher as a recruiting agent for his profession has long been recognized, as has the general guidance function he must serve for youth about to make important career decisions. More important have been the implications of the research on recruitment which is fairly clear: teachers do not help the cause, and in many instances actually discourage entrance into the profession.  

Havighurst, in speaking of career choice and the effectiveness of the teacher as a recruiting agent, sees a basic psychological principle involved:

The child learns effectively through imitation; that he will imitate those adults whom he has reason to admire and toward whom he feels friendly, and that the child is likely to feel friendliest toward the adult who shows him warmth and acceptance.

"A student is unlikely to identify himself with teaching if his teacher has not satisfactorily become identified with it." Maxwell acknowledges that while teachers occupy a


43Hall and Vincent, 1375.

45Havighurst and Neugarten, 406.

46Hall and Vincent, 1375.
unique position in which they may cause students to aspire to follow in their footsteps, there can be little doubt that some have by their attitude discouraged college-bound students from considering teaching as a career. The teacher's influence is, of course, equally as great in the positive direction and "undoubtedly many able students who otherwise would not consider teaching as an occupation, may be recruited by teachers exemplifying personal and professional qualities held in high regard by students."  

The recognition of the pivotal position of the teacher can readily be noted in the recommendations of Richey and Fox, whose studies were noted earlier, as well as others, concerning recruitment programs in education. The Future Teachers of America Movement has been an effective organized effort by the profession to more efficiently recruit students into the profession on a selective basis. It is acknowledged that not all teachers are equally as effective in their recruitment efforts and that as the teacher grows older, filling the role of confidante and counselor may become more difficult. Peterson notes that teachers in his study who

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46 Maxwell, 106.
47 Ibid., 107.
48 Havighurst and Neugarten, 397.
were in their thirties expressed concern about losing "some kind of intimate, informal contact with students."  

Recruitment Programs

Recruitment programs for the teaching profession in general, which should prove of value as background material before considering industrial arts education in particular, follow. Maxwell made nine recommendations as result of his study cited earlier:

1. It is within the province of public school personnel to provide situations in which greater numbers of students are encouraged to consider teaching as a profession. The greatest attractions which teaching has for most students are "working with young people" and "rendering a needed and important service." These two aspects of teaching must be made the cornerstones for the recruitment of well qualified persons into the teaching profession. Students with high potential should be encouraged in every possible way and given ample opportunity to assume the role of a teacher in order that they might experience some of the intangible rewards and satisfactions of teaching which cannot be measured in terms of financial gain.

2. School administrators must make every possible effort to provide a favorable climate and a dynamic, forceful program for the recruitment of prospective teachers thereby attracting capable students to the teaching profession and making them aware of the opportunities in the field.

3. Teachers should realize that they are in an enviable position for recruiting the high level talent which the teaching profession needs.

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4. Teachers and administrators should strive for the freedom of action outside the classroom that is comparable to the freedom accorded other professional individuals within the community in which they live.

5. Since students are influence to a degree by their parents in the selection of a vocation, the school guidance program should make an intensive effort to include vocational information to the parents of the students as well as to the students themselves. Until parents, as well as students, receive accurate information about, and develop favorable attitudes and opinions toward, a vocation such as teaching, this vocation cannot be expected to receive the consideration due it.

6. It must be emphasized that a career in teaching is just as suitable and rewarding for a man as it is for a woman.

7. Ways must be found for the career teacher to attain a favorable self-concept through his efforts in the classroom.

8. Teacher's salaries must be more in line with professions requiring college graduation.

9. Further research on the social and cultural forces which affect teachers, prospective teachers, and the parents of prospective teachers is necessary to determine the present and future status of the teaching profession.50

Richey and Fox made six suggestions for the recruitment of teachers:

1. More students should be encouraged to select teaching as a vocation; efforts should start early in school life and continue. An intensified effort should be made with boys in large city schools and girls in small city schools.

2. All teachers should redouble their efforts in vocational guidance; parents should be included as well as children. Parents must receive more information about teaching and grow to respect it.

50Maxwell, pp.210-213.
3. Administrative and teacher efforts must be made to provide experiences of a teaching nature for the students in public schools. No other items of data in the study showed a clearer relationship with the tendency to want to become a teacher.

4. Teachers as a group command a great deal of student respect on many desirable personal attributes. Such exemplary accomplishments should continue to be fostered by each teacher individually. It is highly desirable that those students who select teaching as a profession will likewise be gifted with these same fine attributes, and that teachers will continue to be an inspiration to those who elect to follow in their footsteps.

5. It is suggested that teachers and administrators strive for freedom of action within the community in which they live and work. This may require re-education of the general public.

6. The teaching profession itself has an integrity to maintain in regard to its opportunity for service. The opportunity for personal prestige and satisfaction—heavily stressed in this study as a desirable feature of teaching—could very likely be enhanced by cooperative effort to remove some of the undesirable features of teaching.\(^{51}\)

A Florida State Bulletin published in 1954 has put forth by far the most comprehensive of proposed recruitment programs for the profession. While this publication offered suggestions for the State Department of Education, professional education organizations, lay groups, principals and faculties, teachers, and teacher education institutions, all were based upon the following six principles cited early in the text:

1. Teacher recruitment must be directed toward quality (if not, the results will be detrimental to the profession).

\(^{51}\)Richey and Fox, pp. 1-64.
2. Teacher recruitment must be established on a permanent basis.

3. Teacher recruitment must be aimed at creating a balance between supply and demand for teachers within each subject area.

4. Teacher recruitment must be carried on at all school levels, but must begin at the lower levels.

5. Teacher recruitment plans must include, for the prospective teacher, guidance experiences with children.

6. Teacher recruitment must create a wholesome attitude among families toward the teaching profession inasmuch as the family exerts the greatest influence on a vocational choice.52

Richey,53 Barr,54 Hall,55 Walker,56 Ashton,57 The National Citizens Commission for Public Schools,58 The TEPS Commission,59


55Blair Hurd, "Who Will Teach in 1965?" Phi Delta Kappan, XXXX (March, 1959), 262.


and others have made similar recommendations for recruitment. The profession has been active in recruitment. Mathis lists the many specific activities engaged in by the educational profession's professional organizations which include publications, films, and others—all part of guidance and recruitment programs. Future Teachers of American membership has mushroomed; the state of Ohio has declared the month of April as "Teaching Career Month." Hurd states that experience has indicated that teacher recruitment is one of the few major educational problems on which there is common agreement by virtually all persons and groups.

Yet, despite these many efforts, there still remains a severe shortage of elementary school teachers and kindergarten teachers, and shortages within selected areas at the secondary level such as science, mathematics, languages, English, and industrial arts. Such areas are forced annually to assimilate many emergency certificated people.

Related Studies in Industrial Arts

The supply and demand situation has been described earlier as it has existed for industrial arts education. One of the objectives of industrial arts has been vocational


61News item in the Columbus Evening Dispatch, March 29, 1966.

62Hurd, p. 262.
guidance, for industrial arts experiences "help the individual develop insights into his personal likes, dislikes, aptitudes, interests, and limitations with respect to teaching as a profession." Industrial Arts Clubs, a national system of youth organizations initiated by the American Industrial Arts Association in 1963, provide opportunity for recruitment, exploratory and guidance experiences in the teaching situation, and counseling not here-to-fore accessible to students interested in teaching industrial arts. The physical education teacher's closeness to his students has been cited as a distinct asset in recruitment, it would appear that such an asset belongs to the industrial arts teacher as well.

The concern of the industrial arts profession with recruitment and selection has been evident for some time. As early as 1924, Vaughn and Mays lamented the quality of industrial arts teachers; a decade later Fryklund echoed this concern--both implied selective recruitment as a means of


64Ibid., 30.


improvement. Selective recruitment was the subject of a doctoral dissertation by Pawelek\(^\text{68}\) in 1941 and in the same year Coover studied a testing program as an efficient selection means.\(^\text{69}\) Lebus, in 1945, sought to determine success factors for the industrial arts teacher in order that students preparing for industrial arts teaching could be better selected.\(^\text{70}\) Two years later, Hippaka cited recruitment as an "imperative" in industrial education.\(^\text{71}\) Gallington, in 1947, developed an evaluative guide for industrial arts and recommended that a "means of attracting and selecting better students in the institutions for the education of teachers . . . be developed."\(^\text{72}\) In 1949, Giachino studied success qualities in industrial arts teachers and inferred that improved teaching depended upon good teachers and that such teachers would


\(^{70}\)Harold B. Lebus, "A Study of Success Factors in the Teaching of Industrial Arts" (an essay, Wayne State University, Detroit, 1945).


become available only if candidates were "selected with care." 73

In 1949 Johnson also studied selection and guidance of students in industrial arts teacher preparation. A study and analysis of admission practices in 100 industrial arts teacher education programs was made, freshmen and sophomores at Cheyney State College, Pennsylvania were interviewed, and industrial arts students tested. The results and conclusions made by Johnson were that

A majority of students said that they decided to enroll in industrial arts just before entering college or after they arrived. Several students made their decision in high school, and still a few others reached their decision during military service. It is important to note, also, that approximately one-fifth of the students interviewed really wished to pursue other vocational interests such as architecture, engineering, interior decorating, and automobile mechanics. A number of these students are still undecided about becoming teachers. 74

The above would seem to support studies by Riccio and others indicating the age at which career decisions are made.


Selective recruitment was also the subject of a study by Savage in 1950\textsuperscript{75} and Ensman in 1957.\textsuperscript{76} In 1954, an article by Haws in \textit{School Shop} forewarned of the impending deterioration in the supply of qualified teachers and admonished the profession that

\begin{quote}
Unless teachers in the field assume responsibility (for recruitment) and being encouraging high school graduates to enter college for preparation as teachers, we can expect to see standards for certification reduced to such levels that years will be required to regain the ground lost.\textsuperscript{77}
\end{quote}

In 1955 the fourth yearbook of the American Council on Industrial Arts Teacher Education was devoted to "Superior Practices in Industrial Arts Teacher Preparation." Part of this publication was deeply concerned with recruitment and selection and reported the results of a nationwide survey done to ascertain such practices as existed in the industrial arts teacher education programs at the time.\textsuperscript{78}


\textsuperscript{76}Leo M. Ensman, "Relation of Interests, Ability, Courses Taken, Scholastic Achievement, and other Factors to Success in Industrial Arts Teaching" (unpublished doctoral dissertation, University of Missouri, Columbia, 1957).


In assailing the hit-and-miss manner in which students elect industrial arts teaching as a career, the yearbook listed five prevalent sources of students for industrial arts teacher preparation:

1. Academically weak students who regarded industrial arts as a "non-strenuous" area
2. Students who dislike academic study
3. Would-be engineers who failed mathematics
4. "Befuddled" youngsters who choose industrial arts as victims of over-enthusiastic teacher recruiters
5. Those students who select industrial arts as a result of systematic self-study and an understanding of profession demands and rewards

Efforts in the way of recruitment by industrial arts departments in teacher education institutions at this time were ranked in the following order of effectiveness:

1. Bringing secondary school pupils to campus
2. Providing counseling service for those planning to enter the program
3. Alumni efforts
4. Teacher organizations
5. School administrators
6. Various mass media (pamphlets, films, radio and television, and others)
7. "Barnstorming" tours by industrial arts personnel

Little evidence was offered as to the effectiveness of any one means of recruitment--multiple efforts were used so that
the contribution of any given one became impossible. The
yearbook closed its discussion with this remark:

The responsibility of the college and department for the promotional aspects of recruitment remains an open question worthy of careful consideration.\textsuperscript{79}

In 1955, also, Sentiney carried out a research of factors relating to the choice of industrial education as a career and the retention of these teachers in the field. The study, done at the University of Missouri, utilized the normative survey method in collecting data. Survey forms were sent to graduates of 64 teacher education institutions holding the Bachelor's degree with a major in industrial arts education. Sentiney concluded that

1. Graduates with majors in industrial education who are reared on a farm or in smaller communities are more likely to remain in the teaching profession than are those who come from larger communities.

2. The higher the educational level of the mother of the graduates, the more likely the graduate to leave teaching, or to never accept a teaching position.

3. The greater number of industrial education graduates come from families where the father is a skilled worker.

4. Satisfactory high school shop experience, work experience, and an interest in the type of work done in industrial education far outweigh other factors influencing students to enter an industrial education teacher training program in college.

\textsuperscript{79}\textit{Ibid.}, 14.
5. The fact that he was trained to be a teacher is the most important single reason for a graduate of an industrial education teacher education program to enter the teaching profession, either the first year after graduation, or later.

6. Nine out of ten graduates with graduate degrees were teaching.

7. Men who had prepared themselves as industrial teachers would be wise to seek a position teaching industrial education only, if they would secure the maximum financial reward from teaching.

8. Persons who are responsible for the recruitment of prospective industrial education teachers would do well to encourage more of the promising high school graduates who come from rural communities, and from families engaged in agricultural or kindred occupations, to enter and complete an industrial education program.

It should be pointed out here that the term "Industrial Education is used to embrace trade and industrial education as well as industrial arts education.

Earhart in 1959 studied the supply and demand of industrial arts teachers and proposed a recruitment program. He surveyed 157 industrial arts seniors in the state of Ohio seeking to determine relevant recruitment factors. His findings indicated that 49 percent of the respondents indicated a former teacher as having given them "the idea of becoming a teacher" while 27 percent credited their parents and

80George W. Sentiney, "Factors Relating to the Choice of Industrial Education as a Career and the Retention of These Teachers in the Profession" (unpublished doctoral dissertation, University of Missouri, 1955).
and relatives with such recruitment. Earhart further noted the availability and effectiveness of counselors and the Future Teachers of America Clubs concerning recruitment of industrial arts personnel. The effectiveness of industrial arts personnel as recruiting agents was not determined nor was the initial career choice of college industrial arts students sought.

A conference report issued by the United State Office of Education, *Improving Industrial Arts Teaching*, in 1960 included a section written by Karnes entitled "What Competencies are Needed by the Industrial Arts Teachers to Meet the Challenge of the Future?" In it, success factors for use in selective recruitment were discussed as they pertained to industrial arts education. Wold, a year later, discussed the use of interviews and tests as screening devices for potential students of industrial arts teacher education, and their future use.

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The last most significant study relative to recruitment of industrial arts teachers was a dissertation done by Jahrman at the University of Arkansas in 1964. (Here again, one must consider the term "Industrial Education.") Jahrman surveyed 102 students at random in twenty schools in the state—20 each in the eleventh and twelfth grades were asked to participate. In addition, a jury of 90 (sixty-five industrial arts teachers and twenty-five counselors) were asked to judge methods used in recruiting potential industrial education teachers and their relative effectiveness. The conclusions, eleven in number, were these

1. There is a tendency for students to have the same interests toward industrial education regardless whether they were from a large school or from a small school, and whether or not industrial arts was part of the curriculum in their respective schools.

2. There is a significant difference among students relative to strong interests in industrial education for all classifications of schools.

3. No significant interaction exists between the type of school and areas of industrial education. The type of school does not influence significantly the interests of students in the various areas of industrial education.

4. Major differences exist in the interests of students toward the six selected areas of industrial education used in this study. Students gravitate toward a preference to jobs relating to electricity/electronics drafting, and general shop collectively. However, no differentiation in magnitude is expressed for students among these three areas. The students indicate a lesser interest in the areas of metals, industrial arts education, and woods, but here again they made no distinction among these three areas.
5. There are no significant differences among students represented by different types of schools relevant to their lack of knowledge about industrial education.

6. Significant differences exist among the areas of industrial education for students in the various schools. Students indicate a greater knowledge relevant to jobs requiring from training in the area of general shop than in any of the other five specialized areas.

7. There is no significant interaction between classification of schools and areas of industrial arts for students indicating a lack of knowledge about these areas.

8. Students should be made aware of the training and qualifications necessary for employment in jobs associated with areas of work. Other content items of less significance, in descending order of importance, are employment, outlook earnings of employees, nature of the vocation, source of information with job families, and location of jobs.

9. Visitations are significantly more important as a recruiting device than are career days, mailed publicity, film slides, radio and television, and news releases.

10. The nature of vocations or jobs associated with an area is significantly superior to other items of content for recruitment. Other content items, in decreasing order of significance are required training and qualifications, source of information with job families, earnings of employees, employment outlook, and location of jobs.

11. When arranged in rank order no significant differences exist between adjacent recruiting devices. However, visitation is ranked above mailed publicity, career day programs, radio and television programs, and news releases. Although visitations ranked first in the opinion of the jury, it is not significantly different from the second place ranked device, slides.84

On the basis of his study, Jahrman made the following four recommendations:

1. The areas of electricity/electronics, drafting, and general shop should be used either independently or collectively as a basis for recruiting.

2. Visitation by a representative of a teacher education institution should be used in a recruiting program of prospective industrial teachers.

3. The area of industrial education to be used in a recruiting program should deal with materials related to some particular job associated with electricity/electronics, drafting, and general shop.

4. The content of material used in recruiting should consist of a discussion concerned with the required training and qualifications for employment in the fields of electricity/electronics, drafting, and general shop.  

While the results are well taken, it is possible that the assumption that the knowledge students possessed concerning some of the industrial education areas may not be a result of exposure in industrial education, but rather science and/or physics courses.

Conclusion

Thus, it becomes evident that the research efforts in the industrial arts field have been largely confined to selection and the success factors of industrial arts teachers. It also becomes obvious that there could be much more done in the way of research concerned with recruitment.

\[85\text{Ibid.}\]
and the various roles held by the teacher, the teacher educa-
tion institution, and the professional in general.

