

A SURVEY OF THE OCCUPATIONS OF
OKLAHOMA STATE UNIVERSITY
INDUSTRIAL ARTS GRADUATES
DURING 1956-1966

By

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CHAPTER I

INTRODUCTION

During the past ten years more than 250 men have been graduated from Oklahoma State University in the field of industrial arts education. There seems to be some question in the minds of staff members as to where those graduates are presently employed. The need for a study of this matter was suggested by L. H. Bengtson, Chairman of Industrial Arts Education. It is believed that this investigation will aid in determining whether or not the present curriculum at Oklahoma State University is adequately preparing graduates to meet present day needs. It should yield valuable data relating to the utilization of training in occupational careers.

The Problem

This study concerns the occupations of Oklahoma State University graduates in industrial arts education. The intent of the study was to determine possible answers to such questions as: (1) what vocations the graduates have chosen, (2) what factors influenced the choice, (3) how many have taught outside Oklahoma, and (4) what opinions were concerning the relation of training in the area of industrial arts education to occupations.

Previous Research

A review of the previous research was necessary to provide a background for formulating specific questions which were posed in the study. The review was limited primarily to those studies dealing with occupational surveys and follow-up studies of a similar nature.

One of the more comprehensive studies, involving technical education graduates, was done by Pease.¹ In the study by Pease, an effort was made to determine the occupational achievements of the graduates of Rochester Technical Institute. Pease endeavored to check the validity of the empirical judgment that technical education graduates rise to higher occupational levels than those who do not have that training. The evidence supported the hypothesis concerning the rise of technicians to higher occupational levels.

The North Dakota School of Science conducted a study of its graduates for the years of 1955-1960. The purposes of the study were:

To learn the thought of alumni about our programs after they had utilized their training at a specific job for one to five years; to discover employers' impressions of the preparation our graduates had received; and in general, to evaluate our programs to learn how we could better prepare our students for employment.²

As a result of this study by the North Dakota School of Science, the administration of the school concluded that the present programs should be maintained. One criterion used for evaluating the success of

¹Robert D. Pease, "The Occupational Achievements of the Graduates of a Technical Institute" (Unpublished Ed.D. dissertation, The University of Buffalo, 1959), p. 15.

²Orlin Bakken, "Where are Our Students Now?," Technical Education News, February, 1963, p. 10.

an educational program is the percentage of graduates who find employment in the specific field for which they are trained. A 1952 study by Roney reports that 59.5 per cent of the graduates of the Technical Institute of Oklahoma State University were employed in the specialized fields for which they were trained.³

Billy Gene Powers conducted a study concerning the opinions of the alumni of the College of Agriculture of Oklahoma State University regarding such questions as: (1) what factors contributed to obtaining employment, (2) what factors influenced former students to prepare for a specific type of vocation, and (3) what opinions were concerning the relation of training to present careers. Powers concluded that college professors, advisers, and other influential persons had a significant influence upon students' decisions concerning the choice of specific vocations. It may be noted that 43.0 per cent of the alumni in question indicated that contracts and associations made while at the University contributed significantly to obtaining initial employment. According to Powers, responses were gratifying in regard to opinions on the adequacy of training in preparation for present occupations.⁴

³Maurice W. Roney, "How the Technical Institute Meets the Needs of Its Students" (Unpublished Thesis, Oklahoma A and M College, 1952), p. 51.

⁴Billy Gene Powers, "Former Students' Opinions Concerning the Relation of Their College Training to Their Careers" (Unpublished Masters Thesis, Oklahoma State University, 1953), p. 57.

Dr. Roy W. Dugger states that "follow-up studies are one of the most important means available in evaluation of any educational program."⁵

Holman presents the thought that "follow-up studies have a tremendous effect upon education, for it serves as an opening wedge for continuous faculty study and improvement in education,"⁶

Thus, we see the need for follow-up studies in determining the effectiveness of the present curriculum, guidance, and job placement programs, as well as the need for future changes to keep pace with the rapidly developing industrial and economic conditions of our time.

Procedure

In planning this study, it was estimated that there were approximately 275 graduates from whom information would be sought. Because such a large number of individuals was involved, because it was expected that they were located in several different states, and because of the cost, time, and convenience factors, a normative-survey method of research was chosen. A mailed questionnaire was used as the most practical instrument for obtaining the desired data. After careful consideration of the information needs, a questionnaire consisting of about twenty questions was formulated in such a manner that most of them could be answered by check marks. A preliminary questionnaire was

⁵Roy W. Dugger, as reported by Bill Whitt in "Opinions Expressed by Agricultural Education Graduates Regarding the Adequacy of the Agricultural Education Curriculum at the Oklahoma Agricultural and Mechanical College" (Unpublished Masters Thesis, Oklahoma State University, 1957), p. 18.

⁶W. Holman and R. J. Young, "Follow-up: New Variety," Clearing House (January, 1954), p. 296.

prepared and administered to a sample population to test the instrument's validity. Revisions were then made following the trial test.

Administration of the Questionnaire

The mailing list of the graduates of industrial arts education, for the ten years involved, was obtained from the graduate personnel folders on file in the Industrial Arts Education Department, from the Oklahoma Industrial Arts Teacher directory, from the Iota Lambda Sigma (Industrial Education Fraternity) directory, and from the files of the Alumni Association.

A letter to the graduates, explaining the purpose of the survey, was written and reproduced in quantity on stationery bearing the letterhead of the Industrial Arts Education Department. A letter, questionnaire, and a stamped, self-addressed envelope were mailed to all persons for whom addresses were obtained.

Treatment of the Data

The data for this study was in such a large quantity that it was necessary to use the computer to analyze the responses. Because the data arrived at various times, the cards were coded at the convenience of the researcher. The data was then fed to the computer and the results were arranged systematically in tables and graphs for easy observation.

Delimitations of the Study

This study was limited to the graduates of industrial arts education at Oklahoma State University for the years 1956-1966. In

the review of the previous research, the validity is possibly altered due to the following factors:

1. An accurate listing of the addresses of all of the people in this study was not possible due to the fact that there has not been a follow-up study of industrial arts graduates previous to this time.
2. The sources from which the addresses were taken may tend to distort the picture since most of these sources are in education.
3. Parts of the questionnaire could be misinterpreted.
4. The researcher might be biased in the evaluation of the responses.
5. The results of this study were based on the returned completed questionnaires.
6. No consideration was given to the scholastic standing of graduates while in college.

Operational Definitions

The following terms are defined as used in this study. They should not be misunderstood as meaning something other than the definitions given below.

1. Industrial Arts. Industrial arts is a group of school subjects that contribute to the attainment of the goal of general education by furnishing guided experiences in the use of tools, materials and machines, and insights into those phases of industry that have become an important part of our social culture.⁷
2. Education: Education is the aggregate of all the processes by means of which a person develops abilities, attitudes, and other forms of behavior of positive value in the society in which he lives.⁸

⁷Oklahoma State Department of Education, Industrial Arts in Oklahoma, Bulletin No. 105, 1951, p. 1.

⁸Carter V. Good, Dictionary of Education, p. 144.

3. Graduates. A graduate is any student receiving a bachelor's and/or master's degree in industrial arts education at Oklahoma State University.
4. Survey. A survey is a study of an area with respect to a certain condition, or its prevalence.⁹
5. Occupational Survey. An occupational survey is an investigation and evaluation to gather pertinent information about a single industry or the occupations of an area, to determine the need for training, prevalent practices, the labor supply and turnover, etc. for maintaining the vocational program at a realistic level.¹⁰
6. Educational Employment. Educational employment is any employment pertaining to teaching.
7. Industrial Employment. Industrial employment is employment as a laborer in an industrial occupation, as, for example, in manufacturing or construction.

⁹A Merriam-Webster, Webster's New Collegiate Dictionary, (Springfield, Massachusetts, 1961), p. 855.

¹⁰Carter V. Good, Dictionary of Education, p. 403.

CHAPTER II

HISTORY OF INDUSTRIAL EDUCATION

There is perhaps no area of school curriculum which is less understood than the field of industrial arts. The problem lies in comprehending the similarities and differences among industrial arts, vocational education, and technical education, and it may be of some benefit to clarify these terms. All are related, in that they deal with the broad area of industry, technology, and work, but the purposes are quite different. The broad aim of industrial arts is to prepare young people to live in an industrial society. Trade and industrial education functions as a means of preparing youth for gainful employment. Technical education proposes to prepare persons for employment in jobs of technical nature, at a level above the realm of vocational education. The three considered together constitute the scope of the term industrial education.¹

Early History of Industrial Education

The roots of industrial education reach deep into the historical past. Where or how tools were first used can only be guessed. Man's first experiences with them probably grew from a conscious imitation of animals at work, the beaver felling trees, the bear breaking nuts

¹Feirer and Lindbeck, Industrial Arts Education (Washington, D.C., 1964), p. 1.

with a stone, or the bird building a nest, for instance. Man may have tried to imitate these methods in order to improve his own existence.

It is known that man developed unpolished stone implements during the Paleolithic (Old Stone) Age. To Pre-Chellean Man, circa 125,000 B.C. goes the honor of having made the first tool.² From these attempts the knife, ax, needle, arrowhead, awl, plane, scraper, and other tools were developed. From generation to generation man's skills have been perfected and extended.

The discovery of the element of fire eventually led to the procuring, fusing, and working of metal. A parallel development came in terms of man's efforts at learning how to make use of tools in order to improve living conditions. Gradually the skill and knowledge of working materials into useful articles was acquired. However, most trade education in ancient nations was conducted in a father-son relationship. It was not until the advent of apprenticeship, which in itself is very old, that distinctive patterns of teaching industrial processes were followed.

The Greeks

The strength and grandeur of Greece is believed to have rested upon a self-sufficient system of slave industry and agriculture. The burden of production in Sparta fell upon the Periocci, a group of "dwellers about" who were, in a sense, slaves once removed. Although

²Ibid., p. 2.

the Spartans did not produce a history or leave literary accounts, it is believed that craftsmanship was of a family nature.³

The rise of Athens was accompanied by an increase in the practice of trades required by the growing city. A definite occupational classification developed, regulating various workers into a caste system. These industrial workers were free people, but generally of a second class. Clubs were organized to represent various occupations. Theorists of about 600 B.C. scorned the trades and did not consider manual labor activities as having any connection with education. No regulated patterns of instructions have survived: the culture produced its craftsmanship by way of personal relationship between master and pupil.⁴

The Romans

There is little evidence that either industry or artisanship was held in high official esteem by the early Romans. The craftsmen and artisans of Rome were composed of a mixture of slaves and free men. They acquired skills much the same way their ancestors did--through family apprenticeship.⁵

³Will Durant, The Life of Greece (New York, 1939), p. 81.

⁴H. I. Marrou, A History of Education in Antiquity (New York, 1956), p. 191.

⁵Melvin L. Barlow, History of Industrial Education in the United States (Peoria, Illinois, 1967), p. 17.

The Middle Ages

The Middle Ages accounted for approximately a thousand years of history between ancient and modern times. One of the most important events of this period was that Christianity had all but triumphed over the pagan Mediterranean world. It is interesting to note that strong elements of apprenticeship were to be found in the formal training of the monks. This helped to establish manual labor in an honorable and preferred position. Thus, apprenticeship and manual labor were built into the foundations of Christianity and the preservation of learning.⁶

The latter period of the Middle Ages was marked by the development of a merchant class and a class of skilled artisans. Both the merchant and skilled artisan, to better control economic interests, organized guilds. Wooten states:

In both merchant and craft guilds, an effort was made to control the quantity and quality of production, and to provide thorough training for those who were accepted as apprentices to the guild. The guilds⁷ became very influential in the life of the cities.

Educational Reform

During the Middle Ages and the Renaissance, Christianity acted as a catalyst in speeding up the process of social change. During the eighteenth century Rousseau introduced manual arts as a part of education. In the book Emile, Rousseau outlined a new system of education in which handwork in the trades and agriculture form a definite part.

⁶Ibid., pp. 18-19.

⁷Flaud C. Wooten, A History of Education, (Los Angeles, California, 1956), p. 91.

John Heinrich Pestalozzi, a Swiss educator, was greatly influenced by Rousseau. Pestalozzi's fundamental principle was that a child should be allowed to "learn by doing." Books were to be used as supplementary material and to supply those facts that are not readily accessible by direct investigation.⁸ It is clear that Pestalozzi's prime purpose was to lessen the misery, poverty, suffering, and sin in the world by educating the poorer children of the country. The program he chose, a manual process, was primarily a general education for the poor. He was perfunctorily called "the father of manual training."⁹

The influence of Pestalozzi was portrayed by his followers. Francis Joseph Neff opened several schools in the United States using methods of Pestalozzi as a guide. Von Fellenberg, who established the Fellenberg's Academy at Hofwyl, Switzerland, reflected the best of Pestalozzian theory and practice. Friedrich Froebel was particularly impressed by the use of drawing and practical work in the school and became a leader in utilizing handwork in general education of children.

Industrial Education in the United States

In the more recent history of manual work as a part of education, it is possible to identify several major movements or approaches which led to the development of what is known today as industrial arts. Its evolution can be traced from the Russian method of technical preparation, through the Scandinavian sloyd system of handicraft education, to

⁸ Melvin L. Barlow, History of Industrial Education in the United States (Peoria, Illinois, 1967), p. 4.

⁹Feirer and Lindbeck, Industrial Arts Education (Washington, D.C., 1964), p. 4.

the characteristically American movements of manual training and manual arts, and hence to the adoption of a broad industrially oriented curriculum called industrial arts. Each of these elements left its indelible mark; each made a distinct contribution to the modern industrial arts program.¹⁰

The industrial revolution in the American colonies came somewhat later than in England. Restrictive legislation in England during the eighteenth century retarded the development of manufacturing in the colonies. It was not until about the year 1812 that manufacturing got started well in the United States, and it was not until after the Civil War that manufacturing was of considerable consequence.

The rapid development of power machinery led to greater demands, which were generally met by employment of children and semi-skilled operatives. It was not until 1836 that laws were passed, effectively reducing the exploitation of child labor.

The awakening of educational consciousness in the United States plus the demands of general industrial training led to the manual training movement.

The Russian System

One of the truly great contributions to the development of manual education was made by the Russian technique of analyzing tool process and construction methods. Victor Della Vos, director of the Imperial Technical School in Moscow in 1868, carefully analyzed a trade for its

¹⁰Ibid, p. 6.

component parts, and then developed exercises that ranged from the simple to the complex. By providing this first practical and effective basis for teaching mechanical subjects, the Russian system had a lasting influence upon industrial arts education.¹¹ The United States has derived great benefits from the analytical process first initiated by the Russian System.

The Sloyd System

Sloyd is a system of educational handwork. In Sweden the term sloyd embraces useful forms of handcraft.

Otto Salomon's work at Naas, a private school in Sweden, did more for sloyd than any other known work.¹² The sloyd system as advocated by Salomon was that manual labor in a pre-vocational sense should be taught as part of general education. The seven principles considered most important as set forth by Salomon's "Sloyd as a Means of Education" (1884) are:

1. The concentration on one form of sloyd.
2. The making of useful articles and not articles of luxury, nor parts of articles, e.g., joints.
3. The teaching based on educational principles, and the work methodically arranged.
4. The instruction to be given by a trained teacher, not by an artisan.
5. Voluntary and individual teaching.

¹¹Ibid.

¹²Otto Salomon, The Theory of Educational Sloyd (Boston, 1906), p. 8.

6. Positions to be chosen suitable for physical development.
7. Drawing and sloyd to be continued.¹³

The purpose of sloyd is the development of the mental, moral, and physical forces of the child. Sloyd was regarded not as apprenticeship training, but as pre-apprenticeship training. Using models as guides, articles were made, starting with the simple and progressing to the more complex. This principle still holds true today in United States' industrial education programs.

The Manual Training Movement

The modern industrial arts programs in the United States developed from the manual training movements of the latter part of the nineteenth century. On June 6, 1879, the Manual Training School of Washington University was established in St. Louis, Missouri, by C. M. Woodward.¹⁴ It grew out of a need for better trained workers. Woodward was interested in manual training for industrial purposes, and perhaps even more interested in the value of manual training in the general education of students.

Manual training had many objectives, which were centered around providing manipulative experiences, developing the faculties through instruction based upon handwork, and providing general industrial training as an aid to meeting changing demands of an age that has been termed the "machine age."¹⁵

¹³Ibid., p. 10

¹⁴Feirer and Lindbeck, Industrial Arts Education (Washington, D.C., 1964), p. 11

¹⁵Struck, Foundations of Industrial Education (New York, 1930), p. 33.

The Manual Arts Movements

As the machine age advanced, Charles A. Bennett was much concerned with the possibilities of a national loss of hand skills and artistry with materials. In 1919 Bennett wrote a book, The Manual Arts, which contained a proposal for a system of education bearing the same title.¹⁶ The concept manifested itself in student involvement in the designing as well as the manufacturing of projects. In this activity the project was the goal and the tools, skill, and knowledge were only means of achieving this end result. Manual arts instruction did not regard industry as the prime source of tool processes to be used as a basis for instruction. Instead it studied media and the process in a strictly craft relationship. This movement, like its predecessors, was to add substance to the emerging theory of industrial arts as the final developmental stage of manual education.¹⁷

Evolution of Industrial Arts

The history of industrial arts has been a record of adjustment to socio-economic conditions in an educational environment. Despite the obstacles that from time to time have threatened its right to inclusion in school curriculum, industrial arts has managed to grow.

The development of industrial arts in the public schools of the United States began in Baltimore, Maryland, in 1884 with the

¹⁶Olson, Industrial Arts and Technology (Englewood Cliffs, New Jersey, 1963), p. 4.