Summary

The growth and development of industrial arts educa-
tion has been both quantitative and qualitative and has
altered the occupational demands made upon its teachers. From
an initial emphasis upon manipulative skill and occupational
proficiency, the industrial arts program has evolved until
it now demands from its teachers more cognitive ability for
teaching problem solving, understandings of principles and
concepts, and in general, broader knowledge as well as a
degree of manipulative skill. Teacher supply nationwide has
traditionally come from certain socioeconomic groups, with
the present trend being toward the lower-middle class. While
some areas have been plentifully supplied, others, including
industrial arts, have almost continually suffered from a
lack of qualified teachers. The situation has progressed
from bad to worse during the past few years in Ohio with
some 245 temporarily certificated industrial arts teachers
(10.9 percent) now in the field and an expressed need by
school superintendents for 90 industrial arts teachers.
Ohio's teacher education institutions have produced an average
of only 136 per year during the last three years.

Factors which affect career choice have been cited by
researchers as being parents, teachers, friends, counselors,
and others. While there is disagreement as to whether parents or teachers are most influential, both are very important in the career choice of youth. The career choice for boys is usually made late in high school or in the early years of college.

Professional recruitment efforts were initiated in 1937 with the forming of the Future Teachers of American Clubs and Chapters. Since that time much effort has been put forth in the form of publications, films, and various other means of communication. The American Industrial Arts Association's newly organized Industrial Arts Clubs have been such an effort in the area of industrial arts education.

Research done in the industrial arts field has been aimed at the determination of success factors in teaching industrial arts and attempts to design means of selecting successful students for teacher preparation once they have been recruited. While two pertinent studies have been made with reference to recruitment, both have had reference to "Industrial Education" rather than industrial arts education and therefore may not wholly apply to industrial arts.
CHAPTER III

PRESENTATION AND ANALYSIS OF THE DATA

Introduction

In order to put forth a program for industrial arts teacher recruitment in the state of Ohio, the fundamental question which was the subject of this research must first be answered; that is, "What are the most effective agents of industrial arts teacher recruitment and how effective is the industrial arts teacher in such efforts?" Since the study involved three separate and distinct groups (the industrial arts majors now preparing to teach; a random selected group of industrial arts teachers in the field; and, a select group of industrial teachers in the field cited as being influential in the career choice of present industrial arts majors), Chapter III will treat each in turn beginning with the industrial arts majors.

Industrial Arts Majors

Table 5 indicates the distribution of respondents by the institutions asked to participate and their college class. The Ohio State University, because of its convenience to the investigator, accounted for 76 responses or 24.5 percent of the sample while Kent State University with 69 and
TABLE 5
INDUSTRIAL ARTS MAJORS REPRESENTED IN THE SAMPLING BY TEACHER EDUCATION INSTITUTION AND COLLEGE CLASS
N=310

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<td>50.0</td>
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<td>15.4</td>
<td>6</td>
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<tr>
<td>University</td>
<td></td>
<td>12</td>
<td>44.5</td>
<td>10</td>
<td>37.0</td>
<td>5</td>
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<tr>
<td>Wilmington College</td>
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<td>6</td>
<td>23.1</td>
<td>7</td>
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<tr>
<td>Miami State</td>
<td></td>
<td>6</td>
<td>26.9</td>
<td>7</td>
<td>26.9</td>
<td>7</td>
</tr>
<tr>
<td>University</td>
<td></td>
<td>--</td>
<td>--</td>
<td>4</td>
<td>17.4</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>81</td>
<td>28.6</td>
<td>91</td>
<td>29.4</td>
<td>72</td>
</tr>
</tbody>
</table>

Bowling Green State University with 63 followed closely. Together, these three contributed over two-thirds of the respondents in the sample. While Ohio Northern University saw fit not to participate, the other institutions were all well represented. Since there are no figures available which indicate the comparable size of the industrial arts undergraduate programs in participating schools, further inferences concerning the degree of such participation...
becomes hazardous. Measurement of reliability also becomes impossible to calculate statistically; however, it is believed that the sample constituted at least 60 percent of the total population concerned and as such was representative.

Data contained in Table 5 further indicate that although 29.4 percent of the respondents were sophomores, the distribution of the sample by class level was not weighted significantly toward any one level. The total of 310 respondents excluded fourteen returns from graduate students inadvertently asked to participate.

Table 6 seeks to further describe the respondents by age groups as well as college class. As one might expect, nearly two-thirds of the respondents were in the 20-29 age bracket while almost one-third were 16-19 years of age; 3.9 percent of the respondents were thirty or over—none were over 49 years of age. The preponderance of respondents in the 20-29 age bracket can also be attributed to the nine year span of this bracket as compared to the three year span, 16-19.

In response to questions concerning their routes into higher education, it was indicated by over 42 percent of the respondents that they entered college with a career other than industrial arts teaching in mind or no field at all chosen as a career goal. While Figure 1 describes these percentages generally, specific career goals of the 310 respondents is shown more clearly in Table 7. While engineering students are considered as prime recruits for industrial arts
by some 13 percent of those now preparing to teach industrial arts came to college with no career goal in mind whatsoever. Re-orientation from original career goals in other subject fields of education accounted for an additional 8.4 percent of industrial arts majors. Other colleges, with the exception of the commerce and administration field with 3.9 percent, accounted for few. Respondents showing more diversion in their initial career choice were in the 16-19 and 20-29 age groups.

The findings with reference to career choice would seem to indicate that the combined group of present industrial arts majors having an initial career goal of engineering or no goal at all offer most promise for recruitment efforts. Since mechanical aptitude and interest in science and mechanical things are held in common by many engineering
57.4 percent entered college with teaching industrial arts as a career goal (178)

12.9 percent had no career goal (40)

29.7 percent enter college with other fields as career goals (92)

Fig. 1.—Initial Career Goals of Industrial Arts Majors.
<table>
<thead>
<tr>
<th>Career Goal</th>
<th>16-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Arts Teaching</td>
<td>63</td>
<td>64.9</td>
<td>108</td>
<td>53.7</td>
<td>5</td>
<td>62.5</td>
</tr>
<tr>
<td>Engineering</td>
<td>10</td>
<td>10.3</td>
<td>26</td>
<td>12.9</td>
<td>2</td>
<td>25.0</td>
</tr>
<tr>
<td>Agriculture</td>
<td>--</td>
<td>--</td>
<td>7</td>
<td>3.5</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Arts</td>
<td>--</td>
<td>--</td>
<td>4</td>
<td>2.0</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Medicine</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>.5</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Education</td>
<td>6</td>
<td>6.2</td>
<td>20</td>
<td>9.9</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Dentistry</td>
<td>--</td>
<td>--</td>
<td>2</td>
<td>1.1</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Commerce and Administration</td>
<td>4</td>
<td>4.2</td>
<td>8</td>
<td>3.9</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Law</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Veterinary Medicine</td>
<td>1</td>
<td>1.0</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>None</td>
<td>13</td>
<td>13.4</td>
<td>25</td>
<td>12.6</td>
<td>1</td>
<td>12.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>97</td>
<td>31.3</td>
<td>201</td>
<td>64.7</td>
<td>8</td>
<td>2.7</td>
</tr>
</tbody>
</table>
fields and industrial arts education, it would appear that this group in particular offers a rich source of industrial arts teachers. In addition, the liberal arts colleges, or in lieu of such a college required courses at the freshman level would seem to offer an opportunity for such recruitment efforts as they are open to the profession. The lack of a course taught by industrial arts personnel which is required of all students at this level is a handicap not felt by other fields such as art, physical education, and the sciences.

The data further indicates that 71.2 percent of the respondents entered higher education immediately after high school (Figure 2 depicts this graphically). Table 8 shows specifically the effect on career choices of time lapses between high school graduation and college entrance or enrollment. It can be noted that the percentage of those who initially chose industrial arts as a career increases with age—indicative of the steadying effect of maturity upon career decisions. Viewed conversely, maturity cut down considerably on the diversity found with respect to initial career choice of the respondents. Over two-thirds of the respondents entering college after a gap of from six months to twenty-seven years chose industrial arts as their initial career goal.

A comparison of Figures 1 and 3 would seem to clearly indicate less diversity and uncertainty with respect to
71.2 percent entered college immediately after high school graduation (220)

28.8 percent entered college after a time lapse of six months or more (89)

Fig. 2.—Time Lapse Reported by Respondents between High School Graduation and College Entrance.
## TABLE 8

LAPSE OF TIME BETWEEN HIGH SCHOOL GRADUATION AND COLLEGE ENROLLMENT BY INITIAL CAREER GOAL OF INDUSTRIAL ARTS MAJORS IN OHIO INSTITUTIONS

N=309

<table>
<thead>
<tr>
<th>Career Goal</th>
<th>0</th>
<th>3-11</th>
<th>12-23</th>
<th>24-47</th>
<th>48-95</th>
<th>96-119</th>
<th>120+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td>#</td>
</tr>
<tr>
<td>Industrial Arts</td>
<td>116</td>
<td>52.6</td>
<td>9</td>
<td>56.3</td>
<td>15</td>
<td>71.7</td>
<td>14</td>
</tr>
<tr>
<td>Engineering</td>
<td>33</td>
<td>14.9</td>
<td>1</td>
<td>6.3</td>
<td>1</td>
<td>4.7</td>
<td>2</td>
</tr>
<tr>
<td>Agriculture</td>
<td>6</td>
<td>2.7</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>42</td>
<td>--</td>
</tr>
<tr>
<td>Arts</td>
<td>2</td>
<td>.9</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>4.7</td>
<td>--</td>
</tr>
<tr>
<td>Education</td>
<td>21</td>
<td>9.5</td>
<td>2</td>
<td>12.5</td>
<td>1</td>
<td>4.7</td>
<td>2</td>
</tr>
<tr>
<td>Dentistry</td>
<td>2</td>
<td>.9</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>4.7</td>
<td>--</td>
</tr>
<tr>
<td>Commerce and Ad-</td>
<td>7</td>
<td>3.2</td>
<td>1</td>
<td>6.3</td>
<td>1</td>
<td>4.7</td>
<td>2</td>
</tr>
<tr>
<td>ministration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.7</td>
</tr>
<tr>
<td>Medicine</td>
<td>1</td>
<td>.5</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>5.9</td>
<td>--</td>
</tr>
<tr>
<td>Veterinary Medicine</td>
<td>1</td>
<td>.5</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>None</td>
<td>31</td>
<td>14.3</td>
<td>3</td>
<td>18.6</td>
<td>2</td>
<td>9.5</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>220</td>
<td>71.2</td>
<td>16</td>
<td>5.1</td>
<td>21</td>
<td>6.7</td>
<td>23</td>
</tr>
</tbody>
</table>

%
69.6 per cent had industrial arts education as a career choice (62)

9 percent had no career goal (8)

21.4 percent had other fields as their career goals (19)

Fig. 3.—Career Goal of Respondents Entering College After More than a Six-month Time Lapse Following High School Graduation.
career choice than that shown by respondents entering college immediately after high school. As to what experiences may have had something to do with solidifying career choices during this time lapse is not known; however, Table 9 may provide some insights. Though the term "industrial experience" is somewhat nebulous, it would appear that the overwhelming majority of respondents considered themselves as having had such experience prior to college entrance. The only other category having any immediate significance was "military experience." While only 9 percent of the respondents entering college after a time lapse of more than six months indicated their last position as the military, their concentration in the 48-95 month bracket would seem to be a source of some importance for further recruitment efforts. In any event, of those not entering college immediately after high school, industry continues to offer the largest source of teachers for industrial arts education.

It would seem recognition should be made of the fact that nearly one-third of the industrial arts majors now in college did NOT enter directly from high school and that their career goals were somewhat less diverse than their counterparts who had entered upon high school graduation. In addition, over four-fifths of these men had had industrial experience or military service as their last reported position. Reaching these people before four years have elapsed would seem to be imperative for any recruitment
### TABLE 9

**LAST POSITION HELD BY THOSE NOT ENTERING COLLEGE IMMEDIATELY AFTER HIGH SCHOOL GRADUATION**  
*N = 89*

<table>
<thead>
<tr>
<th>Position Held</th>
<th>13-11</th>
<th>12-23</th>
<th>24-47</th>
<th>48-95</th>
<th>96-119</th>
<th>120+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Industrial Employment</td>
<td>14</td>
<td>87.6</td>
<td>16</td>
<td>77.1</td>
<td>19</td>
<td>82.8</td>
<td>64</td>
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<tr>
<td>Military Service</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>1 4.3</td>
<td>6 26.0</td>
<td>---</td>
</tr>
<tr>
<td>Sales Work</td>
<td>1</td>
<td>6.2</td>
<td>1</td>
<td>4.8</td>
<td>2 8.6</td>
<td>1 5.9</td>
<td>1 15.9</td>
</tr>
<tr>
<td>Agriculture</td>
<td>---</td>
<td>2 8.5</td>
<td>---</td>
<td>---</td>
<td>1 5.9</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Other</td>
<td>---</td>
<td>1 4.8</td>
<td>1 4.3</td>
<td>2 11.8</td>
<td>2 28.5</td>
<td>---</td>
<td>6 6.7</td>
</tr>
<tr>
<td>None</td>
<td>1 6.2</td>
<td>1 4.8</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>2 2.2</td>
</tr>
<tr>
<td>Total</td>
<td>16 17.9</td>
<td>21 23.5</td>
<td>23 25.7</td>
<td>17 19.0</td>
<td>7 7.8</td>
<td>5 6.1</td>
<td>89 100.0</td>
</tr>
</tbody>
</table>

Persons influencing present industrial arts majors to enter the field of industrial arts education can be noted in Table 10. Approximately two-thirds of the respondents indicated the industrial arts teacher ranked first, second, or third as an influencing factor. Respondents who indicated they had entered college immediately after high school graduation ranked the industrial arts teacher first as an influence, their parents second, and friends as third. The high school counselor ranked fourth with this particular group...
Table 10

<table>
<thead>
<tr>
<th>Influential Person</th>
<th>RANK</th>
<th></th>
<th>Total</th>
<th>Weighted Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#1</td>
<td>%</td>
<td>#2</td>
<td>%</td>
</tr>
<tr>
<td>High School Counselor</td>
<td>6</td>
<td>1.9</td>
<td>22</td>
<td>7.4</td>
</tr>
<tr>
<td>Parents</td>
<td>43</td>
<td>13.7</td>
<td>64</td>
<td>20.4</td>
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<tr>
<td>High School Principal</td>
<td>1</td>
<td>.3</td>
<td>6</td>
<td>1.9</td>
</tr>
<tr>
<td>Friend</td>
<td>51</td>
<td>16.2</td>
<td>38</td>
<td>12.1</td>
</tr>
<tr>
<td>Industrial Arts Teacher</td>
<td>124</td>
<td>39.6</td>
<td>56</td>
<td>17.9</td>
</tr>
<tr>
<td>College Counselor</td>
<td>15</td>
<td>4.8</td>
<td>16</td>
<td>5.1</td>
</tr>
<tr>
<td>School Superintendent</td>
<td>5</td>
<td>1.6</td>
<td>4</td>
<td>1.3</td>
</tr>
<tr>
<td>Student Teacher</td>
<td>2</td>
<td>.6</td>
<td>5</td>
<td>1.6</td>
</tr>
<tr>
<td>High School Classroom Teacher</td>
<td>5</td>
<td>1.6</td>
<td>20</td>
<td>6.4</td>
</tr>
</tbody>
</table>

(see Table 11). The industrial arts teacher was ranked first by 41.7 percent of the respondents—the next most frequently ranked first was "friends" with but 15.4 percent of the respondents answering. Only 2.7 percent ranked the high school counselor as first.
<table>
<thead>
<tr>
<th>Influential Factor</th>
<th>Ranked Influence</th>
<th></th>
<th></th>
<th>Total</th>
<th>Weighted Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rank 1</td>
<td>Rank 2</td>
<td>Rank 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Counselor</td>
<td>6</td>
<td>17</td>
<td>31</td>
<td>54</td>
<td>24.5</td>
</tr>
<tr>
<td>Parents</td>
<td>33</td>
<td>52</td>
<td>32</td>
<td>117</td>
<td>53.1</td>
</tr>
<tr>
<td>High School Principal</td>
<td>--</td>
<td>6</td>
<td>10</td>
<td>16</td>
<td>7.2</td>
</tr>
<tr>
<td>Friend</td>
<td>34</td>
<td>23</td>
<td>27</td>
<td>84</td>
<td>38.1</td>
</tr>
<tr>
<td>Industrial Arts Teacher</td>
<td>92</td>
<td>41</td>
<td>12</td>
<td>145</td>
<td>65.8</td>
</tr>
<tr>
<td>College Counselor</td>
<td>9</td>
<td>11</td>
<td>25</td>
<td>45</td>
<td>20.4</td>
</tr>
<tr>
<td>School Superintendent</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td>3.2</td>
</tr>
<tr>
<td>Student Teacher</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>11</td>
<td>4.9</td>
</tr>
<tr>
<td>High School Classroom Teacher</td>
<td>4</td>
<td>13</td>
<td>13</td>
<td>30</td>
<td>13.6</td>
</tr>
</tbody>
</table>
While respondents who had entered college after a lapse of at least six months continued to rank the industrial arts teacher as first (as can be seen in Table 12), friends replaced parents as the second most influencing factor affecting career choice. The industrial arts teacher continued to be ranked first by the largest percentage ranking any category as first. (Friends were second with 18.8 percent compared to the industrial arts teacher with 35.5 percent.) The rank correlation of these two groups, found by using the formula \( \rho = 1 - \frac{6 \sum D^2}{N(N^2-1)} \), shows a value of -.65, which indicates further the independence of the two rankings despite agreement on the first ranked category—the industrial arts teacher.