¹⁷Feirer and Lindbeck, Industrial Arts Education (Washington, D.C., 1964), p. 13.

establishment of the first manual training school to be supported at public expense.¹⁸ At that time industrial arts was referred to as manual training or manual arts.

In October, 1904, Charles R. Richards, director of the manual training department of Columbia University, suggested that the term industrial arts be substituted for the term manual training. The assignment of a new name was not so significant as the fact that this action introduced a new educational concept.

This new, broader program adopted the most significant features of each of the movements which preceded it. From the Russian system, it took the analytical process and applied it as a method for organizing teachable content derived from a study of various industries; from Swedish sloyd, the theory of manual subjects as a part of general education and a craftwork tradition; from manual training, the sound course of study, occupational guidance, and vocational implications concepts; and from the manual arts, concern for design, handicraft, student involvement with project planning, and the production of useful articles. Richards, Bonser, Bennett, Griffiths, Selvidge, Ericson, and Warner each gave the new movement status and direction through their theories and experiments.¹⁹

Frederick Gorden Bonser considered industrial arts a means for improving elementary education. Bonser advocated the general

¹⁸Oklahoma State Department of Education, Industrial Arts in Oklahoma (Oklahoma City, 1951), p. 15.

¹⁹Feirer and Lindbeck, Industrial Arts Education (Washington, D.C., 1964), p. 14.

educational purpose of industrial arts in the elementary, junior high, and senior high school, as opposed to any vocational purposes.

With the new vocational educational program of the Smith-Hughes Act in 1917, industrial education was divided into two categories, industrial arts and vocational education. This relieved industrial arts of the controversial vocational training aspect within its ranks, meaning that industrial arts could place more emphasis on general education.

On April 2, 1917, President Wilson asked Congress for a declaration of war and on April 6, war was declared. Industrial education, in all of its aspects, sought ways and means of contributing to the war effort.

The post-war days of World War I led to significant growth and development for industrial arts. Industrial arts once again assumed the responsibility of providing general education and vocational guidance in its bid to represent industry and technology in the public schools.

Although industrial arts was making significant progress, there was much confusion in the aims, objectives, and purpose of industrial arts within professional groups. With the formation of the American Vocational Association in 1926 and the American Industrial Arts Association in 1939, the objectives of industrial arts were defined and published.²⁰

²⁰Oklahoma State Department of Education, Industrial Arts in Oklahoma (Oklahoma City, 1951), pp. 19-24.

The Depression and World War II

Like all aspects of American life, industrial arts "tightened its belt" during the depression. The depression did not make industrial arts educators lose sight of the goals, but rather it focused attention upon the probability of an impending war and the swift technological progress which would accompany it.

Industrial arts educators have never hesitated to examine their own programs and improve them when possible. Again and again these educators have questioned the principles and philosophy involved. In 1929 William E. Warner compiled a definition of industrial arts. In 1940 John F. Friese propounded a philosophy and a set of principles.²¹

Industrial arts continued its role in general education during World War II although there was a shortage of both skilled workers and instructors. Industrial arts did contribute to the war effort by supplying thousands of articles to the Red Cross and U. S. O., and by building model airplanes for recognition training. Another noticeable change of industrial arts during the war was the significant increase in the enrollment of girls.

The New Image

The American society in recent decades has undergone some significant and influential changes due to advance complex technology. In spite of space age technology, in some localities industrial arts programs have stagnated with conformity.

²¹Melvin L. Barlow, History of Industrial Education in the United States (Peoria, Illinois, 1967), p. 267-272.

Lawrence G. Derthick, former commissioner of the U.S. Office of Education, and presently a Tennessee educator, described the "New Image" as the most recent shift in emphasis in industrial arts. The new industrial arts more accurately portrays our changing technology, and its curriculum is more representative of the problems, processes, and materials of industry. Concepts and principles pertaining to modern technology are emphasized, rather than "putter work" which is not representative of industrial practices.

The "New Image" industrial arts emphasizes how industry uses tools, materials, and ideas to solve problems. It challenges students to solve technical problems in much the same manner. In addition, it motivates student learning through purposeful experiences in research, design, problem-solving activities, and mass production.²²

Reappraisals of the scope of industrial arts have led to the view that:

"Our program is one which presents a challenge to the most gifted student, provides a liberal education for the average student, yet may be adjusted to fit the needs of the slow learner."²³

²²Robert E. Buxton, "Its a Sign of the Times," The Journal of Industrial Arts Education, XXVII, No. 3, (January-February, 1968), p. 10.

²³"A Teacher's Declaration for Space-Age Industrial Arts," Industrial Arts and Vocational Education, I, No. 1, (January 1961), pp. 12-14.

CHAPTER III

ANALYSIS OF SURVEY DATA

The principal aim of this investigation is to determine whether or not the present curriculum at Oklahoma State University is adequately preparing industrial arts graduates to meet present day needs. The purpose of Chapter III and Chapter IV is to present the results of this investigation in a logical sequence and in detail. Through this presentation, the writer has desired to make available to those interested a gathering of data pertaining to industrial arts graduates.

Survey Data

The data from the questionnaires are divided into four major areas. These areas are: (1) personal data, (2) positions held since graduation, (3) salary, and (4) curriculum evaluation.

The data are reported for the most part in tabular form. The responses were stored on computer cards as they came in at various times. When the data were complete, they were computerized and tabulated in graphs for easy observation. Percentages are determined for most areas of the questionnaire. The questions pertaining to each table are listed at the bottom of the table.

Year Graduated

The response pertaining to the personal data of the instructor may be found preceding question number one on the questionnaire. The responses may be found in Table I which indicates the number of graduates receiving bachelor's degrees for that year and the number receiving master's degrees. This table reveals that in 1956, six received bachelor's degrees and four received master's degrees. In 1957, eleven received bachelor's degrees and five received master's degrees. In 1958, eleven received bachelor's degrees and six received master's degrees. In 1959, eleven received bachelor's degrees and three received master's degrees. In 1960, twelve received bachelor's degrees and two received master's degrees. In 1961, thirteen received bachelor's degrees and six received master's degrees. In 1962, twelve received bachelor's degrees and three received master's degrees. In 1963, ten received bachelor's degrees and seven received master's degrees. In 1964, fifteen received bachelor's degrees and five received master's degrees. In 1965, seven received bachelor's degrees and eight received master's degrees. In 1966, three received bachelor's degrees and one received a master's degree.

TABLE I

NUMBER AND YEAR OF BACHELOR'S AND MASTER'S DEGREES

Bachelor's Degrees	Number of Graduates	Master's Degrees	Number of Graduates
1956	6	1956	4
1957	11	1957	5

TABLE I (Continued)

Bachelor's Degrees	Number of Graduates	Master's Degrees	Number of Graduates
1958	11	1958	6
1959	11	1959	3
1960	12	1960	2
1961	13	1961	6
1962	12	1962	3
1963	10	1963	7
1964	15	1964	5
1965	7	1965	8
1966	3	1966	1

Year Graduated, Bachelor's _____ Master's _____ Other _____

Administration

It was believed by the writer that a sizeable number of industrial arts graduates, after a period of years in the teaching field, entered the area of school administration as superintendents, principals, or other positions of a similar nature. From the responses, it was learned that 8.39 per cent had entered the area of administration at some time. Of that 8.39 per cent none are in superintendent positions, 72.72 per cent are in principal positions, and 27.27 per cent are in other types of administrative positions, which are listed later.

Question number one was broken down into the number of graduates holding bachelor's degrees and the number of graduates holding master's degrees in administration. In Tables II and III, it appears that

2.66 per cent of the graduates with bachelor's degrees are in administration. None of the 2.66 per cent are in superintendent positions. One hundred per cent are in principal positions. Sixteen and seven-hundredths per cent of the graduates with master's degrees entered administration with none going into superintendent positions, 66.66 per cent going into principal positions, and 33.33 per cent in other administrative positions. These other positions are: Director of Vocational Training Center, Director of Vocational Education, and Director of Pre-Vocational Evaluation Unit.

TABLE II

ADMINISTRATORS HAVING BACHELOR'S DEGREES

Areas	Per Cent
Superintendent	0
Principal	100
Others	0

Question 1. Administration
 Superintendent _____ Principal _____ Other _____
 Please Specify _____

TABLE III

ADMINISTRATORS HAVING MASTER'S DEGREES

Areas	Per Cent
Superintendent	0
Principal	66.66
Others	33.33

TABLE III (Continued)

Question 1. Administration
 Superintendent _____ Principal _____ Other _____
 Please Specify _____

Classroom Teaching

This area pertains to question number two. Industrial arts is a versatile program which allows its graduates to pursue many areas of work within education. Besides industrial arts, trade and industrial education, technical education, and other areas will be considered. It appears that 64.12 per cent of the graduates are in classroom situations with 76.19 per cent in industrial arts, 8.33 per cent in trade and industrial education, 11.9 per cent in technical education, and 3.57 per cent in other areas of classroom teaching. These other areas are listed below.

As shown in Tables IV and Table V, it appears that 52 per cent of the graduates with bachelor's degrees are teaching. Industrial arts accounts for 71.79 per cent of these with 5.12 per cent going to trade and industrial education, 17.94 per cent going to technical education, and 5.12 per cent going to other types of classroom teaching. The most common of the other types of positions are: manual arts therapist and audio-visual instructor.

From the responses, 80.35 per cent of the graduates with master's degrees are in classroom teaching. Eighty per cent of the master's degree graduates are teaching in industrial arts; 11.11 per cent are in trade and industrial education; 6.66 per cent are in technical education; and 2.22 per cent are in other areas of classroom teaching such as science.

TABLE IV
CLASSROOM TEACHERS HAVING BACHELOR'S DEGREES

Areas	Per Cent
Industrial Arts	71.79
Trade and Industrial	5.12
Technical	17.94
Other	5.12

Question 2. Classroom Teaching
 Industrial Arts _____ Trade and Industrial _____
 Technical _____ Other _____
 Please Specify _____

TABLE V
CLASSROOM TEACHERS HAVING MASTER'S DEGREES

Areas	Per Cent
Industrial Arts	80.0
Trade and Industrial	11.11
Technical	6.66
Other	2.22

Question 2. Classroom Teaching
 Industrial Arts _____ Trade and Industrial _____
 Technical _____ Other _____
 Please Specify _____

Industry

Since industrial arts provides a broad spectrum of knowledge in many areas of industrial processes, it is understandable that many of

the graduates choose this avenue of approach. It appears from the responses that 29.77 per cent of all the graduates are in industry, 25.64 per cent are holding executive positions, 35.89 per cent are working as supervisors, and 38.46 per cent are simply employees of some industry.

Again breaking the area down further, in Table VI it appears that 45.33 per cent of the 29.77 per cent are graduates with bachelor's degrees. Of this 45.33 per cent, 23.52 per cent are in executive positions; 35.29 per cent are in supervisor's positions; and the remaining 41.17 per cent are employees.

TABLE VI
INDUSTRIAL WORKERS HAVING BACHELOR'S DEGREES

Areas	Per Cent
Executive	23.52
Supervisory	35.29
Employee	41.17
Other	0.0

Question 3. Industry
 Executive _____ Supervisory _____ Employee _____
 Other _____ Please Specify _____

As shown in Table VII, the responses indicate that of the 29.77 per cent, the total per cent of graduates in industry, only 8.92 per cent are holding master's degrees. Of this 8.92 per cent, 40.0 per cent are employed as executives, 40.0 per cent as supervisors, and 20.0 per cent as employees.

TABLE VII
INDUSTRIAL WORKERS HAVING MASTER'S DEGREES

Areas	Per Cent
Executive	40.0
Supervisory	40.0
Employee	20.0
Other	0.0

Question 3. Industry
 Executive _____ Supervisory _____ Employee _____
 Other _____ Please Specify _____

A bar graph showing an overall comparison of the total per cent of graduates in administration, classroom teaching, and industry may be found in Chapter IV, page 40. The graph will also show the breakdown of each area.

Out of State

Question number five pertains to those graduates who have taught outside of the state of Oklahoma. An effort was made to determine what reason motivated the decision to leave the state.

The responses indicate that 58.3 per cent of the graduates have never taught outside of the state of Oklahoma. Of the 41.7 per cent who have taught out of state, 76.4 per cent indicated that a difference in salary was the prime reason for leaving Oklahoma. Twenty-one and eight-tenths per cent left the state because of a preference in locations. Only 1.8 per cent left Oklahoma for other reasons. The reason was because of desegregation of students, but not of teachers.

Responses to question six and seven are tabulated in Table VIII. From the responses an average salary of \$7,075.95 was determined for educational occupations. An average salary of \$8,756.41 was calculated for industrial occupations.

TABLE VIII
AVERAGE SALARY FOR EDUCATIONAL AND INDUSTRIAL OCCUPATIONS

Occupation	Salary
Education	\$7,075.95
Industrial	\$8,756.41

Question 6. If you are employed in education, please check the salary nearest your annual income.

\$4,000 _____	\$6,000 _____	\$8,000 _____
\$4,500 _____	\$6,500 _____	\$8,500 _____
\$5,000 _____	\$7,000 _____	\$9,000 _____
\$5,500 _____	\$7,500 _____	\$9,500 _____

Question 7. If you are presently employed by industry, please check the salary nearest your annual income.

\$4,000 _____	\$7,000 _____	\$10,000 _____
\$5,000 _____	\$8,000 _____	Above _____
\$6,000 _____	\$9,000 _____	

Reason for Choosing Industry as a Vocation

Question eight pertains to the graduates' reasons for choosing industry as a vocation. This may give some insight as to why graduates are going into industrial positions rather than educational.

Table IX illustrates that of those graduates in industry, 68.5 per cent indicated an increase in salary was the reason for entering industry. Fifteen and eight-tenths per cent of those responding favored

the better working conditions of industry, and 15.8 per cent chose industry due to difficulty in working with the public.

TABLE IX
REASONS FOR CHOOSING AN INDUSTRIAL VOCATION

Choices	Per Cent
Better Salary	68.5
Better Working Conditions	15.8
Difficulty in Working With The Public	15.8
Other	0.0

Question 8. If you have chosen some form of industry as your vocation, please state your reason(s) for your choice. Better salary _____ Better working conditions _____ Difficulty in working with the public _____ Other _____
Please Specify _____

Data in Table X

The responses to question nine are tabulated in Table X. Of the responses, 28 per cent stated that some individual industrial arts courses were a determining factor in securing positions. Seventy-two per cent indicated that the courses were not a determining factor. The individual courses and the per cent by frequency of response are listed in Table X.

TABLE X
INDIVIDUAL INDUSTRIAL ARTS COURSES THAT WERE
A DETERMINING FACTOR IN SECURING A POSITION

Courses	Per Cent
Graphic Arts	8.1
Drafting and Design	51.3
Electricity-Electronics	8.1
Woods	29.8
Metals	32.4
Crafts	10.8
Others*	2.7

*Power Mechanics

Question 9. Was any individual Industrial Arts course the determining factor in securing any positions which you have held? Yes ___ No ___ If Yes, which course? _____

Data in Table XI

The responses to question ten are tabulated in Table XI. From the responses, 66.7 per cent of the graduates indicated that they had had some pre-college courses in industrial arts. Thirty-three and three-tenths per cent had not had any pre-college industrial arts courses. The individual courses, the per cent, and the frequency of responses are listed in Table XI.

TABLE XI
PRE-COLLEGE COURSES IN INDUSTRIAL ARTS

Courses	Frequency	Per Cent
Graphic Arts	1	1.19
Drafting and Design	28	31.8
Electricity-Electronics	3	3.4
Woods	47	53.4
Metals	8	9.1
Crafts	2	2.3
Other*	5	5.7

*Auto Mechanics

Question 10. Did you have any pre-college courses in Industrial Arts? Yes _____ No _____
Please Specify _____

Question 11 reveals that of the 122 graduates who answered the question, 72.0 per cent indicated that the industrial arts curriculum was a determining factor in securing a position.

Industrial Arts Courses That Apply To All Positions

The responses to question 12 are tabulated in Table XII. The individual course, the per cent, and the frequency of responses are listed in Table XII. The graduates had the option of marking one, several, or all of the blanks, therefore making the frequency and per cent come out greater than the whole. From this table, one may see which courses are correlated to the graduates' positions.

TABLE XII
INDUSTRIAL ARTS AREAS THAT APPLY TO ALL POSITIONS

Courses	Frequency	Per Cent
Graphic Arts	13	10.7
Drafting and Design	96	78.8
Electricity-Electronics	44	36.0
Woods	73	60.0
Metals	61	50.0
Crafts	26	21.3
Others*		
Plastics	3	2.5
General Shop	2	.64
Power Mechanics	4	3.3
Auto Mechanics	9	7.4

*Since the four areas under Others appeared so frequently when recording the responses, the writer listed each area separately.

- Question 12. Please check the following Industrial Arts areas that apply to all positions held since graduating:
- A. Graphic Arts (Printing) _____
 - B. Drafting and Design _____
 - C. Electricity-Electronics _____
 - D. Woods _____
 - E. Metals _____
 - F. Crafts _____
 - G. Others _____

Areas To Be Expanded

Because technology changes so rapidly, it is an endless task to stay abreast of industry. In order to update the present programs in industrial arts, an evaluation of the curriculum is needed to determine its effectiveness. Responses to question thirteen, as shown in

Table XIII indicate that some of the course areas may not be as effective in the space age as they were ten to twenty years ago. From the table one may detect what courses may need to be expanded.