The composite weighted ranking of influential factors by the entire population of respondents was cited earlier in Table 10. The industrial arts teacher, it would appear, far outweighs all others as an influence with the respondents—124 students of the 310 or 39.6 percent ranked him as being the most influential. College counselors ranked slightly above high school counselors; the lowest ranked category was "student teacher."

Figure 4 indicates ranking of factors influencing career decision by age group. The progressive waning of parental influence is plainly discernible. Tables 13 and 14 more specifically describe ranks by various age groups.
TABLE 12
WEIGHTED RANK ORDER OF INFLUENCE UPON CAREER CHOICE BY INDUSTRIAL ARTS
MAJORS ENTERING COLLEGE AFTER A SIX-MONTH LAPSE
OR MORE AFTER HIGH SCHOOL
N=89

<table>
<thead>
<tr>
<th>Influencing Factor</th>
<th>Rank Influence</th>
<th>Total</th>
<th>Weighted Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1  # %</td>
<td>2  # %</td>
<td>3  # %</td>
</tr>
<tr>
<td>High School Counselor</td>
<td>--  --</td>
<td>5  5.5</td>
<td>5  5.5</td>
</tr>
<tr>
<td>Parents</td>
<td>10  11.1</td>
<td>12  13.3</td>
<td>20  22.2</td>
</tr>
<tr>
<td>High School Principal</td>
<td>1  1.1</td>
<td>--  --</td>
<td>5  5.5</td>
</tr>
<tr>
<td>Friend</td>
<td>17  18.8</td>
<td>15  16.6</td>
<td>8  8.8</td>
</tr>
<tr>
<td>Industrial Arts Teacher</td>
<td>32  35.5</td>
<td>19  21.0</td>
<td>7  7.7</td>
</tr>
<tr>
<td>College Counselor</td>
<td>6  6.6</td>
<td>5  5.5</td>
<td>2  3.3</td>
</tr>
<tr>
<td>School Superintendent</td>
<td>3  3.3</td>
<td>2  2.2</td>
<td>1  1.1</td>
</tr>
<tr>
<td>Student Teacher</td>
<td>1  1.1</td>
<td>1  1.1</td>
<td>--  --</td>
</tr>
<tr>
<td>High School Classroom Teacher</td>
<td>1  1.1</td>
<td>7  7.7</td>
<td>4  4.4</td>
</tr>
</tbody>
</table>
### Fig. 4

Weighted Ranks of Industrial Arts Teachers, Parents, and Friends for Three Age Groups of Industrial Arts Majors with Reference to Influence on Career Choice.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Industrial Arts Teacher</th>
<th>Parents</th>
<th>Friends</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-19 N = 97</td>
<td>177</td>
<td>92</td>
<td>47</td>
</tr>
<tr>
<td>20-29 N = 201</td>
<td>315</td>
<td>176</td>
<td>209</td>
</tr>
<tr>
<td>30 &amp; over N = 12</td>
<td>17</td>
<td>5</td>
<td>13</td>
</tr>
</tbody>
</table>

Weight Rank
TABLE 13

PERSONS CITED BY INDUSTRIAL ARTS MAJOR AS INFLUENTIAL IN THEIR DECISION TO ENTER INDUSTRIAL ARTS TEACHING AS A CAREER BY AGE GROUPS OF STUDENTS

<table>
<thead>
<tr>
<th>Influence</th>
<th>16-19</th>
<th>Age Groups</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>High School Counselor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td>2</td>
<td>12</td>
<td>17</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>High School Principal</td>
<td>-</td>
<td>1</td>
<td>6</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Friend</td>
<td>7</td>
<td>5</td>
<td>16</td>
<td>44</td>
<td>29</td>
</tr>
<tr>
<td>Industrial arts teacher</td>
<td>48</td>
<td>14</td>
<td>5</td>
<td>71</td>
<td>45</td>
</tr>
<tr>
<td>College Counselor</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>School Superintendent</td>
<td>3</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Student Teacher</td>
<td>-</td>
<td>1</td>
<td>4</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>High School Classroom</td>
<td>-</td>
<td>9</td>
<td>8</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 14

WEIGHTED RANK OF PERSONS EXERTING INFLUENCE UPON THE CAREER CHOICE OF INDUSTRIAL ARTS MAJORS--BY AGE GROUP OF RESPONDENTS

<table>
<thead>
<tr>
<th>Influential Factor</th>
<th>Weighted Total Rank (1, 2, 3, 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-19</td>
</tr>
<tr>
<td>High School Principal</td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td>92</td>
</tr>
<tr>
<td>High School Counselor</td>
<td>47</td>
</tr>
<tr>
<td>Friend</td>
<td>47</td>
</tr>
<tr>
<td>Industrial Arts Teacher</td>
<td>177</td>
</tr>
<tr>
<td>College Counselor</td>
<td>24</td>
</tr>
<tr>
<td>School Superintendent</td>
<td>10</td>
</tr>
<tr>
<td>Student Teachers</td>
<td>6</td>
</tr>
<tr>
<td>High School Classroom Teacher</td>
<td>24</td>
</tr>
</tbody>
</table>

Other influencing factors cited by the 310 respondents were relatives (by thirteen) and factors having to do with their occupation prior to entering college (12). The college catalog was credited with influence by four respondents; a psychiatric counselor and psychologist by two others; one respondent cited his "observation of society" as an influence on his deciding upon industrial arts teaching as a career.
"My own decision" was given as an answer by fifty-four respondents.

A fair conclusion would be then, that the industrial arts teacher is most effective as a recruiting agent for his profession. Figure 5 indicates that 81.2 percent of the respondents had had industrial arts in high school. The national average for the total secondary school population was 28.7 percent in 1960-1961 (more recent figures are not available). Assuming that one-half the high school population is female, and further assuming that girls do not take industrial arts courses at the high school level, the percentage of boys having had industrial arts would double to about 57 percent. Based on these inferences the respondents would seem to have had industrial arts more often than the "average." A fair conclusion, though not statistically valid, would seem to be, then, that having had industrial arts courses in high school bears a positive relationship to choosing industrial arts teaching as a career goal.

Table 15 treats those respondents who have had industrial arts in high school and clearly indicates the subject areas having been taken by them most frequently as mechanical drawing, wood, general industrial arts, and metal. Mechanical drawing appears to have had a better "holding power" throughout the grade levels than the others, however. For example, general industrial arts enrollment
81.2 Percent of 252 Respondents Had Industrial Arts in High School

18.8 Percent or 58 had no Industrial Arts in High School

Fig. 5.—Industrial Arts Majors Now Preparing to Teach Industrial Arts and Their High School Background in Industrial Arts.
### Table 15

**Career Selection by Industrial Arts Majors Having Had High School Industrial Arts**

N = 252

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T</strong></td>
<td>9 10 11 12 T</td>
<td>9 10 11 12 T</td>
<td>9 10 11 12 T</td>
<td>9 10 11 12 T</td>
<td>9 10 11 12 T</td>
</tr>
<tr>
<td><strong>Industrial Arts</strong></td>
<td>68 34 61 54 126</td>
<td>68 22 11 9 83</td>
<td>68 33 62 55 84</td>
<td>10 9 9 21 13 14 16 12 30</td>
<td></td>
</tr>
<tr>
<td><strong>Other Fields</strong></td>
<td>39 33 27 17 68</td>
<td>34 13 8 7 38</td>
<td>16 16 10 6 31</td>
<td>13 5 4 4 15 10 3 6 5 14</td>
<td></td>
</tr>
<tr>
<td><strong>None</strong></td>
<td>1 1 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>107 67 88 82 195</td>
<td>95 35 16 121 83</td>
<td>49 71 61 115 23</td>
<td>14 15 13 36 23 17 22 17 44</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Initial Career Goal</th>
<th>Electricity</th>
<th>Wood</th>
<th>Powers</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T</strong></td>
<td>9 10 11 12 T</td>
<td>9 10 11 12 T</td>
<td>9 10 11 12 T</td>
<td>9 10 11 12 T</td>
<td>Total</td>
</tr>
<tr>
<td><strong>Industrial Arts</strong></td>
<td>10 13 13 12 34 68 69 62 49 119 1 4</td>
<td>12 17 28 3 2 7</td>
<td>9 15</td>
<td>162 63.6</td>
<td></td>
</tr>
<tr>
<td><strong>Other Fields</strong></td>
<td>4 6 9 7 15 30 28 16 7 51 3 2 4 5</td>
<td>7 2 4 5 3 7</td>
<td>90</td>
<td>76 36.0</td>
<td></td>
</tr>
<tr>
<td><strong>None</strong></td>
<td>1 1 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>18 19 23 20 50 97 96 78 56 170 4 6 16 22 35 5 6 12 12 22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* T indicates total number of teachers teaching the subject at all grades.*
decreased from 102 in the ninth grade to but sixteen in the twelfth, a loss of 86; the corresponding decrease in wood was from 97 to 56, a loss of 41. Mechanical drawing lost only 25 of the original 107 through the high school years. Areas such as power and electricity/electronics showed corresponding growth enrollment as time passed, but the numbers were small compared to mechanical drawing, wood, general industrial arts, and metal. Since career decisions are made late in high school or early in college, a late experience in industrial arts may be important for recruitment purposes.

Those ranking the industrial arts teacher first or second earlier were further asked to indicate his name, address, and the industrial arts subject taken under him in order to establish the select sample of industrial arts teachers to be discussed later. Of the 180 ranking the industrial arts teacher first or second, 162 indicated what subjects were taken with the instructor cited. The results can be graphically seen in Figure 6. Again, mechanical drawing and wood are cited most often. The industrial arts teacher evidently exercised some influence on this population of respondents to enter industrial arts teaching in these classes—something which must be considered when proposing any recruitment effort for the profession.

Concerning efforts made at the high school level for recruitment into the teaching profession, Table 16 indicates
![Bar chart showing subjects taken with Industrial Arts Teachers who were cited as influential in career decision by 162 majors.](chart.png)

**Fig. 6.**—Subjects Taken with Industrial Arts Teachers Who Were Cited as Influential in Career Decision by 162 Majors.
TABLE 16
RESPONDENTS INDICATING RECRUITMENT EFFORTS BY THEIR HIGH SCHOOL AND THEIR PARTICIPATION IN SUCH PROGRAMS

<table>
<thead>
<tr>
<th>High School Effort</th>
<th>Availability</th>
<th>Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None # %</td>
<td>Did # %</td>
</tr>
<tr>
<td>Future Teachers of America Club</td>
<td>72 17.5</td>
<td>238 76.1</td>
</tr>
<tr>
<td>Career/Days</td>
<td>131 42.8</td>
<td>179 57.2</td>
</tr>
<tr>
<td>Field Trips to Teacher Ed. Col.</td>
<td>210 68.0</td>
<td>100 32.0</td>
</tr>
<tr>
<td>Industrial Arts Clubs</td>
<td>250 80.8</td>
<td>60 19.2</td>
</tr>
<tr>
<td>Total</td>
<td>88.0</td>
<td>19.2</td>
</tr>
</tbody>
</table>

that while the high schools attended by the respondents in 95 percent of the cases made some effort to guide students into higher education, participation in the Future Teachers of America and Industrial Arts Clubs, career days, and field trips to teacher education institutions was very light. While 76.1 percent of the respondents indicated, for example, that their school had Future Teachers of America Clubs, only 14.7 percent of this group participated; that is, only 11.2 percent of the entire 310 respondents then, participated in an F.T.A. Club. Career days, on the other hand, offered 57.2 percent of the entire population a guidance service and 30 percent indicated they had indeed participated in such an experience (one-half of these respondents selected
industrial arts as their initial career choice). While industrial arts clubs show up rather poorly, it must be recognized that these clubs are relatively new nationwide. A total of 96.2 percent of the 310 respondents did not or could not participate in industrial arts clubs. Field trips were provided in 32 percent of the high schools of the respondents and roughly 10 percent of those who could, took advantage of such trips. Participation by those selecting industrial arts initially and those whose initial career choice was other than industrial arts is shown in Table 17. The Spearman Rank Correlation Coefficient Test indicated no significant correlation between participation in the various recruitment media cited and choosing or not choosing industrial arts as a career goal— even though the data approached significance at the .05 level of confidence. This would seem to indicate the general ineffectiveness of recruitment efforts in existence relative to industrial arts in particular.

Formal and informal contacts with teacher education institutions are indicated in Table 18. The three areas of contact listed most frequently were spectator sports, career days sponsored by colleges, and college speakers— presumably at the high school of the respondent. The latter two are clearly recruitment efforts; the first, not. Science fairs brought a goodly number of students to the campus also. It
TABLE 17

PARTICIPATION IN HIGH SCHOOL RECRUITMENT PROGRAMS BY THOSE ENTERING COLLEGE WITH AND WITHOUT INDUSTRIAL ARTS AS A CAREER GOAL

N=310

<table>
<thead>
<tr>
<th>High School Effort</th>
<th>These Selecting Industrial Arts Had Participated</th>
<th>These Selecting Another or None Had Participated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future Teachers of America</td>
<td>149    44.8</td>
<td>26 8.3</td>
</tr>
<tr>
<td></td>
<td>98    31.3</td>
<td>9 2.8</td>
</tr>
<tr>
<td>Industrial Arts Clubs</td>
<td>37    11.8</td>
<td>7 2.2</td>
</tr>
<tr>
<td></td>
<td>23    7.3</td>
<td>5 1.6</td>
</tr>
<tr>
<td>Career Day/s</td>
<td>105   33.6</td>
<td>58 18.5</td>
</tr>
<tr>
<td></td>
<td>74    23.6</td>
<td>36 11.5</td>
</tr>
<tr>
<td>Field Trips to College</td>
<td>57    18.2</td>
<td>21 6.7</td>
</tr>
<tr>
<td></td>
<td>43    13.7</td>
<td>11 3.5</td>
</tr>
<tr>
<td>None of These</td>
<td>17    5.4</td>
<td>- -</td>
</tr>
<tr>
<td></td>
<td>17    5.4</td>
<td>- -</td>
</tr>
<tr>
<td>Total</td>
<td>N = 178</td>
<td>N = 132</td>
</tr>
<tr>
<td>College Contact</td>
<td>Industrial Arts as a Career N=178</td>
<td>Another Career in Mind N=92</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td></td>
<td># %</td>
<td># %</td>
</tr>
<tr>
<td>Sports Spectator</td>
<td>84 47.0</td>
<td>54 58.3</td>
</tr>
<tr>
<td>Ports Player</td>
<td>34 19.0</td>
<td>18 19.4</td>
</tr>
<tr>
<td>Career Day/s</td>
<td>47 26.3</td>
<td>21 22.6</td>
</tr>
<tr>
<td>Fraternity</td>
<td>17 9.5</td>
<td>18 19.4</td>
</tr>
<tr>
<td>Dances</td>
<td>37 20.7</td>
<td>19 20.5</td>
</tr>
<tr>
<td>Fairs</td>
<td>12 6.7</td>
<td>10 10.8</td>
</tr>
<tr>
<td>Concerts</td>
<td>33 18.4</td>
<td>13 14.0</td>
</tr>
<tr>
<td>Exhibitions</td>
<td>34 19.0</td>
<td>18 19.4</td>
</tr>
<tr>
<td>Plays</td>
<td>31 17.3</td>
<td>22 23.7</td>
</tr>
<tr>
<td>Honors Program</td>
<td>5 2.8</td>
<td>5 5.4</td>
</tr>
<tr>
<td>Library Use</td>
<td>35 19.6</td>
<td>24 25.9</td>
</tr>
<tr>
<td>Science Fairs</td>
<td>46 25.7</td>
<td>16 17.2</td>
</tr>
<tr>
<td>Lectures</td>
<td>30 16.8</td>
<td>11 11.8</td>
</tr>
<tr>
<td>Class Visits</td>
<td>28 15.6</td>
<td>14 15.1</td>
</tr>
<tr>
<td>Conferences</td>
<td>40 22.4</td>
<td>19 20.5</td>
</tr>
<tr>
<td>Speakers from College</td>
<td>44 24.6</td>
<td>30 32.4</td>
</tr>
<tr>
<td>None</td>
<td>27 15.1</td>
<td>3 3.2</td>
</tr>
</tbody>
</table>
does become obvious by looking at Figure 7 that this population has had a myriad of contacts with the college PRIOR to enrollment—only 10.5 percent had no contact at all with a teacher education institution prior to entering college. Additional contacts with such institutions were given as relatives (7), friends (4), and a host of other diverse means including private visits (3), contests (3), students already in college (2), and others. In some instances, at least, it would appear that efforts should be made to "reach" those high school students who may be on campus for other purposes in order to recruit them for industrial arts teacher preparation.

Summary

Good cooperation was forthcoming from the institutions within Ohio which prepare industrial arts teachers—only one of the smaller institutions did not participate. Of the 310 respondents, judged to be representative of the total population, the four college classes were all well represented. The preponderant age group were 20-29 year-olds comprising 64.8 percent of the sample; approximately 4 percent were over thirty years of age.

Of the respondents, 57.4 percent of 178 entered college with industrial arts teaching as a career goal; 12.9 percent or 40 had no goal at all and 29.7 percent or 92 of the respondents had made plans to enter an occupation
College Contact

<table>
<thead>
<tr>
<th>Activity</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>33</td>
</tr>
<tr>
<td>Sports Spectator</td>
<td>163</td>
</tr>
<tr>
<td>Sports Player</td>
<td>57</td>
</tr>
<tr>
<td>Career Days</td>
<td>77</td>
</tr>
<tr>
<td>College Speakers</td>
<td>76</td>
</tr>
<tr>
<td>Fraternity</td>
<td>40</td>
</tr>
<tr>
<td>Dances</td>
<td>62</td>
</tr>
<tr>
<td>Fairs</td>
<td>31</td>
</tr>
<tr>
<td>Concerts</td>
<td>55</td>
</tr>
<tr>
<td>Exhibitions</td>
<td>58</td>
</tr>
<tr>
<td>Plays</td>
<td>55</td>
</tr>
<tr>
<td>Honors Program</td>
<td>11</td>
</tr>
<tr>
<td>Library Use</td>
<td>66</td>
</tr>
<tr>
<td>Science Fairs</td>
<td>73</td>
</tr>
<tr>
<td>Lectures</td>
<td>46</td>
</tr>
<tr>
<td>Class Visits</td>
<td>49</td>
</tr>
<tr>
<td>Conferences</td>
<td>64</td>
</tr>
</tbody>
</table>

Percent of Total Population

Fig. 7.—Frequency of College Contacts by 310 Respondents Prior to Enrollment.
other than industrial arts teaching. Engineering and other fields of education were mentioned as such goals most often, being cited by 12.6 and 8.4 percent of the respondents as initial career goals. Almost 30 percent of the respondents had entered college after a time lapse of from six months to twenty-seven years, after high school graduation—an average of 4.9 years. The career goals of these respondents were somewhat more stable than the general population, 69.6 percent having industrial arts as an initial career choice.

The majority of these respondents (71.7 percent) indicated their last position as "industrial experience." Military service was the only additional significant area reported, with 26 percent of those entering college after a four year lapse coming from the service.

The most influential person with reference to career choice was, by far, the industrial arts teacher. Parental influence waned with maturity of the respondents. Counselors, high school and college, ranked fourth and fifth with this group. Those entering college after a time lapse of from six months to twenty-seven years continued to rank the industrial arts teacher as number one, but cited friends as highly influential also. There was a significant difference in the rank order of influential persons by those two groups. The composite weighted ranking showed the industrial arts teacher at 503, parents at 309, and friends at 264.
The effect of high school industrial arts courses upon career selection in industrial arts teaching seemed to be positive. Over four-fifths of the respondents, now majors in industrial arts education, had had industrial arts in high school. More specifically, mechanical drawing, wood, general industrial arts, and metal in that order were cited most frequently as the particular area of industrial arts taken in high school. When compared to the average population these men seem to have had industrial arts more often than the norm. Those citing the industrial arts teacher as first or second as an influencing factor in their career decision indicated further that mechanical drawing and wood were most often the subject areas taken with such a teacher.

High school recruitment efforts as indicated in the data most often consisted of Future Teachers of America Clubs and career days. Participation by the respondents was light considering the fact that approximately 95 percent of the schools offered opportunity for a guidance experience of some nature. Only two-fifths of the respondents participated in at least one of the four activities listed (F.T.A., field trips, industrial arts clubs, and career days); there was no significant correlation between participation and career choice in industrial arts education.

Formal and informal contacts with teacher education institutions were many. "Sports spectator" was listed most
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Formal and informal contacts with teacher education institutions were many. "Sports spectator" was listed most
often (by 163 of the respondents) career day and college speakers, as well as science fairs were other contacts of special significance cited by 77, 76, and 73 respondents respectively.

The next section of Chapter III will deal with the average industrial arts teacher in the field, with particular reference to factors which may have a bearing upon any proposed program of recruitment for industrial arts teachers in the state.

The Industrial Arts Teacher

In order to determine tangible factors or characteristics of the industrial arts teachers in the field which might be relevant to a proposed program of recruitment—and also to act as a norm with which the select group of industrial arts teachers cited as recruiters could be compared—a random sample of 433 teachers were selected from the State Department of Education index of 2,259 non-parochial school industrial arts teachers. The sample was stratified in that county, city, and exempted village industrial arts teachers were each represented; 306 returns were usable. In order to reach a reliability level at the .05 level of confidence with a population of 2,250, a sample of 339 must be taken; hence the sample size of 306 approaches very closely this level of confidence concerning its ability to describe accurately
characteristic of the entire population of non-parochial school industrial arts teachers in the field.

Of 744 county school system industrial arts teachers, 149 were mailed instruments; 21 of 108 exempted village teachers and 263 of 1407 city system industrial arts teachers received survey instruments. Of the returns, which totaled 306 or 70.7 percent, the largest number were from city systems—137. Another 123 respondents obliterated the coding on the instrument making it impossible to determine what type of school system was represented. Table 19 indicates returns and their percentage of the initial 433 instruments sent; Figure 9 depicts graphically the response by type of school system.

Table 20 describes the teaching experience of 302 respondents. It can be noted that over one-half of this population as a whole had taught fewer than ten years, the largest frequency being found in the 0-4 age group (84). Within this age group also, one finds the greatest number of transferring teachers; that is, teachers gravitating to industrial arts who originally had been teaching in another subject area. Nine of the sixteen teachers in the study who indicated teaching another subject prior to entering industrial arts were in the 0-4 years teaching experience bracket. This may be yet another indication of the critical shortage of industrial arts teachers and stop-gap means employed by administrators of filling such vacancies.
TABLE 19

SOURCE OF RANDOM SAMPLE OF INDUSTRIAL ARTS TEACHERS
BY TYPE OF SCHOOL SYSTEM

<table>
<thead>
<tr>
<th>Type School System</th>
<th>Industrial Arts Teachers #</th>
<th># %</th>
<th>Number Sent #</th>
<th>%</th>
<th>Response #</th>
<th>%</th>
<th>Total Sampling #</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>1,407</td>
<td>59.9</td>
<td>263</td>
<td>60.6</td>
<td>137</td>
<td>31.5</td>
<td>137</td>
<td>44.7</td>
</tr>
<tr>
<td>County</td>
<td>744</td>
<td>32.8</td>
<td>149</td>
<td>34.4</td>
<td>32</td>
<td>7.4</td>
<td>32</td>
<td>10.5</td>
</tr>
<tr>
<td>Exempted Village</td>
<td>108</td>
<td>7.3</td>
<td>21</td>
<td>5.0</td>
<td>14</td>
<td>3.3</td>
<td>14</td>
<td>4.6</td>
</tr>
<tr>
<td>Other*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>123</td>
<td>40.2</td>
</tr>
<tr>
<td>Total</td>
<td>2,259</td>
<td>100.0</td>
<td>306</td>
<td>70.7</td>
<td>306</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The responding population is further described in Table 21 as far as the type of teaching certificate held and age are concerned. It can be noted that 57.2 percent of the sample held provisional certificates, while only 4.9 percent or 15 of the 303 respondents answering this question held temporary certificates. While information concerning this present number of industrial arts teachers in Ohio who hold temporary certificates indicates about 10 percent, then, the sample would appear to be light in this respect. Eighty-nine or 29 percent of the respondents held permanent certificates; another twenty-six or 8.6 percent indicated their certificate as being an eight year professional certificate.
Fig. 8.—Distribution of Random Sample by School System.
<table>
<thead>
<tr>
<th>Certificate Held</th>
<th>0-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-19</th>
<th>25+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IA</td>
<td>Other</td>
<td>T</td>
<td>IA</td>
<td>Other</td>
</tr>
<tr>
<td>Temporary</td>
<td>11</td>
<td>1</td>
<td>12</td>
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</tr>
<tr>
<td>Provisional</td>
<td>59</td>
<td>7</td>
<td>66</td>
<td>61</td>
<td>-</td>
</tr>
<tr>
<td>Eight Year</td>
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<td>-</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Professional</td>
<td>3</td>
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<td>4</td>
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</tr>
<tr>
<td>Permanent</td>
<td>75</td>
<td>9</td>
<td>84</td>
<td>79</td>
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Total: 54
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<th></th>
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<th></th>
</tr>
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<td>3</td>
<td>10.5</td>
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<td>2.9</td>
<td>2</td>
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<td>2</td>
</tr>
<tr>
<td>Provisional</td>
<td>22</td>
<td>81.4</td>
<td>37</td>
<td>77.0</td>
<td>57</td>
<td>51.3</td>
<td>13</td>
<td>33.3</td>
<td>13</td>
</tr>
<tr>
<td>Eight Year Provisional</td>
<td>1</td>
<td>3.7</td>
<td>-</td>
<td>-</td>
<td>4</td>
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<tr>
<td>Permanent</td>
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<td>3.7</td>
<td>6</td>
<td>12.5</td>
<td>9</td>
<td>12.7</td>
<td>10</td>
<td>27.1</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>48</td>
<td>72</td>
<td>37</td>
<td>39</td>
<td>28</td>
<td>18</td>
<td>34</td>
<td>303</td>
</tr>
</tbody>
</table>
The investigator would question the accuracy of the information provided with reference to one respondent who indicated possession of a permanent teaching certificate with but four years of teaching experience. The permanent certificate requires more than four years to acquire.

Further evidence of the deterioration in the supply of prepared industrial arts teachers can be seen by noting that 93 percent of the temporary certificated industrial arts teachers were under forty-four years of age; two-thirds less than thirty-four. The teaching experience of this group was somewhat less than that of the total population average of 9.2 years also.

Concerning the age of the respondents, almost one-half were 34 or under and while the 30-34 age group numbered 72, other age groups were relatively equally represented with the further exception of the 50-54 group which numbered but 18. The average for the entire population was 37.5 years of age.

The abrupt drop in numbers between the 30-34 and 35-39 age groups would seem to indicate a mass exodus of some kind from industrial arts teaching, perhaps into administrative positions or away from teaching completely.

With reference to their connections with teacher education institutions over the past five years, the respondents indicated a rather diverse pattern of such contacts as can
be seen in Table 22. It does appear, however, that industrial arts teachers in the field are associated with institutions of higher learning in many ways other than undergraduate and graduate work. The order of frequency cited shows "conventions" as being the highest single connection of teachers to teacher education institutions (161) with industrial arts clubs following closely behind (156)—neither are mandatory for professional or salary advancement. Sports, graduate work, field trips, and workshops were all mentioned by more than one-third of the respondents. Changes occur concerning the type of connection or contact held with the teacher education institution with the aging of the respondent. While two-thirds of the 20-24 age group cited undergraduate work, for example, only 11.6 percent of the 55 and over group indicated such a contact. Extension work diminished in importance as a contact much the same way. Connections as a cooperating teacher increased from 15.2 percent in the 20-24 age group to 40.8 percent in the fifty-five and over group; conference attendance and participation increased with age also; 15.2 percent of the 20-24 age group attended; 61 percent of the fifty-five and over group. These differences were significant at the .05 level of confidence utilizing the chi-square test for two independent samples. Contacts through the industrial arts clubs remained high throughout the career of the teacher. Graduate
**TABLE 22**

**CONNECTIONS WITH A COLLEGE OR UNIVERSITY DURING THE PAST FIVE YEARS INDICATED BY 306 RESPONDENTS**

<table>
<thead>
<tr>
<th>Contact with College</th>
<th>Age Group</th>
<th>#</th>
<th>%</th>
<th>#</th>
<th>%</th>
<th>#</th>
<th>%</th>
<th>#</th>
<th>%</th>
<th>#</th>
<th>%</th>
<th>#</th>
<th>%</th>
<th>#</th>
<th>%</th>
<th>Total</th>
<th>Rank</th>
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<tbody>
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<td>N=98</td>
<td></td>
<td>N=73</td>
<td></td>
<td>N=38</td>
<td></td>
<td>N=39</td>
<td></td>
<td>N=28</td>
<td></td>
<td>N=18</td>
<td></td>
<td>N=34</td>
<td>N=306</td>
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<tr>
<td>Undergraduate work</td>
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<td>65.2</td>
<td>23</td>
<td>47.8</td>
<td>21</td>
<td>28.7</td>
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<td>15.7</td>
<td>7</td>
<td>17.9</td>
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<td>14.2</td>
<td>2</td>
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<tr>
<td>Extension work</td>
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<td>11.4</td>
<td>5</td>
<td>10.4</td>
<td>8</td>
<td>10.9</td>
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<td>13.3</td>
<td>6</td>
<td>15.3</td>
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<td>3.5</td>
<td>1</td>
<td>5.5</td>
<td>2</td>
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<tr>
<td>Cooperating Teacher</td>
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<td>15.2</td>
<td>12</td>
<td>28.9</td>
<td>16</td>
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<td>14</td>
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<td>79</td>
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<td>Conference Attendant</td>
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<td>28.9</td>
<td>28</td>
<td>38.3</td>
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<td>26.2</td>
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<td>42.5</td>
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<td>35.7</td>
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<td>61.3</td>
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<td>50.0</td>
<td>10</td>
<td>29.2</td>
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<tr>
<td>Functions</td>
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<td>15.4</td>
<td>9</td>
<td>18.7</td>
<td>14</td>
<td>19.1</td>
<td>6</td>
<td>15.7</td>
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<td>10.2</td>
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<td>47.1</td>
<td>14</td>
<td>35.8</td>
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<td>24.9</td>
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<td>61.7</td>
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<td>50.0</td>
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<td>53.8</td>
<td>12</td>
<td>42.8</td>
<td>7</td>
<td>38.8</td>
<td>15</td>
<td>43.8</td>
<td>161</td>
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<td>Workshops</td>
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<td>41.8</td>
<td>24</td>
<td>50.0</td>
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<td>58.9</td>
<td>14</td>
<td>36.6</td>
<td>10</td>
<td>25.6</td>
<td>13</td>
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<td>50.0</td>
<td>10</td>
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<td>12.3</td>
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<td>15.3</td>
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<td>7.1</td>
<td>3</td>
<td>16.6</td>
<td>2</td>
<td>5.8</td>
<td>39</td>
</tr>
<tr>
<td>Amunmi Day/s</td>
<td>12</td>
<td>46.0</td>
<td>30</td>
<td>62.4</td>
<td>45</td>
<td>61.7</td>
<td>19</td>
<td>50.0</td>
<td>21</td>
<td>53.8</td>
<td>12</td>
<td>42.8</td>
<td>7</td>
<td>38.8</td>
<td>15</td>
<td>43.8</td>
<td>161</td>
</tr>
<tr>
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<td>20.8</td>
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<td>-</td>
<td>-</td>
<td>3</td>
<td>8.7</td>
<td>37</td>
</tr>
<tr>
<td>Social Func.</td>
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<td>30.4</td>
<td>12</td>
<td>24.9</td>
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<td>30.1</td>
<td>7</td>
<td>18.3</td>
<td>10</td>
<td>25.6</td>
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<td>17.7</td>
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<td>47.8</td>
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<td>34.0</td>
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<td>33.3</td>
<td>11</td>
<td>39.2</td>
<td>5</td>
<td>27.7</td>
<td>13</td>
<td>37.8</td>
<td>112</td>
</tr>
</tbody>
</table>
work seemed to hit a peak with the 30-34 age group (58.9 percent) and diminished from that point onward—only 30 percent of the oldest group citing such a contact with a teacher education institution. The difference between the 20-29 and fifty and over age groups relative to contact with teacher education institutions through graduate and undergraduate work becomes significant at the .01 level of confidence using, again, the chi-square test for two independent variables.

Workshops seemed to take the place of graduate work to a degree, for these connections increased until 30-34, decreased slightly until 45-49, then gained until 40.8 percent of the 55 and over age group were involved in workshop activities with a teacher education institution. Conventions—the highest frequency connection cited—were indicated by 38.8 percent of the population or more throughout the age groupings.

Alumni Day contacts were never cited by more than 18.3 percent of the respondents (those in the 35-39 age group) and faded badly afterward—only 5.8 percent of the fifty-five and over group indicating such a connection. Field trips were cited by one-third or more of all age groups with the exception of the 50-54 group (27.7 percent). Chi-square tests on these selected categories, however, failed to show differences to be statistically significant. Using rank correlation tests, total differences between age
groups were found not to be statistically significant. A correlation of .609 or a value of 63 indicated, for example, a substantial relationship between the 20-29 and 50 and over groups. Even so, it would appear that cognizance should be taken of the rank order of connections for each age group in proposing any organized recruitment program which is to make use of the industrial arts teacher in the field and is to be initiated by a teacher education institution. If it is found, for example, that the older industrial arts teacher is more effective as a recruiter, then efforts at the undergraduate level to make beginning teachers recruiters for their profession may be less effective than efforts directed at the older group through conventions, conferences, workshops, and Industrial Arts Clubs. This must await the interpretation of the data from the select group, however.