TABLE XIII
INDUSTRIAL ARTS AREAS THAT SHOULD BE EXPANDED TO MEET
THE NEEDS OF AN UP-TO-DATE PROGRAM

Areas	Frequency	Per Cent
Graphic Arts (Printing)	19	.18
Drafting and Design	53	50.0
Electricity-Electronics	70	66.8
Wood	18	.17
Metals	53	50.0
Crafts	11	.10
Others*		
Plastics	4	.04
General Shop	0	0.0
Power Mechanics	3	.03
Auto Mechanics	4	.04

*Since the four areas under Others appeared so frequently when recording the responses, the writer listed each area separately.

Question 13. Which of the above AREAS do you feel should be expanded to meet the need of an up-to-date Industrial Arts program? (Refer to previous question and check those that apply.) A. ___ B. ___ C. ___ D. ___ E. ___ F. ___ G. ___

Specific Courses That Should Be Expanded or Added

Again in order to effectively evaluate a curriculum, it is necessary to determine whether the objectives are being met. Sometimes, it is necessary to discard obsolete practices and expand or add certain areas of new material to meet the needs of future programs.

The responses to question fourteen as shown in Table XIV may be of some benefit in determining the curriculum for future industrial arts programs. The individual course, the per cent, and the frequency of responses are listed in Table XIV.

TABLE XIV

SPECIFIC COURSES THAT SHOULD BE EXPANDED OR ADDED TO MEET
THE NEEDS OF A PRESENT-DAY INDUSTRIAL ARTS PROGRAM

Areas	Frequency	Per Cent
Shop Maintenance	3	3.4
Metal Working and Welding	23	25.8
Electricity-Electronics	23	25.8
On Job Training	8	9.0
Education Courses	11	12.4
Crafts	2	2.2
Drafting	14	15.7
Design	8	9.0
Materials and Uses	1	1.1
General Shop	2	2.2
Woodworking	6	6.7
Industrial Management	3	3.4

TABLE XIV (Continued)

Areas	Frequency	Per Cent
English	3	3.4
Plastics (Industrial)	9	10.0
Shop Organization and Management	6	6.7
Power Mechanics	8	9.0
Mathematics	11	12.4
Auto Mechanics	8	9.0
Chemistry or Science	2	2.2
Graphic Arts	2	2.2
Purchasing Materials, Tools, and Supplies	4	4.5

Question 14. Name SPECIFIC COURSES in the area that you feel should be expanded or added that will meet the needs of a present-day Industrial Arts program.

This chapter has presented, for the most part, in tabular form, the data acquired by the survey of 131 industrial arts graduates. The data have been presented with supplemental information for the purpose of clarification. The following chapter presents an interpretation of the analysis of the data.

CHAPTER IV

INTERPRETATION OF SURVEY FINDINGS

As stated previously, the purpose of Chapter IV is to further reveal existing conditions of Oklahoma State University industrial arts graduates. Chapter IV highlights the data and provides some interpretations to make the data more meaningful.

Present Average Annual Salary for Both Bachelor's and Master's Degree Graduates

An average salary is calculated for the number of graduates of each year of the study. This is illustrated in Table XV for both bachelor's and master's degrees. The average salary of graduates with bachelor's degrees is \$7,706.55 as compared with \$7,461.95, the average salary of graduates with master's degrees. Since normally a person receiving a master's degree is expected to receive a higher salary, this difference may be accounted for by observing that 45.33 per cent of all graduates with bachelor's degrees are in industry.

Occupational Distribution

Figures 1 and 2 may aid in determining where the graduates are employed, to what extent, and the degree held. Figure 1 illustrates an overall breakdown of bachelor's and master's degree graduates within the three main occupational areas: administration, teaching, and industry.

Table XV

PRESENT OVERALL AVERAGE SALARY FOR BACHELOR'S
AND MASTER'S PER YEAR

Year Graduated	Present Average Bachelor's Salary	Present Average Master's Salary
1956	10,000.00	7,500.00
1957	8,625.00	6,900.00
1958	8,583.33	8,583.33
1959	7,928.57	7,666.66
1960	7,833.33	8,000.00
1961	8,062.50	8,083.33
1962	8,500.00	8,000.00
1963	6,800.00	8,285.71
1964	7,272.72	6,500.00
1965	6,416.66	7,062.50
1966	4,750.00	5,500.00

Figure 2 further breaks these three main areas down to illustrate where the graduates are within each area.

Figure 1 shows that 1.53 per cent of the graduates held bachelor's degrees and 6.86 per cent of the graduates held master's degrees, making a total of 8.39 per cent who are in administration. Teaching draws 61.84 per cent of all the graduates. This per cent is composed of 29.94 per cent having bachelor's degrees and 31.90 per cent having master's degrees. Industry drew 26.03 per cent of the graduates with bachelor's degrees and 3.74 per cent of the graduates with master's degrees, which comprises a total of 29.77 per cent of all the graduates. From Figure 1 it appears that 54.6 per cent of the graduates with bachelor's degrees and 91.2 per cent of the graduates with master's degrees are in educational occupations; 45.06 per cent of the graduates with bachelor's degrees and 8.9 per cent of the graduates with master's degrees are in industrial occupations.

Figure 2 reveals that of all the graduates, 6.10 per cent are occupying principal's positions, and 2.29 per cent other administrative positions. It appears that none of the graduates are holding superintendent's positions in education. As it should be, 47.10 per cent of the graduates are industrial arts instructors. Only 5.15 per cent are trade and industrial education instructors. This may possibly be due to the fact that trade and industrial education is a program which requires at least two years of industrial experience. Technical education accounts for 7.37 per cent of the graduates. This figure may be influenced by the substantially higher salary. Only 2.22 per cent of the graduates are instructors in other classroom positions. Industry, which draws 29.77 per cent of all the graduates, has 7.72 per cent of

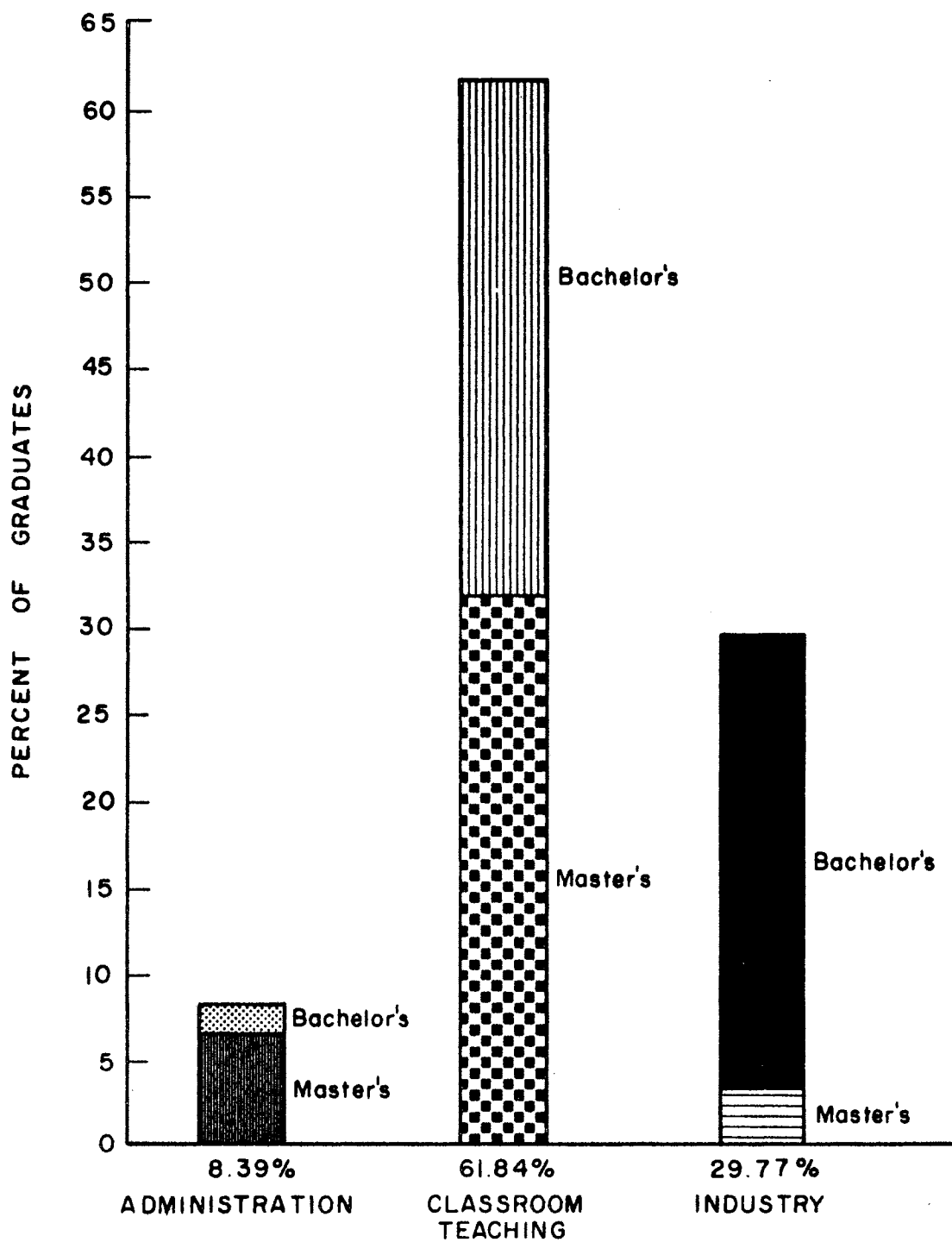


Figure 1. Overall Breakdown of Graduates Having Bachelor's and Master's Degrees in Industrial Arts Education in the Three Main Occupational Areas