Table 23 indicates the total teaching effort of respondents over the past five years. While no total has been indicated because of overlapping, it can be readily noted that approximately one-third of the respondents had taught mechanical drawing at the ninth, tenth, eleventh, and twelfth grades, and wood at the same levels. Plastics, power mechanics, ceramics, and the crafts were each taught by fewer than 10 percent of the respondents at any given grade level; electricity/electronics and graphic arts by just over 10 percent of the respondents at any given level. While the data indicated 29.1 percent of the respondents
TABLE 23

SUBJECT AREAS WITHIN INDUSTRIAL ARTS TAUGHT BY RESPONDENTS
BY GRADE LEVEL DURING THE PAST FIVE YEARS
N=306

<table>
<thead>
<tr>
<th>Industrial Arts Subject Area</th>
<th>Grade Levels</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>7-8</td>
</tr>
<tr>
<td>General Shop</td>
<td>40</td>
</tr>
<tr>
<td>Mechanical Drawing</td>
<td>51</td>
</tr>
<tr>
<td>Electricity/Electronics</td>
<td>15</td>
</tr>
<tr>
<td>Power/Auto Mech's</td>
<td>2</td>
</tr>
<tr>
<td>Graphic Arts</td>
<td>15</td>
</tr>
<tr>
<td>Wood</td>
<td>58</td>
</tr>
<tr>
<td>Metal</td>
<td>32</td>
</tr>
<tr>
<td>Crafts</td>
<td>18</td>
</tr>
<tr>
<td>Ceramics</td>
<td>5</td>
</tr>
<tr>
<td>Plastics</td>
<td>22</td>
</tr>
</tbody>
</table>

taught general shop at the ninth grade level, only 15.3 percent taught it at the twelfth grade. The reverse trend seemed to be true with metals—10.4 percent teaching the subject as the lower level and 25.5 percent at the twelfth grade level.
Concerning the type of teaching certificate held and the subjects taught, Table 24 shows such a breakdown. Two-thirds of those emergency certificated industrial arts teachers had taught general shop during the past five years—a full 23 percent higher than any of the other three groups. Due to the limited size of the emergency certificated population, however, it becomes hazardous to make any further comparison with larger groups. The two areas most frequently taught by holders of all types of certificates continued to be, of course, mechanical drawing and wood.

Table 25, which depicts relationships between age and subjects taught, would seem to indicate a slight tendency for older teachers to avoid general shop teaching, for while approximately one-fifth of those fifty and over taught general shop, almost one-half of the 30-34 age group did so; the difference, however, was not statistically significant. The middle ages (30-49) found 28.7, 36.6, 35.6 and 35.7 of successive groups teaching electricity/electronics; only 11.6 percent of those fifty-five and over and 19.2 percent of those 20-24 taught this subject. All other subjects were taught equally by the various age groups and no trend concerning frequency can be noted. Based upon chi-square tests, differences which did exist were not statistically significant.
### TABLE 24

**AREAS WITHIN INDUSTRIAL ARTS TAUGHT DURING THE PAST FIVE YEARS BY THE TYPE OF CERTIFICATE HELD**

<table>
<thead>
<tr>
<th>Industrial Arts Subject Area</th>
<th>Temporary #</th>
<th>Provisional %</th>
<th>Eight Year Professional #</th>
<th>Permanent %</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Shop</td>
<td>10 66.6</td>
<td>75 43.3</td>
<td>8 30.4</td>
<td>18 20.1</td>
</tr>
<tr>
<td>Mechanical Drawing</td>
<td>7 46.6</td>
<td>110 63.5</td>
<td>20 76.0</td>
<td>52 58.2</td>
</tr>
<tr>
<td>Electricity/electronics</td>
<td>3 19.9</td>
<td>39 22.5</td>
<td>9 34.2</td>
<td>22 24.6</td>
</tr>
<tr>
<td>Power/Auto Mechanics</td>
<td>2 13.3</td>
<td>15 8.6</td>
<td>3 11.4</td>
<td>9 10.0</td>
</tr>
<tr>
<td>Graphic Arts</td>
<td>1 6.6</td>
<td>32 18.5</td>
<td>4 15.2</td>
<td>18 20.1</td>
</tr>
<tr>
<td>Wood</td>
<td>9 59.9</td>
<td>115 66.5</td>
<td>17 64.6</td>
<td>39 43.6</td>
</tr>
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<td>14 53.8</td>
<td>33 36.9</td>
</tr>
<tr>
<td>Crafts</td>
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<td>30 17.3</td>
<td>1 3.8</td>
<td>6 6.7</td>
</tr>
<tr>
<td>Ceramics</td>
<td>-</td>
<td>8 4.6</td>
<td>0 -</td>
<td>3 3.3</td>
</tr>
<tr>
<td>Plastics</td>
<td>1 13.3</td>
<td>27 15.6</td>
<td>4 15.2</td>
<td>12 13.4</td>
</tr>
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<td>20-24</td>
<td>25-29</td>
<td>30-34</td>
<td>35-39</td>
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<tr>
<td>-------------------------</td>
<td>-------</td>
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<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>General Shop</td>
<td>10</td>
<td>21</td>
<td>43.6</td>
<td>35</td>
</tr>
<tr>
<td>Mechanical Drawing</td>
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<td>46.0</td>
<td>27</td>
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<tr>
<td>Electricity/electronics</td>
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<td>19.2</td>
<td>6</td>
<td>12.4</td>
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<tr>
<td>Power/Auto Mechanics</td>
<td>2</td>
<td>7.6</td>
<td>7</td>
<td>14.5</td>
</tr>
<tr>
<td>Graphic Arts</td>
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<td>23.0</td>
<td>8</td>
<td>16.6</td>
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<td>Wood</td>
<td>17</td>
<td>65.2</td>
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<td>68.6</td>
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<td>38.4</td>
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<td>Crafts</td>
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<td>3.8</td>
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<tr>
<td>Ceramics</td>
<td>k</td>
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<td>2.0</td>
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<td>Plastics</td>
<td>1</td>
<td>3.8</td>
<td>6</td>
<td>12.4</td>
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</table>
It can be said at this point, then, that the age-subject taught relationship may have little meaning for a recruitment effort pending interpretation of later data. Professional memberships held by respondents may be highly significant when coupled with recruitment efforts of the teaching profession generally and industrial arts in particular. Table 26 would seem to indicate a very high membership in the Ohio Education Association (82.8 percent of the respondents). The Ohio Industrial Arts Association claimed nearly two-thirds of the respondents (62.3 percent) as members and the National Education Association just over one-half. The American Industrial Arts Association, the national professional organization for industrial arts education, had but 22.5 percent of the respondents as members over the past five years. Memberships held by respondents were erratic as far as age groupings were concerned. Epsilon Pi Tau, the international honor fraternity in industrial arts, enlisted 15.3 percent of the respondents. While 35.2 percent of the respondents indicated "other" professional memberships, these for the most part were local teachers associations, area industrial arts associations, and local industrial arts associations in that order. While area teacher education associations and other state teacher education associations accounted for a few, the remainder were coaches' organizations of one kind or another.
<table>
<thead>
<tr>
<th>Professional Organization</th>
<th>Age Group 20-24</th>
<th>25-29</th>
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As can be seen in Table 27, professional organization memberships broken down by type of certificate held shows nothing startling. Those holding temporary certificates participated less in the American Industrial Arts Association and the Ohio Industrial Arts Association than other groups, however, and were not represented in any honor fraternities listed. Their corresponding high frequency of membership in the American Vocational Association would lead one to the conclusion that some, at last, have entered industrial arts education through trade and industrial education or other vocational education areas such as vocational agriculture. This group compared favorably with others in participation in scouting and other community organizations, however.

Community organization membership and participation has been cited by various writers as being highly desirable among teachers. Table 28 indicates various community organization memberships and shows quite clearly the three most frequently reported agencies. Over one-half the respondents indicated membership in the local Parent-teacher Association. Such membership seemed to reach its peak in the 40-44 age group and was slightest in earlier and later years. Participation in scouting grew steadily until reaching a peak in the 45-49 age group (35.7 percent), and was indicated by a total of 16.3 percent of the respondents. The Masonic Order claimed 15.6 percent of the respondents as members. While
### TABLE 27

**PROFESSIONAL MEMBERSHIP HELD BY RESPONDENTS DURING THE PAST FIVE YEARS— BY TYPE OF CERTIFICATE HELD**

N=303

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**TABLE 28**

PARTICIPATION IN COMMUNITY ORGANIZATIONS BY RESPONDENTS DURING THE PAST FIVE YEARS, BY AGE GROUP.
21.5 percent of the respondents cited "other" community organizations, these were almost wholly youth organizations of one kind or another. Seven respondents indicated political positions in the community; three, membership in the volunteer fire department, and several others in the Moose, Eastern Star, and Veterans of Foreign Wars.

While Table 29 indicates leadership being exhibited to a high degree by the respondents in scouting activities, the absense of such leadership in the local Parent-teacher Association, which claimed more than 50 percent of the respondents as members, is somewhat surprising. Leadership in "other" organizations were given as being primarily in the local teachers association.

The Select Teacher-recruiter

Having looked generally at the average industrial arts teacher population, it would now seem appropriate that the last group being investigated as part of this study be treated. It was noted earlier that 180 or 58.7 percent of the majors now in teacher education programs for industrial arts education in the state of Ohio ranked the industrial arts teacher as being first or second as an influencing factor in their career choice. These students were asked to supply the investigator with the name and address of that teacher along with the subject taken with him--162 did so. Of these only eighty-four or 51.8 percent could be
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positively located using the present Directory of Industrial Arts Teachers in the state. In addition, although they were not used in the study, fifteen industrial arts teachers were located out-of-state, one in Canada, and two were trade and industrial education teachers. An additional six responses were excluded from these figures since the respondents mistakenly cited college industrial arts instructors rather than high school teachers of the subject.

A return of 82.1 percent of 69 instruments were obtained from respondents in this group. Since the Table of Sample Size Required for Confidence Limits and Specified Reliability Limits does not treat populations under 500 in size and the formula used loses its accuracy when the universe goes below 500, it must be assumed that the sixty-nine responses nearly represents the eighty-four industrial arts recruiter-teachers found in Ohio. The source of such returned instruments is indicated in Figure 10 as far as the type of school system is concerned; nearly two-thirds were from city industrial arts teachers—only 7.3 percent from exempted village systems.

The chi-square test for two independent samples has been used throughout this section of Chapter III to determine significance with respect to the likenesses and differences of the two groups of industrial arts teachers. In comparing the age groups found within each population surveyed (the
Fig. 9.--Source of Select Teacher-Recruiter Sample by Type of School System.
average industrial arts teacher and the "recruiter"), it will be noted in Figure 10 that while 24.7 percent of the average group were to be found in the 20-29 age range; only 10.1 percent of the cited recruiters were represented in this range. At the other end of the age continuum, one-third of the select recruiter group were fifty years of age and over while but 17.1 percent of the average group were represented in this grouping. The representation of both populations within the age brackets 30-49 were approximately the same. The differences in age between the two groups appear highly significant at the .01 level of confidence. It would appear that the effective industrial arts teacher-recruiter is a mature, experience teacher rather than a younger man. His average age was 41.8; that of the average population of industrial arts teachers, 37.5. The probability that a recruiter would be found in the 20-29 age group is therefore only one in three, while these odds are reversed for the fifty and over age group. The implications here for any coordinated recruitment effort in Ohio would seem to be evident: since the mature industrial arts teacher is a more effective recruiter, the profession can and should attempt to make him even more effective and efficient; means will be discussed in Chapter IV.

Further support for the thesis of maturity and teaching experience being pivotal in recruitment efforts of
Fig. 10.—Comparison of Age Distribution of Average and Select Groups of Industrial Arts Teachers.
teachers can be seen in Figure 11 which shows one-third of the select group having taught for twenty years or more, while only 17.8 percent of the average group reported such extensive teaching experience. Only one recruiter (1.4 percent) had taught fewer than five years--27.8 percent of the comparable group of average teachers fell into this category.

Teaching experience, then, would also seem to be a positive ingredient in effective recruitment efforts of industrial arts teachers. The average teaching experience of the select group was 13.2 years; that of the average industrial arts teacher, 9.2 years. It should be mentioned at this juncture that all but one of the select respondents or 98.6 percent indicated they were career industrial arts men and had not transferred from another subject area into industrial arts teaching. It will be recalled that sixteen or 5.3 percent of respondents to this question from the average group had been transfer teachers; that is, teachers who had left another subject field for industrial arts education.

The difference then between the select and average groups of industrial arts teachers was statistically highly significant at the .01 level of confidence with respect to teaching experience. This would seem to reflect the maturity of the select group as it was noted earlier.
Fig. 11.—Comparison of Teaching Experience of Average and Select Groups of Industrial Arts Teachers.
Figure 12 reflects still another aspect of the maturity and teaching experience of the select group. Nearly one-half the select group possessed a permanent teaching certificate—approximately three-tenths of the average population of industrial arts teachers held such a certificate. Of further interest was the complete absence of temporary or emergency certificated teachers in the recruiter group. With the growing number of emergency certificated industrial arts teachers, this could have a serious effect upon present recruitment efforts or a proposed program of recruitment involving industrial arts teachers. In any event the differences noted with respect to teaching certificates was statistically highly significant at the .01 level of confidence.

Identified in Figure 13 are the subject areas within industrial arts taught by the comparable groups of industrial arts teachers. In terms of frequency rating or ranking, the order is similar for both. The order is the same for the first four areas with both groups: mechanical drawing, wood, metal, and general shop. There was, however, a small difference percentage-wise indicating mechanical drawing and metals as being slightly more prevalent with the select group. While general shop was taught more frequently by 7.8 percent. The Chi-square test indicated no significant difference between the two groups; even selection of those
Fig. 12.—Comparison of the Type Teaching Certificate Held by Average and Select Groups of Industrial Arts Teachers.
Fig. 13.--Comparison of Industrial Arts Subjects Taught by Average and Select Groups of Industrial Arts Teachers.
categories where greatest differences existed resulted in no significant difference.

With reference to grade levels taught there was little difference between the two groups with the exception that mechanical drawing was taught by an equal number of select respondents at both the ninth and twelfth grades while the average population diminished by 15 percent between these two grades; wood was a second area in which the frequency dropped slightly with the average population while increasing by 25 percent at the twelfth grade level for the selected group. Areas which showed higher frequency at the twelfth grade than at the ninth grade were electricity/electronics, power, graphic arts and metals; all other decreased in frequency with both groups.

Of the select respondents, twenty taught only one subject. Thirty-five percent of these teachers (or seven) taught mechanical drawing, 25 percent metal, and one-fifth, wood. The remaining respondents, those who taught more than one subject, were asked to indicate whether any one of these two or more subject areas lent themselves better to recruitment efforts. Thirty-two of this group or 65.3 percent responded in the affirmative. Figure 14 depicts the opinions of the group; two-fifths believed mechanical drawing was more helpful than other subject areas; 34 percent cited wood—only 311 percent cited electricity/electronics as most effective.
Fig. 14.—Subject Areas Lending Themselves to Recruitment Purposes as Indicated by 32 Respondents, 1965-1966.
Comparable contacts of respondents with teacher education institutions are shown graphically in Figure 15. While there was less contact by the select group with colleges through undergraduate work, collegiate services, and fraternity and social functions, there was more contact by this group in most other areas. Nearly two-thirds of the select group, for example, cited conventions as a connection with a college during the past five years; only one-half of the average population indicated such a contact. More than 8 percent more of the select group had contact through field trips than did the average group and 9 percent more of the select group were active in industrial arts clubs than the average group. Statistically, for all categories, there was no significant difference found between the two groups. Treated as separate groups, even characteristics such as undergraduate work, graduate work, conventions, and field trips barely approached significance at the .10 level of confidence.

While contacts indicated by both groups were roughly parallel, those felt to be helpful in recruitment efforts of the select group can be noted in Figure 16. Only twenty-two, or one-third of those having any contact at all with teacher education institutions during the past five years, responded to this qualitative question. Industrial arts clubs, with 31.8 percent, and conventions, with 27.3 percent,
Contact

Undergraduate Work
Extension Work
Cooperating Teacher
Conference Attendant
Conference Member
Industrial Arts Club
Sports Functions
Collegiate Services
Graduate Work
Workshops
Conventions
Alumni Days
Fraternity Functions
Social Functions
Field Trips
None

Select Group
Average Teacher

Fig. 15.—Contacts with Institutions of Higher Education by Select and Average Industrial Arts Teachers During the Past Five Years.
Fig. 16.—College Connections Cited as Having Proven Helpful to Recruiters as Indicated by 22 Respondents.
were the two most frequently indicated as being helpful to recruitment. Surprisingly, graduate work was cited by only 9 percent (two respondents)—undergraduate work, not at all. Field trips were indicated as helpful by only three or 13.6 percent of those responding. One respondent indicated "all" contacts helpful; one, "none."

It becomes evident that the many contacts had by industrial arts teachers in the field to teacher education institutions are not being utilized to the degree possible by the profession for recruitment purposes. This would seem particularly true for field trips and industrial arts clubs both of which involve high school students. Figure 17 indicates professional membership held by the comparable groups of industrial arts teachers. With the exception of the American Vocational Association, the select group held more such membership. Even though the following differences existed, the total difference between the two groups was not statistically significant. The most evident and largest difference in membership was in the Ohio Industrial Arts Association. More than three-fourths of the select group indicated they belonged to the OIAA while only 62.3 percent of the average group held such membership. The select group was also represented in the National Education Association by more than an 11 percent higher frequency than the average group. When treated as a separate group, the differences between the two groups of teachers with reference to these
Fig. 17.—Professional Memberships Held During the Past Five Years by Select and Average Industrial Arts Teachers, 1965-1966.
two categories, along with that of the Ohio Education Association, approached significance at the .10 level of confidence. Just over three-tenths of the select group belonged to the American Industrial Arts Association while 22.5 percent of the average group did. There were only 4.3 percent of the select group of respondents not holding any professional memberships while over 7 percent of the average group indicated no such memberships.

When questioned as to the aid professional memberships had lent to recruitment efforts, 18 or 27.2 percent of the sixty-six having such memberships indicated they had been helpful. Over two-thirds cited the Ohio Industrial Arts Association as being helpful while four-fifths of the remainder indicated the national or local industrial arts associations as helpful. Figure 18 describes this graphically. What may be more significant is the fact that nearly three-fourths of the respondents felt that professional organizations had NOT been helpful in their recruitment efforts.

The data then, would seem to give indications that the select group is "professionally minded" to the extent that they are members of professional organizations more often than the average teacher. The OIAA in particular would seem to have the support of this group as well as substantial support from the average teacher in the field. When searching for a vehicle for recruitment programs, it would seem
Fig. 18.—Professional Memberships Judged to be Effective in Helping Recruiters as Indicated by 18 Respondents.
wise to include the OIAA as well as the OEA and NEA—all of which are capable of reaching their memberships.

The supposition that the effective recruiting teacher is deeply involved in his community would seem to be open to question from the data received. Figure 19 shows little difference between the average teacher and the effective recruiter concerning community memberships with the exception of membership in the Masonic Order. Statistically, there was no significant difference between the two groups of teachers. Nearly 4 percent fewer of the select group held no community memberships than the average group, but this again, was not a significant figure. It is interesting to note the high frequency of membership in the Parent-teacher Association among both groups of industrial arts teachers. Among "others" community organizations, youth groups held the most allegiance—the remainder were various and diverse groups such as Grange, Moose, Veterans of Foreign Wars, Eastern Star, volunteer fire departments, and the like. The high percent of membership in the PTA offers great opportunity for industrial arts recruiters to affect positively the parents of students being actively recruited for industrial arts teaching.

Finally, the select group was asked to indicate what they believed had been instrumental in making them effective recruiters of students for industrial arts teacher education.
Fig. 19.--Community Memberships Held During the Past Five Years by Select and Average Industrial Arts Teachers.
While seventeen or 24.6 percent did not take the opportunity presented to them to express themselves concerning this question, those who did respond cited three general aspects of recruitment: professionalism, the student-teacher relationship, and the industrial arts program itself. It was generally believed by the respondents that setting a good professional example through dedication to their profession influenced their students to emulate them to the point of considering teaching industrial arts as a profession. A second group were of the opinion that the student-teacher relationship was most important in that rapport with students and ability in vocational guidance were clearly related. This group apparently made a conscious effort to seek and recruit boys who had the potential to become successful industrial arts teachers. The last general category into which answers fell was the industrial arts program itself. Respondents indicated that a successful program which created an understanding of what industrial arts was trying to accomplish and a respect for the subject area was the best recruitment aid they could have. In addition to these three general categories of answers, a few respondents cited their connection with a teacher education institution as most helpful; one his position as head of the industrial arts department, and one the higher salaries he felt industrial arts teachers received.
An adverse comment by one of the respondents centered around the apparent lack of academic ability of his students. One respondent claimed credit for recruitment of TWELVE students into industrial arts teacher education in the past three years; two others, four and five respectively.

Summary

From a sample of 69 or 82.1 percent of those industrial arts teachers located in Ohio who were cited as an influential factor in the career choice of present industrial arts majors, nearly two-thirds represented city school systems. Comparing the select population to the established norm or average teacher, it was determined that—

1. The recruiter-teacher tended not to be in the 20-29 age groups, but rather to be found in the fifty and over age groups. This age differential was statistically significant at the .01 level of confidence.

2. The teacher-recruiter tended to have a good deal of teaching experience with one-third having twenty years or more of such experience; this was also significant at the .01 level of confidence.

3. Their teaching experience tended to be wholly in industrial arts education—only one transfer teacher was reported.

4. Approximately one-half of the selected group possessed a permanent teaching certificate—none a temporary
or emergency certificate; the differences were significant at the .01 level of confidence.

5. Mechanical drawing, wood, metal, and general shop in that order were the subjects most often taught by recruiters as well as the average teacher. There was no significant difference between the two groups.

6. Those teaching more than one subject cited mechanical drawing and wood as most helpful in recruitment.

7. The select group had more contact with teacher education institutions—particularly in the areas of cooperating teacher, industrial arts clubs, field trips, and conventions. Even so, the difference was not statistically significant as a whole. Significance was approached at the .10 level with reference to the categories cited.

8. The group cited industrial arts clubs and conventions as most helpful to recruitment efforts.

9. The select group had more professional memberships than the average particularly in the Ohio Industrial Arts Association and the National Education Association. Again the total difference was not statistically significant, but these categories approached significance at the .10 level.

10. The group cited the Ohio Industrial Arts Association as the most helpful in recruitment.

11. There was no significant difference between the groups relative to their community memberships.
12. Select respondents cited professionalism, the student-teacher relationship, and the industrial arts program itself as having made them effective recruiters for their profession.

13. There was some indication that the select group did not know just what had made them successful recruiters.

Summary

In order to gain some picture of the tangible characteristics of the industrial arts majors now in college and the factors which had influenced them to select industrial arts education as a career; and to further determine the uniqueness, if any, of the industrial arts teachers cited as recruiters by such majors, three separate surveys were undertaken and completed. The initial one concerned the industrial arts major now in a teacher education program in the state of Ohio, the second, a stratified, random sample of industrial arts teachers in the field; and the last, the group of select teacher-recruiters in Ohio cited by industrial arts majors.

The data concerning the industrial arts major, obtained from a sampling of 310 respondents representing seven institutions indicated that—

1. Two-thirds were between twenty and twenty-nine, 4 percent over thirty, the remainder nineteen and under.
2. Forty-two percent did not enter college with industrial arts teaching as a career goal.

3. Approximately 13 percent of the 130 respondents had no career goal at all upon entering college; another 13 percent, "engineering."

4. Twenty-nine percent of the respondents did not enter college directly after high school graduation—
   a) The career choice of this group was less diverse than those entering college directly from high school.
   b) This group, in almost three cases out of four, came from industrial employment; 9 percent came from military service.

5. The industrial arts teacher far outweighed any other person as the most influential in affecting the career choice of the 310 respondents; other persons rated effective were parents, friends, and counselors in that order.

6. Parental influence upon career decision waned with those who entered college after a time lapse; friends influence conversely increased.

7. Eighty-one percent of the 310 respondents had had industrial arts in high school while the national average is approximately 55 percent.

8. This group reported mechanical drawing, wood, general industrial arts, and metals in that order as subjects most frequently taken.
9. Mechanical drawing "held" more students throughout the high school years than did other subject areas; that is, the attrition rate was considerably higher in other subject areas of industrial arts.

10. Mechanical drawing and wood were taken most often by those ranking the industrial arts teacher as the first or second most influential person with reference to their career choice.

11. Ninety-five percent of the respondents reported that their high school provided opportunities to participate in Future Teachers of America Clubs, Industrial Arts Clubs, Career days, and/or field trips to teacher education institutions--participation was light; there was no correlation between having chosen industrial arts as a career and participation in any recruitment program.

12. Ninety percent of the respondents had had some contact with a teacher education institution prior to enrolling in one. Sports, career days, and college speakers were mentioned most frequently as such contacts.

The second group, industrial arts teachers in the field, were surveyed in order to establish a norm for comparison with the select group of teacher-recruiters cited by industrial arts majors. A stratified, random sample of 433 was taken from a total population of 2,259 industrial arts teachers in the field by city, county, and exempted village
school systems. The percentage of return was large enough to describe the total population very nearly at the .05 level of confidence. Of the 306 or 70.7 percent returned, 123 were unidentified with reference to the type of school system due to obliteration of the coding by the respondents. No follow-up was done with this population.

When compared with the select population of 69—an 82.1 percent return from an identified population of 84 industrial arts teachers in the state of Ohio—the following findings were made:

1. The recruiter-teacher tended NOT to be in the 20-29 age groups, but rather in the fifty and over bracket. The difference was highly significant at the .01 level of confidence between the two groups of teachers.

2. The teacher-recruiter tended to have a good deal of teaching experience; one-third had twenty years or more of experience as a teacher.

3. Their teaching experience tended to be wholly in industrial arts education; they were career industrial arts teachers. Only one transfer was reported from another subject to industrial arts education.

4. Permanent teaching certificates were held by approximately one-half of the selected group; there were no temporary certificated industrial arts teachers in the recruiter group. The difference between the two groups was highly significant at the .01 level of confidence.
5. Mechanical drawing, wood, metal, and general shop respectively were the subjects most often taught by recruiters as well as the average population. No significant difference existed between the groups.

6. Those teaching more than one subject cited mechanical drawing and wood as most helpful to their recruitment efforts.

7. Although not statistically significant, the select group had more contacts with teacher education institutions—particularly in the areas of cooperating teachers, industrial arts clubs, field trips, and conventions.

8. The select group cited industrial arts clubs and conventions as most helpful in their recruitment efforts.

9. Although the select group held more professional memberships than the average population of industrial arts teachers, the difference was not statistically significant. Significance was approached at the .10 level of confidence in the case of the Ohio Education Association, National Education Association and the Ohio Industrial Arts Association.

10. The select group cited the Ohio Industrial Arts Association as the most helpful in their recruitment efforts.

11. No significant difference existed between the two groups relative to community memberships.
12. Select respects cited professionalism, the student-teacher relationship, and the industrial arts program itself as having made them most effective as recruiters for their profession.

Thus it becomes clear that the industrial arts teacher plays a definite, positive role in the recruitment of students for industrial arts teacher preparation, and that the group of recruiter-teachers differs significantly in a number of respects from the average industrial arts teacher in the field. He may be characterized as an older teacher who has had a good deal of teaching experience, all in industrial arts education, and the holder of a permanent teaching certificate. He tends to be "professionally minded" and has close associations with a teacher education institution particularly through industrial arts clubs, conventions, field trips and his role as a cooperating teacher. The chances are good that he will be a teacher of mechanical drawing or woodworking.

Chapter IV will make an effort to utilize what has been learned in Chapter III in the design of an effective recruitment program for the state of Ohio.
CHAPTER IV

PROJECTED PROGRAM OF RECRUITMENT

Introduction
On the basis of the findings cited in Chapter III, the investigator will at this point project a cooperative recruitment effort for industrial arts teachers in the state of Ohio. It should be pointed out here that this entire study has been structured about tangible or discernible factors relative to recruitment rather than intangibles such as the attitude or personality of the industrial arts teacher and/or industrial arts teacher education students. It should also be noted that what is about to be proposed could, in all probability, be projected to any given state with little alteration. The program is not of an idealistic nature, but rather a practical, workable plan. Its success is dependent, of course, upon individuals and as such demands the cooperative, unified and concerted effort of the profession.

Assigned Responsibilities
What follows, then, are assigned tasks for the high school principal, high school industrial arts teacher, the industrial arts specialist in the State Department of
Education, teacher education departments of industrial arts in the colleges in the state, and professional organizations. Prior to each set of recommendations appears the finding upon which they are based; the complete listing of findings were reported at the conclusion of the previous chapter. In some cases recommendations have been separated into short-range and long-range goals for the various constituents.

The initial set of recommendations is based upon data received from the industrial arts majors now in colleges in Ohio for industrial arts teacher preparation. Following their presentation an additional group of recommendations will be presented based upon the characteristics of the successful industrial arts recruiter-teacher.

Teacher Education Institutions

The industrial arts department chairman should assume the following responsibilities or assign a responsible staff member to coordinate such efforts.

**Short range goals**

Because 42 percent of present industrial arts majors entered college with a career other than industrial arts or none at all in mind,

1. Opportunity should be sought to recruit through introduction to education type courses in the college of education.
2. Freshman counselors in the colleges of engineering and liberal arts should be informed of the critical need for industrial arts teachers and the necessary prerequisites for entering the field.

3. Freshman industrial arts majors should be informed of the supply and demand situation in their field and provided with written materials because of their influence upon peers.

4. Cooperating teachers in mechanical drawing in particular (and at the 12th grade level) should be informed that students entering college for engineering can enter industrial arts teachers preparation if they find they are dissatisfied with engineering.

5. Industrial arts education should be published on campus via posted materials in the Student Union Building, dormitories, and fraternity houses; through the sale of mass produced items made as part of industrial arts students' preparation, news items in the college newspapers; participation by industrial arts students in special projects; and other means peculiar to the individual campus.

6. Outgoing industrial arts seniors should be informed of their influence on senior high school boys relative to the career choice of such boys.

7. As part of the incoming student's record, the referring industrial arts teacher should be recorded for
reward upon the graduation of his student (to be mentioned later).

8. All present industrial arts majors should be surveyed to determine those sent by industrial arts teachers; the teacher's name should be recorded and as the student graduates, the teacher concerned should be rewarded.

9. If possible, determine from incoming a student's records those whose career decision has not been firmly made. Contact those men having the necessary prerequisites for industrial arts teaching through present industrial arts students, staff members, and by other means as they seem appropriate.

10. Provide Future Teachers of America Clubs and Chapters with pertinent information concerning industrial arts teaching as a career.

11. Initiate an on-campus open house for any interested students; this could be done in conjunction with invitations to teachers in the field to bring interested students to campus. Utilize industrial arts students as "guides."

Long-range goals

1. Attempt to initiate as an elective course in general education, a course with technology for partial use in recruitment efforts.
2. Plan frequent professional and social activities to build "esprit de corps" for industrial arts students—have them invite friends periodically.

3. Build an effective, efficient, and harmonious staff.

Since 29 percent of the respondents did not enter college directly after high school graduation and 72 percent of this group came from industry:

1. Contacts should be initiated with personnel directors of local industries offering entrance-type employment informing them of the demand for industrial arts teachers. They should also be provided with bulletin board materials and fliers for enclosure in pay check envelopes.

2. Financial aid possibilities should be provided for industrial arts students in the form of work scholarships and grants.

3. Evening and part-time extension programs should be offered.

4. Military discharge centers in the state should be contacted and provided with information relative to industrial arts teaching as a career.

Because the industrial arts teacher was by far the most influential in the career choice of present industrial arts majors
Short-range goals

1. The effective industrial arts recruiter-teacher should be rewarded by his profession. The teacher education department can:

   a. Provide free tuition for a course at the college.

   b. Initiate a letter of appreciation from the profession for his professional efforts; a copy should be sent to his building principal and school superintendent.

   c. Publicly recognize the teacher in professional bulletins, news letters, and other graphic communication sent periodically to teachers in the field.

   d. Award a certificate of recognition; provide a small professional gift.

2. Undergraduate and graduate students should be made aware of their professional responsibility relative to recruitment as well as their effectiveness as recruiters.

3. Industrial arts teachers in the field should be put on a mailing list and continually supplied with recruiting materials.

Long-range goals

1. A close relationship should be built by industrial arts departments and teachers in the field through a regular newsletter, supervising teachers, visits by college personnel, alumni days, and other appropriate means.
2. An "esprit de corps" should be built while in college between teacher educators and future industrial arts teachers.

Since parents, friends, and counselors were also ranked as influential in career choice of industrial arts majors

1. Freshmen industrial arts majors should be given the opportunity to return to their high school as part of their industrial arts orientation course to act as recruiters for friends still there.

2. Constant positive publicity should be aimed at parents of high school youth.

3. Counselors, both high school and college, should be provided with recruitment materials and information by mail or through graduate courses in guidance.

Based upon the findings that 81 percent of the industrial arts majors surveyed had had industrial arts while in high school while the national average was approximately 55 percent

1. It should be made known to graduate and undergraduate students the positive effect of high school industrial arts courses upon career choice in industrial arts education.

2. Materials should be initiated by teacher education departments to help the industrial arts teacher in the field
to initiate industrial arts courses which will attract college-bound students ("Materials Processing," "Research and Experimentation," "Manufacturing," and others).

3. The function of the supervising teachers should be taken advantage of to cultivate recruitment efforts with high school students in the high school laboratory or classroom setting.

4. The student teacher should be provided with enough materials and facts so that he may in turn recruit if the opportunity presents itself during his stay at a high school.

5. Twelfth grade mechanical drawing and woodworking teachers should be singled out whenever possible for recruitment purposes.

Since 95 percent of the respondents indicated their school had offered either Future Teachers of America Clubs, Industrial Arts Clubs, field trips to teacher education institutions, or career days and their participation was very light

1. Such recruitment efforts as existed at the high school should be supplied with as much material and information concerning industrial arts education as possible by mail, college personnel visits, visiting industrial arts student-teachers, through the industrial arts teacher in the school, and by the high school counselor and principal.
2. The high school Industrial Arts Club should seek ties with the teacher education department as the situation permits through open-houses, tours, visits, contests, and so forth.

3. The importance of these clubs and trips as recruiting tools should be made clear to the industrial arts teacher in the field in order that he may take advantage of them by encouraging promising industrial arts students to participate.

Because 90 percent of the respondents had had some contact with a teacher education institution prior to enrolling in one (through sports, career days, college speakers, and others)

1. Displays and informative materials should be prominently placed along with the telephone number or address of the industrial arts department and/or inquiry blanks in order to reach students who may be on campus for other reasons.

2. Industrial arts speakers should be freely supplied to high school groups.

3. High caliber industrial arts students to act as guides should be provided visiting groups; student activities should be planned for such visitors.
While it can be seen that the teacher education institution must carry the initiative in recruitment efforts, these efforts are futile without the cooperation and active participation of the industrial arts teacher in the field. A set of recommendations based upon the same group of findings indicated above shall now be proposed for the industrial arts teacher.

The Industrial Arts Teacher

As his part in a cooperative effort to bring the supply of industrial arts teachers into closer balance with the demand for such teachers, the industrial arts teacher in the field should—

1. Make his recruitment efforts with mechanical drawing students in particular and particularly at the twelfth grade level.

2. Make use of his ties with the Parent-Teacher Association and other formal and informal meetings with parents (such as in adult education) to favorably impress them with the attractiveness of industrial arts teaching as a career for their sons.