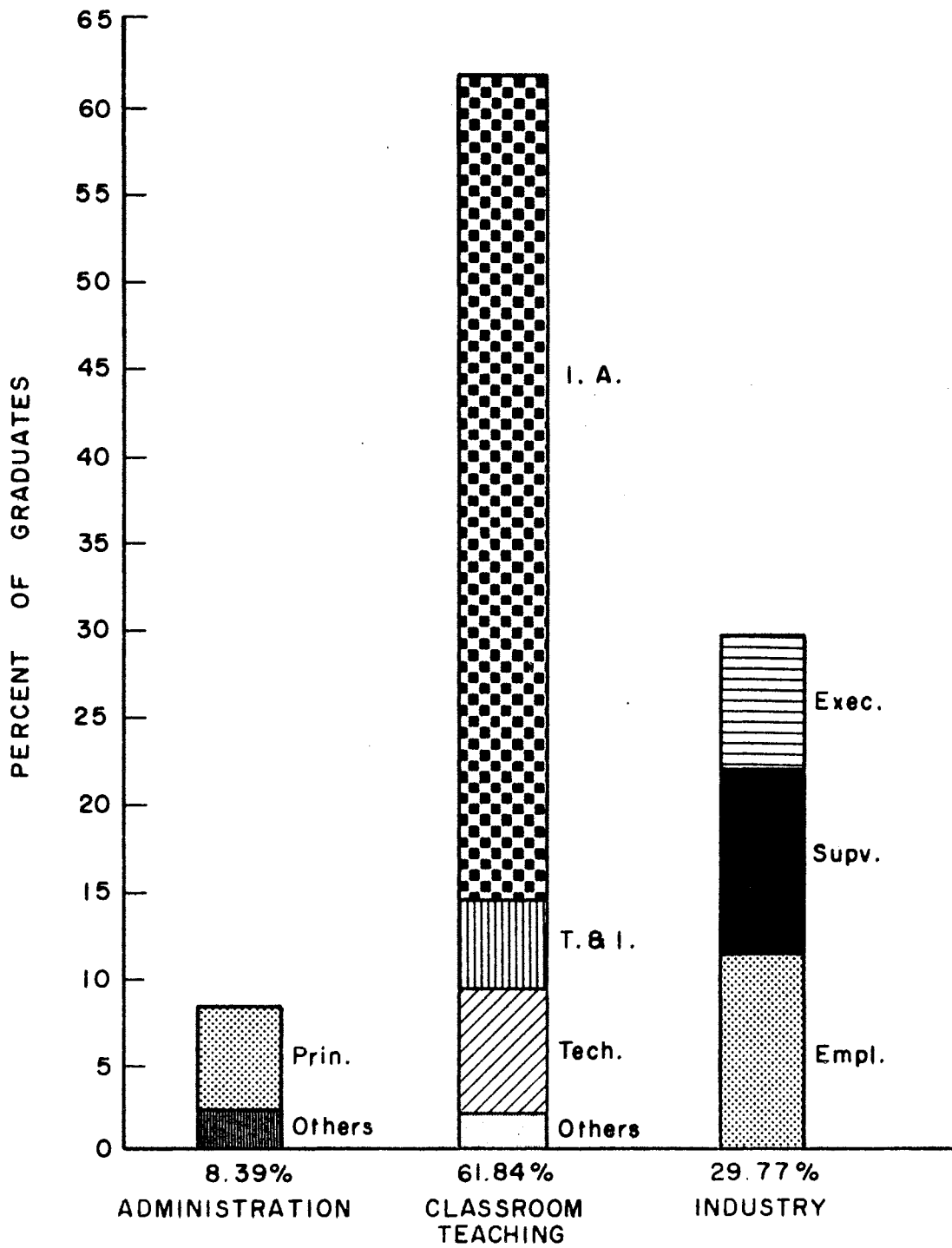


Figure 2. Overall Breakdown of Graduates Within the Three Main Occupational Areas

these in executive positions, 10.63 per cent in supervisory positions, and 11.42 per cent in employee positions.

Figures 3, 4, and 5 are designed to show specifically what occupations the graduates are holding according to the degrees held. Each figure is broken down into two bars. One bar shows what jobs the graduates with bachelor's degrees are holding, and one bar shows what jobs the graduates with master's degrees are holding. Figure 3 relates to administration, Figure 4 relates to teaching, and Figure 5 relates to industry.

Figure 3 illustrates that only 2.66 per cent of all the bachelor's degree graduates are in administration. All of these were found to be in principal's positions. Also 10.6 per cent of the graduates with master's degrees are working as principals and 5.47 per cent are working in other areas of administration. These two comprise a total of 16.07 per cent of all the graduates with master's degrees in administration. This indicates that graduates with bachelor's degrees are not prepared to hold administrative positions, whereas those with master's degrees appear to be more adequately prepared and are more versatile.

Figure 4 reveals that 37.35 per cent of the graduates with bachelor's degrees remain in industrial arts. Trade and industrial education accounts for 2.66 per cent of the graduates with bachelor's degrees, technical education draws 9.33 per cent, and 2.66 per cent of the bachelor's degrees serve as instructors in other classroom teaching situations. Adding these four percentages together, it appears that 52 per cent of the graduates having a bachelor's degree work as instructors. Figure 4 also illustrates that 60 per cent of the graduates with master's degrees are teaching in industrial arts, and 8.34 per cent of the master's are in trade and industrial education. Technical education

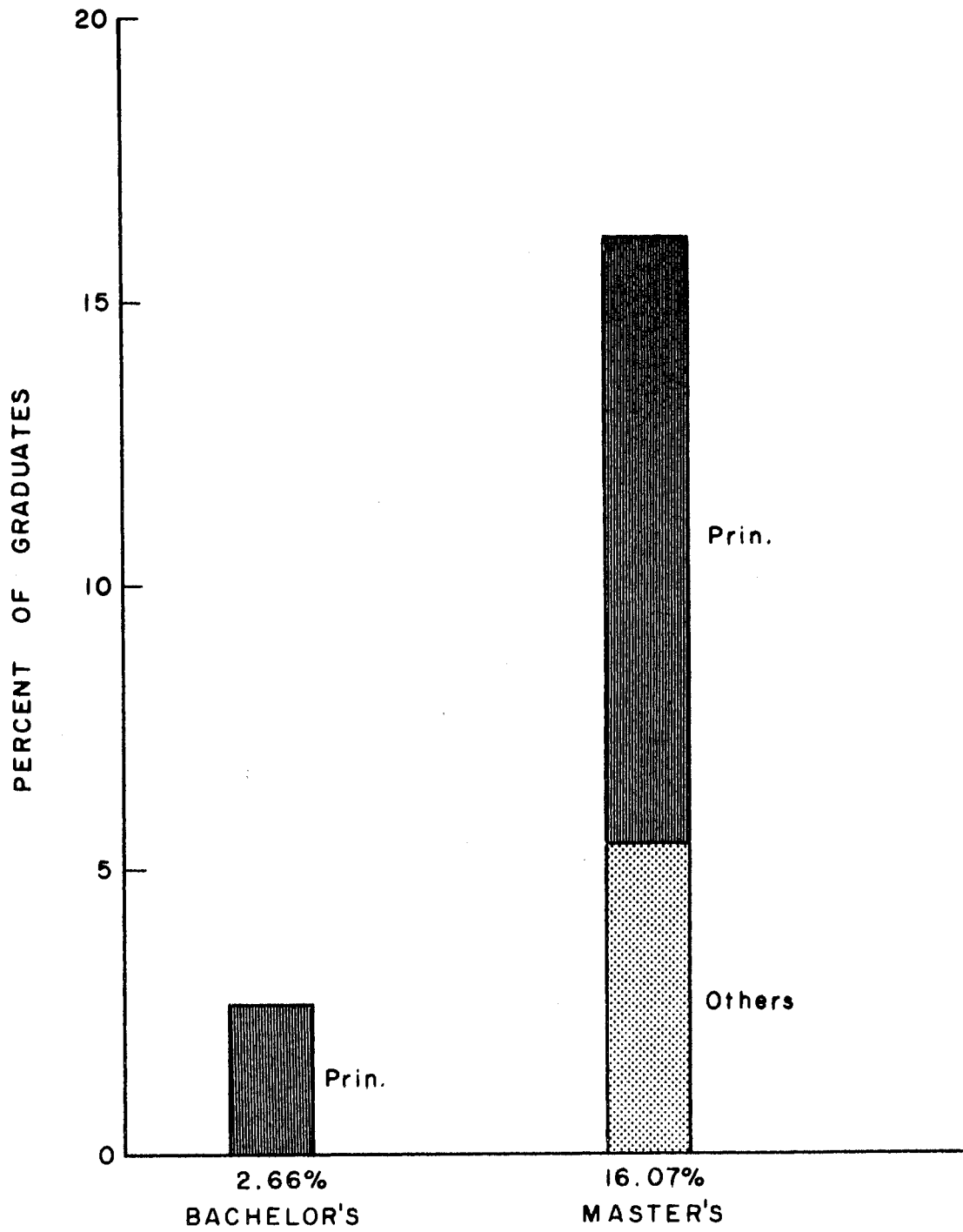


Figure 3. Breakdown of Graduates Having Bachelor's and Master's Degrees in Industrial Arts Education in Administrative Occupations.