3. Constantly inform and work with high school counselors and provide them with information concerning the needs of the profession.

4. Promote field trips by class or with selected individuals to industrial arts teacher-education facilities,
to professional meetings, open-houses, career days, and to other high school industrial arts facilities.

5. Initiate attractive industrial arts courses for the college-bound high school student to elect such as "Research and Experimentation," "Materials Processing," and others.

6. Actively recruit good high school students into the high school industrial arts program.

7. Actively participate in their professional organizations.

The department chairman has the responsibility to see to it that his staff understands the importance of their role in affecting career decisions of industrial arts students.

The State Department of Education Specialist in Industrial Arts Education

The State of Ohio is fortunate to have within the State Department of Education a specialist for industrial arts education. Many efforts have been made in the past by this office to generally improve the situation for industrial arts in the state. His role in the recruitment of future industrial arts teachers is also important and is seen by the investigator to be

1. Encouragement of Ohio colleges to grant full credit for college entrance for units of high school work in industrial arts.
2. Constantly promoting industrial arts at all levels, but particularly at the high school level.

3. Take the initiative in informing counselors of the crisis which exists in industrial arts education because of the lack of recruits for industrial arts teaching.

4. Inform principals of this crisis also so that they may in turn apply pressure to their counselors.

5. Dispelling the myth concerning "required" high school subjects for college entrance in Ohio.

The Professional Organizations

As their part in the total recruitment effort for industrial arts teachers the professional organizations at all levels have a large stake. The perpetuation of the profession on a high level should be one of the prime concerns of such organizations.

When speaking of "professional organizations" it should be understood that reference is being made in particular to the national industrial arts professional organization, the American Industrial Arts Association; the state organization, the Ohio Industrial Arts Association; the district professional organizations such as the Central Ohio Industrial Arts Association; and to local industrial arts organizations based upon political divisions of city, county, or exempted village. Also capable of playing a leading role in recruitment efforts of the profession is the
national honor fraternity in industrial arts education, Epsilon Pi Tau. While some are more capable financially to carry out recruitment efforts than others, all generally speaking should seek to

1. Support and actively promote the Industrial Arts Club Movement in Ohio.

2. Continue supplying special materials for recruitment purposes to teachers in the field and teacher education institutions.

3. Publish national, state, and local newsletters in which to communicate the need for industrial arts teachers and in which to cite successful recruiters.

4. Make frequent provision for high school student guests at meetings, conventions, contests, and so forth.

5. Utilize annual conventions to obtain mailing lists for future recruitment efforts (letters to students who attended); these can be forwarded to teacher education institutions also.

6. Produce state or local films for showing at PTA meetings and school assemblies; these may recruit students into both high school industrial arts or industrial arts teacher education or both.
The High School Principal

The high school principal and the counselor are the only two professionals involved in the proposed program of recruitment who are not members of the industrial arts profession specifically. The effect is, of course, that their efforts are spasmodic and diverse rather than continuous and direct. Nevertheless the high school principal does play an important role in supporting the recruitment efforts of the professional industrial arts person in his building. As a part of such support, the high school principal should

1. Inform the high school counselor of the critical shortage of industrial arts teachers in the state of Ohio.

2. Publicly recognize the effectiveness of the industrial arts teacher as a recruiter for his profession.

3. Encourage an Industrial Arts Club in his high schools.

4. Encourage college-bound students to take industrial arts courses.

5. Permit the industrial arts teacher to initiate new, attractive courses for the college-bound students.

6. Tear down the popular misconception held by students concerning "required" subjects for college entrance.

Additional Recommendations

In addition to the proposals generated from the data provided by industrial arts majors now in teacher education
institutions in Ohio, the following recommendations can be made on the basis of the second set of data concerning the industrial arts teacher-recruiter.

Teacher Education Institutions

Because the effective recruiter was not represented to any degree in the 20-29 age group, but was so in the fifty and over group; and because the effective recruiter was a career industrial arts man with much more teaching experience than the average teacher in the field

1. Efforts should be made to build a positive relationship with older industrial arts teachers in particular and with those having extensive teaching experience. Such bonds may come as a result of:
   a. Alumni days
   b. Workshops
   c. Conventions
   d. Cooperating teacher
   e. Industrial arts clubs
   f. Epsilon Pi Tau
   g. Exhibitions

Since the select group had more contacts with teacher education institutions than the average group; and
indicated industrial arts clubs and conventions as most helpful in recruitment efforts
1. Efforts should be made to expand present contacts and make them meaningful for any recruitment efforts of the profession.
2. Industrial arts clubs and conventions should be geared toward recruitment in particular and used to distribute recruitment materials and informations.
3. Care should be taken to make any such contacts quality ones rather than becoming lost in quantity.

Because the select group had more professional memberships than the average group and cited the Ohio Industrial Arts Association as most helpful in their recruitment efforts
1. Professional memberships should be pushed from the undergraduate years on; an "esprit de corps" should be built.
2. American Industrial Arts Association and Ohio Industrial Arts Association memberships should be mandatory for undergraduates; during college years the department concerned should help financially by underwriting such memberships.

The State Department of Education
Based upon the evidence provided by the data that the effective recruiter is significantly different
relative to his age and teaching experience from the average teacher; and, some industrial arts subjects seem to lend themselves to recruitment better than others, the State Department of Education industrial arts specialist should

1. Keep current data concerning the industrial arts teacher in the field such as:

   a. Age
   
   b. Type teaching certificate held
   
   c. Industrial arts subject taught

Such information can be provided to teacher education institutions and professional organizations for their use in recruitment plans.

Since one-half of the effective industrial arts teacher-recruiters hold a permanent teaching certificate and the recruiter is somewhat more mature than his counterpart

1. With each permanent teaching certificate issued to an industrial arts teacher a letter of congratulations should be sent along with a request for aid in recruiting potential industrial arts teachers.

2. The State Department of Education should, upon being informed by the teacher education institution that a given recruiter has successfully recruited an arbitrary
number of boys into industrial arts teacher education, send a congratulatory letter to the teacher with copies to the principal and superintendent.

3. The State Department of Education should also keep local school systems informed concerning supply and demand of teachers in the various subjects including industrial arts.

4. The state should establish a scholarship system in the areas of teaching where severe shortages exist.

Professional Organizations

In addition to those responsibilities cited earlier, professional organizations should assume responsibility in citing the successful recruiters in the state. Since the Ohio Industrial Arts Association holds a large percentage of recruiter memberships and was cited most often as the most helpful professional organization in recruitment efforts, the OIAA should seek to coordinate such professional efforts. The president of this organization should assume this responsibility himself or form a committee representative of the teachers in the field and the teacher education institutions in the state to carry out such coordination. Operating between the district and local organizations and the colleges, the OIAA can enlist the support of both.
Further Suggestions

Further suggestions by the writer not based wholly upon the findings, but rather upon insight gained through reading and experience follows:

1. Professional organizations should make efforts to establish scholarship funds to augment the state effort; should send letters to selected high school seniors seeking their enlistment into industrial arts education; and, should provide civic groups with films and speakers through a speakers bureau of some type to "sell" industrial arts to the community and parents.

2. The industrial arts teacher himself should exemplify good teaching, should build an attractive, effective industrial arts program, and should provide interested seniors with experiences in the teaching and guidance of underclassmen and elementary school children.

Summary

Recommendations were made in Chapter IV on the basis of the interpretation of two different sets of data. By determining factors relevant to career choice of industrial arts teacher education students and noting the uniqueness of teacher-recruiters in the field, responsibilities for recruitment efforts by the profession in Ohio were assigned. The high school principal, the high school industrial arts
teacher, industrial arts departments in teacher education institutions, professional organizations, and the State Department of Education specialist for industrial arts education were included.

Proposals made involved the distribution of recruitment materials and efforts in certain directions and to certain people; promotion of the awareness on the part of the professional industrial arts teacher of his ability and effectiveness as a recruiter for his profession; the recognition of various avenues open for recruitment for use by the industrial arts teacher and industrial arts departments of teacher education institutions; and finally—and perhaps most important—the material reward and professional recognition of the successful industrial arts teacher-recruiter by his peers within the profession.

It should be mentioned here that the writer has the responsibility of providing those involved in the proposed program of recruitment with abstracts of this study. In addition, the role of department chairman in a teacher education setting relative to recruitment efforts must be fulfilled by him in another state.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Background

The supply of industrial arts teachers nationwide has dwindled since the impact of the Veteran's Bill of 1945 and the Korean Bill of 1955 have passed. Concurrent with such a drop in supply in Ohio has been the corresponding growth in numbers of emergency certificated industrial arts teachers. At the time of this study superintendents in the school systems of Ohio had indicated a need for ninety industrial arts teachers. That such a situation cannot continue without seriously affecting the industrial arts profession in an adverse manner becomes obvious.

It is well known that there are numerous factors operating on an individual with reference to his initial career choice. In the profession of education teacher status, remuneration, personality factors, socioeconomic background, and the personal influence of all who come in contact with the high school student are continually operative. The teacher, parents, and friends have been cited most often in the literature as being persons who are highly influential on the career choice of youth.
Studies in industrial arts education have dealt with peripheral subjects such as the characteristics of successful industrial arts teachers and the initial and continuous selection of industrial arts teacher education students. At the time of this study only two others had been done concerning recruitment, both of which were associated with "industrial education."

**Summary**

The purpose of this study was to collect and analyze certain data from industrial arts majors in Ohio institutions and teachers cited by them as effective recruiters. This was to in turn provide the basis for a proposed recruitment effort for prospective teachers of industrial arts. Such data as was secured from the teacher-recruiters was compared with similar information gathered from a random sample of industrial arts teachers in the field. Recommendations were made for a recruitment program on the basis of a composite picture of the industrial arts teacher education student and the uniqueness of the industrial arts teacher-recruiters in the state.

Some of the more striking findings with reference to the industrial arts majors were:

1. Forty-two percent did not enter college with industrial arts teaching as a career goal.
2. Twenty-nine percent of the respondents did not enter college directly from high school; this group came mainly from industry, some from the military.

3. The industrial arts teacher far outweighed all others as a career influence with this population of industrial arts majors; parents, friends, and counselors followed.

4. Eighty-one percent of the respondents had had industrial arts courses in high school; approximately 25 percent more than the average secondary school graduates.

5. Ninety-five percent of the high schools of the respondents offered some guidance experience such as the Future Teachers of America Clubs, industrial arts clubs, career days, or field trips to teacher education institutions—participation was light.

6. Ninety percent of the respondents had had some contact with a teacher education institution prior to their enrollment.

Findings with reference to the industrial arts teacher-recruiters cited by industrial arts majors were: They differed significantly from their "average" counterpart in the field in three respects:

1. They were older—the recruiter tended not to be found in the 20-29 age group, but rather in the 50 and over bracket.
2. They had more teaching experience—approximately 30 percent had taught over twenty years—all in industrial arts education.

3. They held a permanent certificate approximately one-half the time—there were no temporary or emergency certificated recruiters.

Although not statistically significant there were some differences observed with reference to:

4. Professional memberships—the recruiter held more, particularly in the National Education Association, the Ohio Education Association and the Ohio Industrial Arts Association.

5. Contacts with teacher education institutions—the recruiter had more such contacts particularly in the areas of industrial arts clubs, cooperating teachers, field trips, and conventions.

There was no significant difference observed between the two groups in reference to the subjects taught during the past five years or their community activities.

The recruiter-teachers cited the following as being most helpful to his recruiting effort:

1. The subjects of mechanical drawing and woodworking.

2. Teacher education contacts through conventions and industrial arts clubs.

3. The Ohio Industrial Arts Association and local industrial arts associations.
4. "Professionalism."

5. Good student-teacher relationships.

6. A good industrial arts program.

On the basis of the characteristics of both students and teacher-recruiters, a proposed program of recruitment was made and responsibilities assigned to the high school principal, the high school industrial arts teacher, the State Department of Education specialist in industrial arts education, professional organizations, and the teacher education industrial arts departments.

The high school principal's role in such an effort was seen as essentially supportive, Encouraging students to take industrial arts; recognition of the fact that recruitment is a professional obligation and an accomplishment of note when performed well; supporting change in industrial arts courses designed to draw college bound students; and, informing the high school counselor concerning the supply and demand situation in industrial arts education.

The high school industrial arts teacher had as his role the building of a more attractive offering through which to recruit; informing counselors, parents, and others of the need; identifying and encouraging twelfth grade high school mechanical drawing students in particular to enter the field; and, providing interested high school students with teaching assistant experience in the lower grades.
The State Department of Education specialist in industrial arts was to promote industrial arts in every way possible; initiate action to provide state scholarships to students entering areas of teaching which have severe shortages; recognize and reward in conjunction with teacher education institutions effective teacher-recruiters; collect information concerning the teachers in the field which might prove useful in recruitment; and, inform high school counselors and principals of the critical supply and demand situation in industrial arts education.

Professional organizations, particularly the Ohio Industrial Arts Association, should reward the effective industrial arts teacher-recruiter; attempt to continue the "esprit de corps" built in college among industrial arts teachers; and, make efforts to back the industrial arts club movement in the state while providing in addition, opportunity for high school students to participate in professional activities of the organization. The OIAA should seek to establish a permanent committee to coordinate such a state-wide recruitment effort.

The teacher education institutions are to make concerted efforts to recruit college students as yet undecided about a career; establish cordial bonds with teachers already in the field; dispense information and materials for recruitment purposes; utilize their present students in recruitment attempts; and, reward the effective recruiter-teacher.
Conclusions

Conclusions which were arrived at as a result of the analysis of the data were:

1. There is a strong tendency for present industrial arts teacher education students to enter the field as a second choice or to decide upon industrial arts teaching after entering college.

2. There is a tendency for the industrial arts teacher education student to enter higher education after industrial employment or military service rather than immediately after high school graduation.

3. The industrial arts teacher is extremely influential as a recruiter for his profession--many times not being aware of such effectiveness.

4. Guidance experiences and contacts with teacher education institutions abound but their influence is not as great as it might be upon high school students.

5. The effective teacher-recruiter is a mature, experienced professional-minded individual who is a career industrial arts teacher.

6. The teacher-recruiter was not quite certain what had made him effective, but some thought it to be professionalism; others, ability in student-teacher relationships; and still others, a good industrial arts program.
In addition, the data forced the rejection of three of the four initial hypotheses:

The initial hypothesis was: "Effective recruiting agents are significantly different from the average industrial arts teacher with respect to their relationships to teacher education institutions. Their ties are more numerous than the average industrial arts teacher." It was not accepted. The data, it will be recalled, indicated no significant difference existed between the two groups concerning their connections with teacher education institutions—even though there was some evidence that there was a difference in favor of the select group in certain areas.

The second hypothesis, made as the study was initiated, was that "Better than 15 percent of the industrial arts majors in the state of Ohio rank the industrial arts teacher as being most influential in directing them into industrial arts teacher preparation" was accepted. Data indicated that 39.6 percent of the population ranked the industrial arts teacher as the single most important influence.

The third hypothesis, made during the initial phases of the research, was that "Effective teacher-recruiters are in the younger age brackets, since their youth would permit them to "get closer" to their students and hence influence their career decision more readily" was rejected soundly. The data indicated the reverse to be so; that is, the
recruiter was found in the age bracket of 50 and over most often. Indeed the chances of his being in the 20-24 age bracket were nil.

Finally, the last hypothesis, "Teacher-recruiters would more frequently be teachers of mechanical drawing and electronics since college-bound students tend to enroll in these subjects more frequently as preparation for engineering and other technical vocations" was rejected because of the lack of clear-cut evidence. Even though there was some indication that mechanical drawing in particular supplied some impetus toward industrial arts teaching for some, it was not conclusive at all. Electricity/electronics was represented very weakly as a subject taken by present industrial arts majors.

**Recommendations**

The proposed program of recruitment will require that the preceding information and proposals cited in Chapter IV be made known to those to be involved and that the effort be a coordinated one; therefore, it is recommended that—

1. Responsibility be assigned and fixed by industrial arts department chairmen within the individual teacher education institutions for carrying out the proposed tasks.

2. The Ohio Industrial Arts Association form a steering committee immediately to coordinate the efforts in this quarter.
3. The results of this study be duplicated and the findings provided through the Ohio Industrial Arts Association to those concerned as soon as possible.

4. The findings be published in a professional journal.

5. That at the next convention of teacher educators in industrial arts a progress report be presented or efforts further consolidated.

While recommendations with respect to the proposed program of recruitment have been made, additional research which may prove meaningful should be undertaken to—

1. Determine the comparative success of industrial arts teachers who entered college with industrial arts teaching as a career goal in mind and those who had entered the field as a second choice.

2. Ascertain specific means of involving high school students in professional organizations and their relative success as recruiting means.

3. Determine the most effective ways and means of conveying occupational and educational information concerning industrial arts education to the high school student.

4. Design and test an effective way of influencing parental aspirations for their sons into the realm of industrial arts teaching.
APPENDIX A

1. INSTRUMENT FOR INDUSTRIAL ARTS MAJORS
2. COVER LETTER
3. STAFF INSTRUCTION FOR ADMINISTERING THE INSTRUMENT
April 1, 1966

Dr. Delmar W. Olson, Chairman
Department of Industrial Arts
College of Fine and Professional Arts
Kent State University
Kent, Ohio

Dear Dr. Olson:

A study is underway here at The Ohio State University concerning one of our perennial problems—recruitment of students for industrial arts teacher preparation. The initial phase is aimed at determining factors which have influenced present industrial arts majors to enter the field. It is in this connection that your help is desired.

Knowing you are continually imposed upon by graduate researchers, an effort has been made to facilitate quick and easy administering of the enclosed survey forms. The instrument takes but 8-10 minutes to complete and directions for administering are included for your staff—as is a self-addressed, stamped envelope for the returns. Instruments should be administered to every possible undergraduate industrial arts major in your department. Since a second instrument (to be sent to industrial arts teachers in the field) must await recording of the enclosed forms, their earliest return would be sincerely appreciated.

If there is any way in which I can be of further help, please let me know. I am looking forward to seeing you at the Miami Convention, April 8th. at which time I will answer any questions you may have or accept the completed forms.

Let me thank you for your professional cooperation—an abstract will be sent upon completion of the study.

Sincerely,

Ralph Ressler

Robert W. Haws
Adviser
Our department is participating in a study to determine more effective industrial arts teacher recruitment practices.

The attached survey forms are to be administered to UNDERGRADUATE INDUSTRIAL ARTS MAJORS at your earliest convenience. The instrument takes approximately 8 minutes to complete; students are urged to read each statement thoroughly and answer each of the best of their ability. If a student has completed the form in another class he should NOT participate again.

Completed forms are to be returned to the office promptly.

Thank you
RECRUITMENT OF INDUSTRIAL ARTS TEACHERS

Industrial Arts Majors

Please read each question carefully and complete the following to the best of your ability.

1. Check your age at the most recent birthday.
   16-19__, 20-29__, 30-39__, 40-49__, 50 and over_

2. Check your present year in college: Freshman___ Sophomore___ Junior___ Senior___

3. Did you enter college with industrial arts teaching as a career goal? yes__ no__
   If not, what WAS your career goal? (specify)___________________________

4. Did you enter college immediately after high school graduation? yes__ no__
   If not, how many years elapsed between high school graduation and college entrance? ___ years
   Indicate your last position prior to entering college: Military service_ Sales work__ Industrial employment__ Agricultural employment__ Other (specify)___________________________

5. What PERSON/S were most responsible for your entering into the field of industrial arts education? Rank the three most influential:
   1-most influential, 2-next most influential, 3-least influential of these three.
   __ High school counselor __ Industrial arts teacher
   ___ Parents ___ College counselor
   ___ High school principal ___ School superintendent
   ___ Friend ___ Student teacher
   ___ Other (specify)__ __ High school classroom teacher
   (other than industrial arts)

6. To your knowledge did your high school offer any of the following? yes__ no__
   Industrial Arts Club yes__ no__ Future Teachers of America Club yes__ no__
   Field trips to teacher education yes__ no__ Career Day/s yes__ no__
   Did you participate in any of the above? (Indicate by circling the appropriate "yes" or "no" answer above.)

7. What additional contact did you have with a college prior to your enrollment? Sports: Spectator__ Player__ Social-Cultural: Fraternity functions__ Dances__ Fairs__ Concerts__ Exhibitions__ Plays__ Educational: Honors programs__ Library use__ Science fairs__ Lectures__ Class visits__ Conferences__ College Recruitment: Career days__ Speakers__ Contacts not listed (specify)

8. Did you have any industrial arts courses in high school? yes__ no__
   If you did have industrial arts in HIGH SCHOOL, at what grade level/s (9, 10, 11, 12) and in what specific areas? General Industrial Arts__ Mechanical Drawing/Drafting__ Metals__ Crafts__ Graphic Arts (printing, photography)__ Electricity/Electronics__ Woods__ Power/Auto Mechanics__ Other (specify)

9. In question 5, if you ranked "Industrial arts teacher" as first or second indicate his name, school, location, and subject/s taken with him.
   Name___________________________ School___________________________
   Subject/s___________________________ Location___________________________
APPENDIX B

INSTRUMENT FOR THE RANDOM SAMPLE OF INDUSTRIAL ARTS TEACHERS
AND
COVER LETTER
Dear Sir:

In an effort to design a more effective recruitment program for our profession in Ohio, you have been selected to furnish the university with some very basic data. The enclosed instrument—one phase of the study—will provide such information.

Although the survey form takes but five minutes to complete, please read each statement thoroughly and complete each to the best of your ability. A self-addressed, stamped return envelope is enclosed for your convenience; promptness will be greatly appreciated.

Thank you for your professional cooperation in this matter.

Sincerely,

Ralph Ressler

—

Robert W. Haws
Adviser
RECRUITMENT OF INDUSTRIAL ARTS TEACHERS

Please read each statement thoroughly and complete each to the best of your ability.

1. Check your age at the last birthday
   20-24  25-29  30-34  35-39  40-44  45-49  50-54  55 and over

2. Indicate your:
   a) Years of teaching experience
      0-4  5-9  10-14
   b) Years teaching industrial arts
      0-4  5-9  10-14  15-19  20 and over

3. What type of certificate do you hold?
   Emergency  Permanent  Provisional

4. Indicate what teaching assignments you have had in industrial arts during the past five years and at what levels (9,10,11,12).
   General shop  Mechanical drawing  Electricity/electronics
   Power/Auto mechanics  Graphic arts  Wood  Metal  Crafts
   Ceramics  Plastics  Other (specify)

5. Indicate ANY AND ALL connections you have had with ANY teacher education institution over the past five years. Check such connections below.
   Undergraduate work  Extension work  Cooperating teacher (student teachers')  Conference attendant  Conference participant
   Industrial Arts Club meetings  Sports functions  Collegiate services (film, book, or teaching-aid loans)  Graduate work  Workshops  Conventions  Alumni Days  Fraternity functions  Social functions  Field trips with students  Other (specify)

6. Check the professional memberships you have held in the past five years and whether you have held an office in such organizations.

   Organization
   American Vocational Association
   Ohio Vocational Association
   American Industrial Arts Association
   Ohio Industrial Arts Association
   National Education Association
   Ohio Education Association
   Association of Federated Teachers
   Iota Lambda Sigma
   Epsilon Pi Tau
   Kappa Delta Pi
   Phi Delta Kappa
   Other (specify)

7. Indicate below any community organizations, exclusive of church-oriented groups, to which you belong or have been active in during the past five years. Indicate whether you held office.

   Organization
   Scouts
   Lions Club
   Elks
   Masons
   Kiwanis Club
   Other (specify)
APPENDIX C

1. INSTRUMENT FOR THE SELECT TEACHER-RECRUITER

2. COVER LETTER

3. FOLLOW-UP LETTER
Dear Sir:

A college student now preparing to teach industrial arts has credited you as being highly influential in his career choice. In an effort then, to determine more effective recruitment practices for the profession, you are being asked to complete the enclosed instrument.

Please read each statement carefully and answer each to the best of your ability. The form takes but five minutes to complete and a self-addressed, stamped return envelope is enclosed your convenience. A prompt reply will be greatly appreciated; thank you for your professional cooperation in this matter.

Once again, congratulations on your effectiveness as a recruiting agent for your profession—there are fewer contributions as important or as lasting.

Sincerely,

Ralph Ressler

Robert W. Haws
Adviser
May 10, 1966

Dear John:

As you may recall, a college student now preparing to teach industrial arts has named you as being most influential in his career choice. You can be of great assistance in formulating an effective recruitment program for the state of Ohio by completing the enclosed form.

Congratulations on your effectiveness as a recruiter for our profession. Thank you for your cooperation.

Yours truly,

Ralph Ressler.
RECRUITMENT OF INDUSTRIAL ARTS TEACHERS

Please read each statement thoroughly and complete each to the best of your ability.

1. Check your age at the last birthday
   - 20-24
   - 25-29
   - 30-34
   - 35-39
   - 40-44
   - 45-49
   - 50-54
   - 55 and over

2. Indicate your:
   a) Years of teaching experience
      - 0-4
      - 5-9
      - 10-14
      - 15-19
      - 20 and over
   b) Years of teaching industrial arts
      - 0-4
      - 5-9
      - 10-14
      - 15-19
      - 20 and over

3. What type of certificate do you hold?
   - Provisional
   - Permanent
   - Emergency

4. Indicate what teaching assignments you have had in industrial arts during the past five years and at what level (9,10,11,12).
   - General shop
   - Mechanical drawing
   - Electricity/electronics
   - Power/Auto mechanics
   - Graphic arts
   - Wood
   - Metal
   - Crafts
   - Ceramics
   - Plastics
   - Other (specify)

If two or more subject areas are checked above, did one lend itself to the recruitment of industrial arts teacher prospects more than another? yes no If "yes" circle that area above.

5. Indicate ANY AND ALL connections you have had with ANY teacher education institution over the past five years. Check such connections below.
   - Undergraduate work
   - Graduate work
   - Extension work
   - Workshops
   - Cooperating teacher (student teachers')
   - Conventions
   - Conference attendant
   - Alumni Day/s
   - Conference participant
   - Fraternity functions
   - Industrial Arts Club meetings
   - Social functions
   - Sports functions
   - Field trip with students
   - Collegiate services (film, book, or teaching-aid loans)
   - Other (specify)

Of the connections cited above which do you feel has helped make you an effective recruiter of students for industrial arts teacher preparation? Circle the appropriate connection.

6. Check the professional memberships you have held in the past five years and whether you have held an office in such organizations.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Held Office</th>
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<tbody>
<tr>
<td>American Vocational Association</td>
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<tr>
<td>American Industrial Arts Association</td>
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<tr>
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<td>Kappa Delta Pi</td>
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<td>Phi Delta Kappa</td>
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<tr>
<td>Other (Specify)</td>
<td></td>
</tr>
</tbody>
</table>

Which of the above have helped make you an effective recruiter of students for industrial arts teacher preparation? Circle the appropriate organization.
7. Indicate below any community organizations, exclusive of church-oriented groups, to which you belong or have been active in during the past five years. Indicate whether you held office.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Held Office</th>
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<tbody>
<tr>
<td>Scouts</td>
<td></td>
<td>Jr. Chamber of Commerce</td>
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<tr>
<td>Lions Club</td>
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<td>Parent-teacher Assn.</td>
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<tr>
<td>Elks Lodge</td>
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<td>Rotary Club</td>
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<td>Masons</td>
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<td>American Legion</td>
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<td>Chamber of Commerce</td>
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<td>Other (specify)</td>
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</table>

8. What do you feel has been the most helpful in making you an effective recruiter of students for industrial arts teacher preparation?
APPENDIX D

1. LETTER TO LEADERS IN THE FIELD
2. TEACHER EDUCATOR ENCLOSURE
3. STATE SUPERVISOR INDUSTRIAL ARTS ENCLOSURE
4. PROFESSIONAL ORGANIZATION LEADER ENCLOSURE
Professor J. Levan Hill, Chairman
Industrial Arts and Engineering Drawing Department
College of Education
Bowling Green State University

Dear Professor Hill:

The need for industrial arts teachers, as you know, remains critical in the state of Ohio. Based upon the findings of a study which I completed recently at the Ohio State University, certain recommendations have been made in the hope of initiating a cooperative, concerted recruitment effort on the part of our profession.

As you are in a position to exert a great deal of influence relative to such a recruitment effort. Suggestions made are the result of the more significant findings of the study and if undertaken should result in increased enrollment in industrial arts teacher preparation programs. At the same time it must be pointed out that such recommendations have been made with only the good of our profession in mind.

In addition to yourself, our professional organizations in the state and the State Supervisor for Industrial Arts Education share the responsibility for such a recruitment effort. Working together, the shortage of industrial arts teachers CAN BE alleviated. However, your cooperation is required. The recommendations pertinent to your particular sphere of activity are appended to this letter.

I wish to take this opportunity to thank you for your interest and participation in the study.

Yours truly,

Ralph Ressler
Teaching Associate
The Ohio State University
State Supervisor of Industrial Arts

Functioning at a plane as high as the State Department of Education, your opportunity to communicate effectively with school superintendents, high school principals, and guidance counselors concerning the crisis in industrial arts teacher supply is great. Full use of this asset must be made. It has been determined that the effective industrial arts teacher-recruiter is an older man of 50 years of age or more who has had 20 or more years of teaching experience and possesses a permanent teaching certificate. Because of this, the present practice of gathering names and location of industrial arts teachers in the state should be broadened to include other items (age, certificate held, and the subjects taught). This information in turn should be provided to teacher education institutions throughout the state for their use in recruitment efforts.

Furthermore, upon the issuance of a permanent teaching certificate to industrial arts teachers in the field, a letter of congratulations from our profession should be sent, along with an appeal for some recruitment effort on the part of the recipient. An attempt should also be made at the state level to initiate granting of scholarships for students in areas of teaching which have critical shortages—if for example the emergency certificated population exceeded 10 percent, such aid might be justified. Finally, in cooperation
with the OIAA and the teacher education system of professional recognition and rewards for the effective recruiter-teacher is sought. Industrial arts teachers who have been cited by colleges as effective in recruitment efforts are to be recognized by our professional organizations. Further recognition by our professional organizations. Further recognition of outstanding recruitment efforts on the part of a given teacher (recruitment of an arbitrary number of students) should be recognized by a certificate from the state level along with a congratulatory letter, with copies sent to the school superintendent and high school principal.

I would like to take this opportunity to thank you for your assistance in the early phases of this study. Although I will not remain in Ohio, but will be at the University of Miami, Coral Gables, Florida next year, I sincerely hope your efforts bear fruit for the sake of our profession.
Teacher Educator

The data has indicated that of the present industrial arts majors (1) 2/5 entered the field as a second choice made at the college level, (2) almost 1/3 came to college after an industrial work experience or the military, (3) the industrial arts teacher was by far the most influential person affecting their career choice, (4) more than 4/5 had taken industrial arts in high school, (5) 90 percent had some contact with a teacher education institution prior to enrollment. Furthermore, the effective recruiter-teacher (1) was a career industrial arts man of 50 or more years of age with 20 or more years of teaching experience in one-third of the cases, (2) he possesses a permanent teaching certificate, (3) he had significantly more contact with a teacher education institution through conventions, industrial arts clubs, acting as a cooperating teacher and the use of field trips than the average teacher, and (4) was a member of the OIAA, NEA, and OEA more often than the "average."

Every effort should be made to recruit at the freshman level in college through introduction to education courses, the help of counselors within other divisions of the college, utilization of present industrial arts majors in the recruitment of friends and peers, and campus publicity of all kinds. Military discharge centers should be provided with recruitment materials as should local industries having entry-type
jobs. In addition, contacts with teachers in the field should be increased and present ones taken advantage of for recruitment purposes. Field trips to college campuses for local high school groups, Future Teachers of America Clubs, and Industrial Arts Clubs should all be encouraged. High school organizations should be continually supplied with recruitment materials. The high school industrial arts teacher should be continually encouraged to initiate challenging courses for the college-bound high school student and to make better use of any contacts he may have with parents of students through the local Parent-Teachers Association or adult education programs.

Finally, a system of rewards and/or professional recognition for those industrial arts teachers who have successfully recruited students into industrial arts teacher preparation should be initiated in cooperation with the state department of education and our professional organizations in the state. For example: determining from incoming students the name of industrial arts teachers who had influenced their career decision (if indeed there were any), recording such names and upon the graduation of the student the referring teacher by a letter of congratulations, certificate, and/or publicity of a professional nature. Recruitment must be brought to the attention of the industrial arts teachers in
the field and kept there, since, in the final analysis, they are the key to future success in recruitment efforts.

Teacher educators also bear the responsibility of making senior industrial arts students and graduate students alike in their departments aware of the crisis in the supply of industrial arts teachers in the state and of their effectiveness as a recruiting agent for their profession. Long range goals should include (1) an attempt to initiate an elective course for the entire collegiate student body in "Technology" which will serve as a partial recruitment means, (2) financial aid possibilities for students under recent federal legislation, and (3) the building of a professional "esprit de corps" during the college years.

While it is understood that you are now utilizing some of the recruitment means noted above, concerted use of all such means available to you is mandatory if progress is to be made. Although I will not remain in Ohio, but will be at the University of Miami, Coral Cables, Florida next year, I sincerely hope your efforts bear fruit for the sake of our profession.
Professional Organization Leader

The professional industrial arts organizations in Ohio have the responsibility of supporting and actively promoting the Industrial Arts Club Movement in the state. In addition, the annual OIAA convention must be used more effectively as a recruitment means through distribution of recruitment materials and establishment of a mailing list of high school students who attend. Perhaps the most immediate suggestion would be the formation of a steering committee on Recruitment by the OIAA whose duty it should be to establish a coordinated system of professional recognition and rewards for successful industrial arts recruiter-teachers; that is, industrial arts teachers cited by present industrial arts majors as influential in their career decision. (Such information, of course, is to be provided by the individual colleges.) The State Department of Education may also wish to cooperate in this phase. In addition, local conferences and conventions should make further efforts to provide "a place" at such a meeting for high school students interested in our field.

Since the Ohio Industrial Arts Association holds a large percentage of memberships from the effective recruiters found during this study and was cited by many as the most helpful to them in recruitment, it would appear that this organization occupying, as it does, a position between the
teacher educator and the teacher in the field, should coordinate such efforts. It is, therefore, further suggested that the topic of recruitment be the major subject of the next convention of Industrial Arts Teacher Educators in the state at which time the OIAA representative should make a report, concerning the progress of the steering committee and the aforementioned suggestions.

While it is understood that the professional organizations scattered throughout the state have made various recruitment efforts, a concerted, cooperative effort is needed badly.

Although I will not remain in Ohio, but will be at the University of Miami, Coral Gables, Florida next year, I sincerely hope such efforts bear fruit for our profession.
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