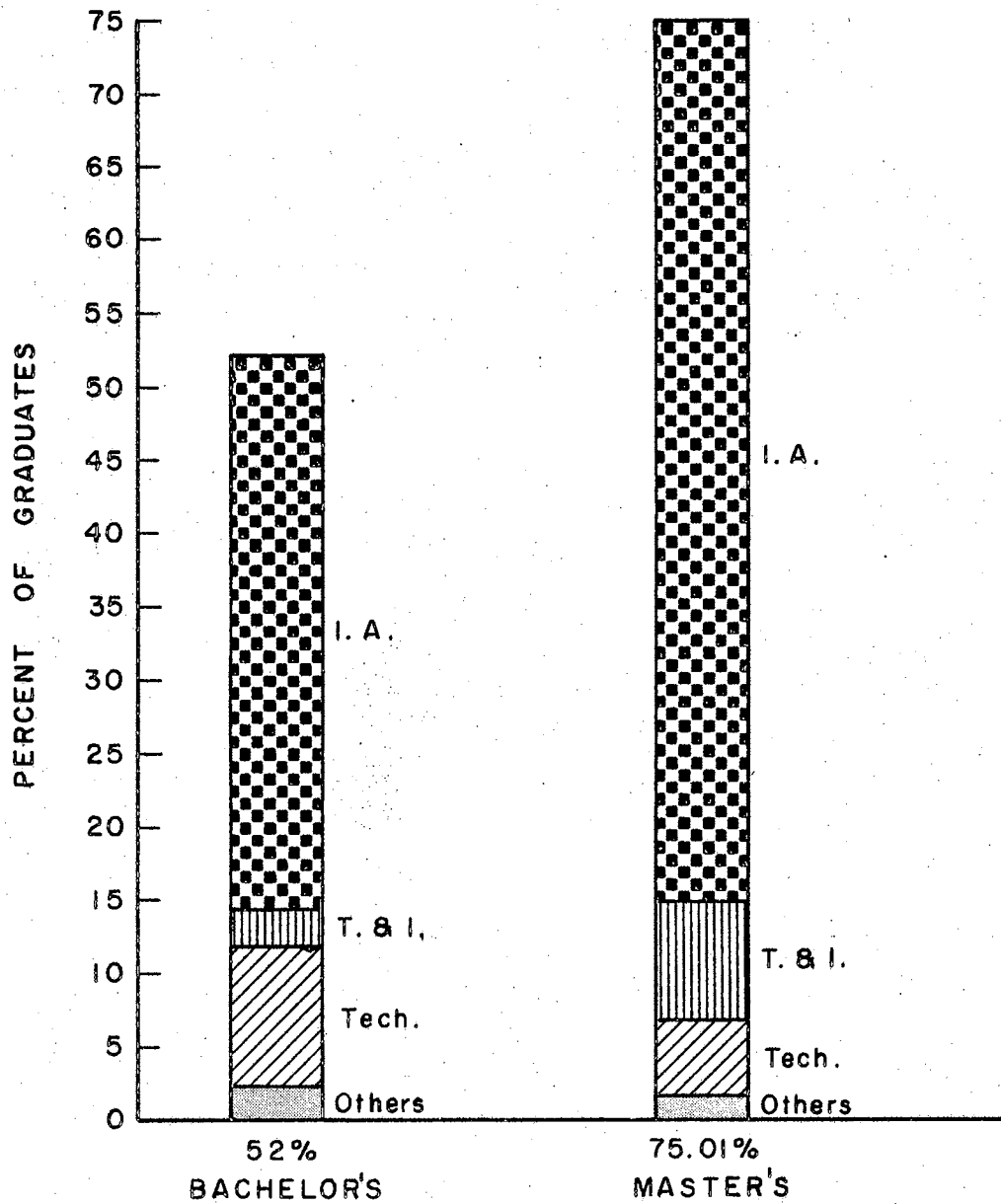


Figure 4. Breakdown of Graduates Having Bachelor's and Master's Degrees in Industrial Arts Education in Classroom Teaching Occupations

dropped in the number of graduates with master's degrees, with only 5.00 per cent teaching in this area. Other classroom teaching positions accounted for only 1.67 per cent of the graduates with master's degrees. The sum of these four percentages reveals that 75.01 per cent of the graduates are teaching in classroom situations.

It appears that industrial arts is supplied relatively heavy with both bachelor's and master's degree graduates. Trade and industrial education has fewer graduates with bachelor's degrees than master's degrees, whereas technical education is just the opposite.

Figure 5 reports that 10.73 per cent of the graduates with bachelor's degrees are executives, 15.98 per cent are supervisors, and 18.62 per cent are employees in some form of industry. This indicates that 45.33 per cent of the graduates with bachelor's are in industrial occupations. Also, Figure 5 reveals that only 3.36 per cent of the graduates with master's degrees work as executives in industry. Three and thirty-six hundredths per cent work as supervisors, and only 2.20 per cent work as employees. From these percentages it appears that only 8.92 per cent of the graduates with master's degrees are in industrial occupations.

In conclusion of Figure 5, approximately 45 per cent of the graduates with bachelor's degrees are in industry. Only approximately 8 per cent of the graduates with master's degrees are in industry. This would seem to indicate that a fairly large number of the graduates get a bachelor's degree in industrial arts for the sake of having a degree, or the graduates find that industry can offer greater benefits than education. Here again it seems apparent that education must become more competitive to retain its graduates. Also, those graduates holding a master's degree probably find that opportunities are greater in

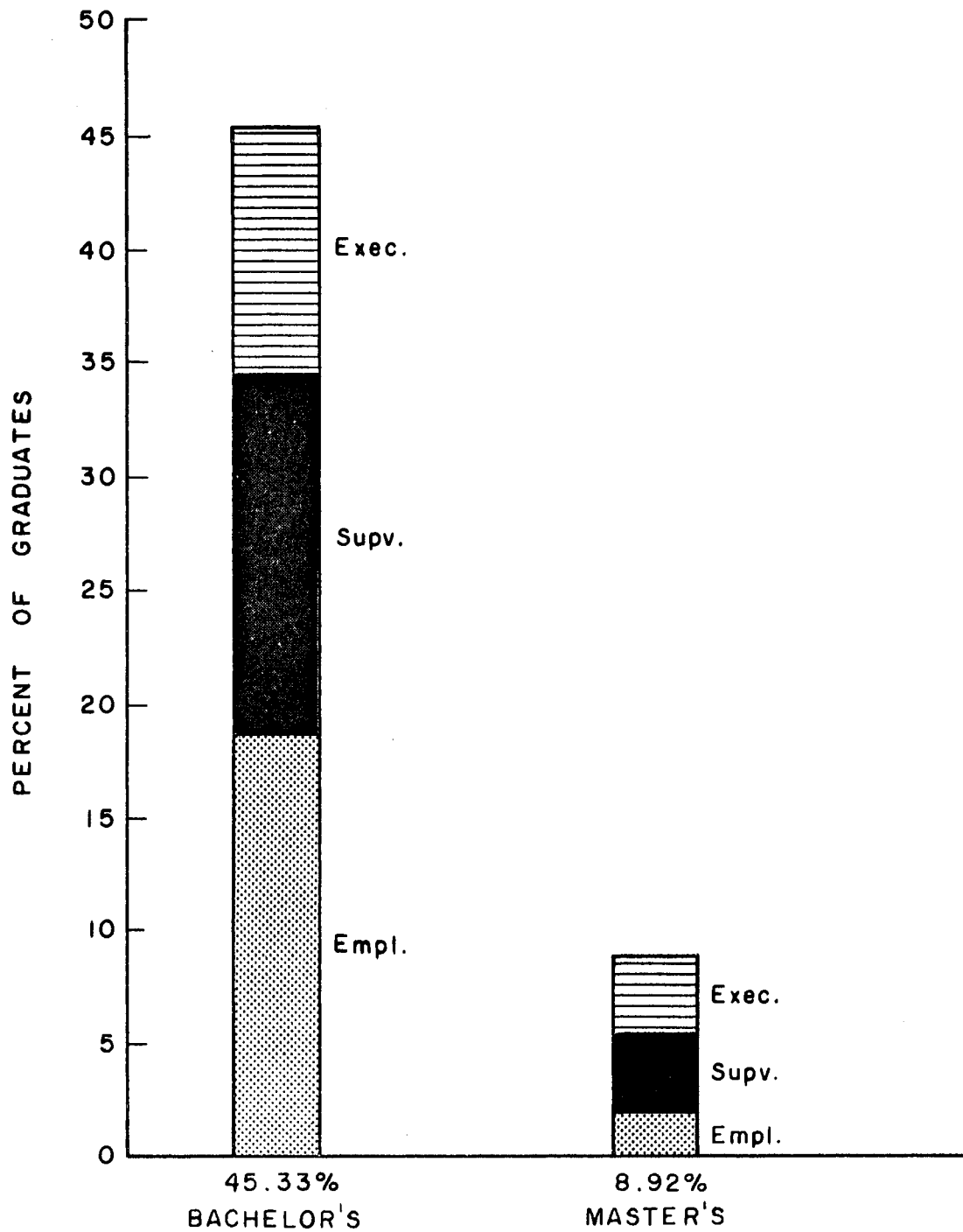


Figure 5. Breakdown of Graduates Having Bachelor's and Master's Degrees in Industrial Arts Education in Industrial Occupations

educational fields since the degree is specialized in this area. Of those graduates having a master's degree, almost all are in executive and supervisory capacities.

Occupational Trends

By observing the responses to the questionnaire some occupational trends may be detected. By computer analysis, it was determined that 52.7 per cent of the graduates indicated the most common first job after graduation was in industrial arts, while 26.7 per cent of the graduates' first employment was in industry. The most common first and second jobs were in the field of industrial arts and in administration. This was indicated by 8.4 per cent of the responses.

The responses also show that 66.5 per cent of the graduates have taught in industrial arts at some time or other. This indicates that 66.5 per cent of the graduates are utilizing the training received. It was also noted that of the graduates who once taught in industrial arts, 16.1 per cent went into administration, and 8.5 per cent went into some other area and later came back to industrial arts. Eight and five-tenths per cent went into trade and industrial education, and .23 per cent went into technical education. Eleven and five-hundredths per cent changed to industry, 8.5 per cent entered the military service, and 8.5 per cent went into some area of classroom teaching other than those already listed.

Salary Interpretation

To possibly determine what may have prompted the graduates to change jobs, average salaries are calculated for each job in the three main occupational areas. Figure 6 reveals the present average salary for

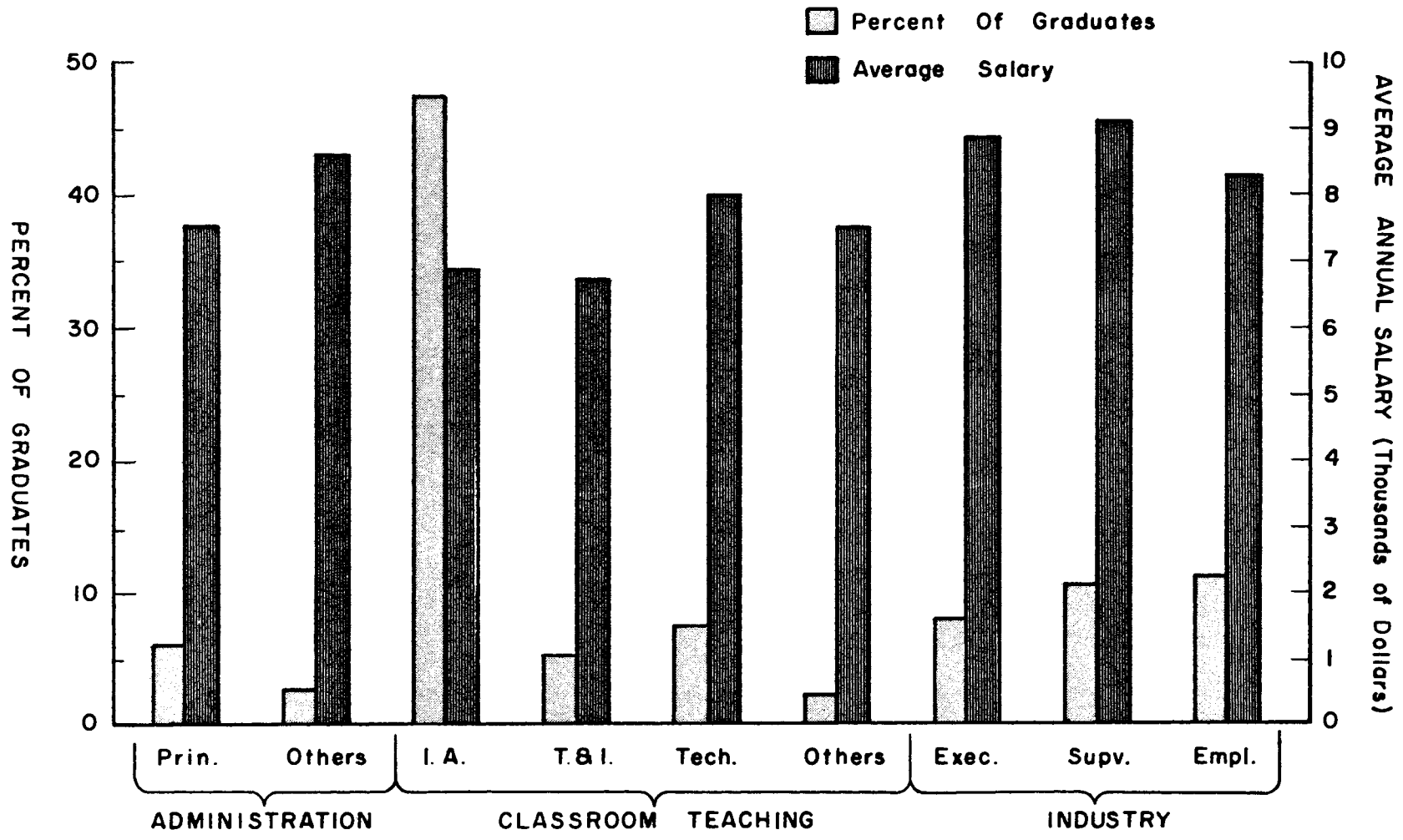


Figure 6. Correlation Between Occupation and Salary

each job. Also, Figure 6 illustrates the percentage of graduates for each job so that an overall correlation may be made.

The writer is not assuming that an increase in salary is the sole motive for an occupational transfer. Wages earned are but one of many factors which may influence the individual's choice.

It may be noted that the graduates in principal's positions have an average salary of \$7,500.00. Other administrators, such as directors, receive an average salary of \$8,666.67. The industrial arts average ranked next to the lowest of all the occupations with \$6,905.17. This figure is somewhat higher in relation to the average national industrial arts salary of 1962-63 which was only \$6,200.00.¹ Trade and industrial education ranked lowest on the scale with an average salary of \$6,785.71. The reason trade and industrial education is lower may be due to the fact that trade and industrial education teachers have fewer years of tenure. Technical education ranked the highest in the teaching area with an average salary of \$8,000.00. This comparatively high salary may be due to recent legislation funding technical programs. Graduates teaching in other types of classroom situations receive an average salary of \$7,500.00. Industrial occupations ranked well above all the other occupations. It appears that executives receive a salary of \$8,900.00. Supervisors, however, draw an average salary of \$9,071.43. Also, it appears that graduates in employees' positions in industry rank very close to the highest paid positions in education with an average salary of \$8,366.67.

¹U.S. Department of Health, Education and Welfare, Industrial Arts Education (Washington, 1966), p. 13.

Figure 7 shows that 70.23 per cent of the graduates are employed in some form of education and are receiving an average salary of \$7,095.95, while 29.77 per cent of the graduates, employed in industry are receiving \$8,756.41. The reason for approximately 30 per cent of the graduates going into industry may be because of a 23.7 per cent greater salary increase over education.

From the responses to question eight of the questionnaire, it was determined that 68.5 per cent of the graduates chose some form of industrial vocation because of a better salary. This seems to support the theory that the graduates enter industry rather than education because of a 23.7 per cent annual salary difference.

From the responses it was determined that 41.7 per cent of the graduates have at some time taught outside the state of Oklahoma. In order to determine an average salary for the graduates presently teaching out of state, an analysis was made of the graduates' with out-of-state addresses. From this analysis it was determined that 31.3 per cent of the graduates are presently employed in some form of educational occupation out of the state receiving an average salary of \$7,695.22. Also from this analysis it was determined that 38.1 per cent of the graduates are presently employed in some form of educational occupation in Oklahoma, receiving \$6,850.00. This indicates that the present out-of-state salary is approximately 11 per cent higher than that in Oklahoma.

Curriculum Evaluation

Question 11 of the questionnaire was designed to help determine if the industrial arts curriculum is adequate. From the responses, 72 per

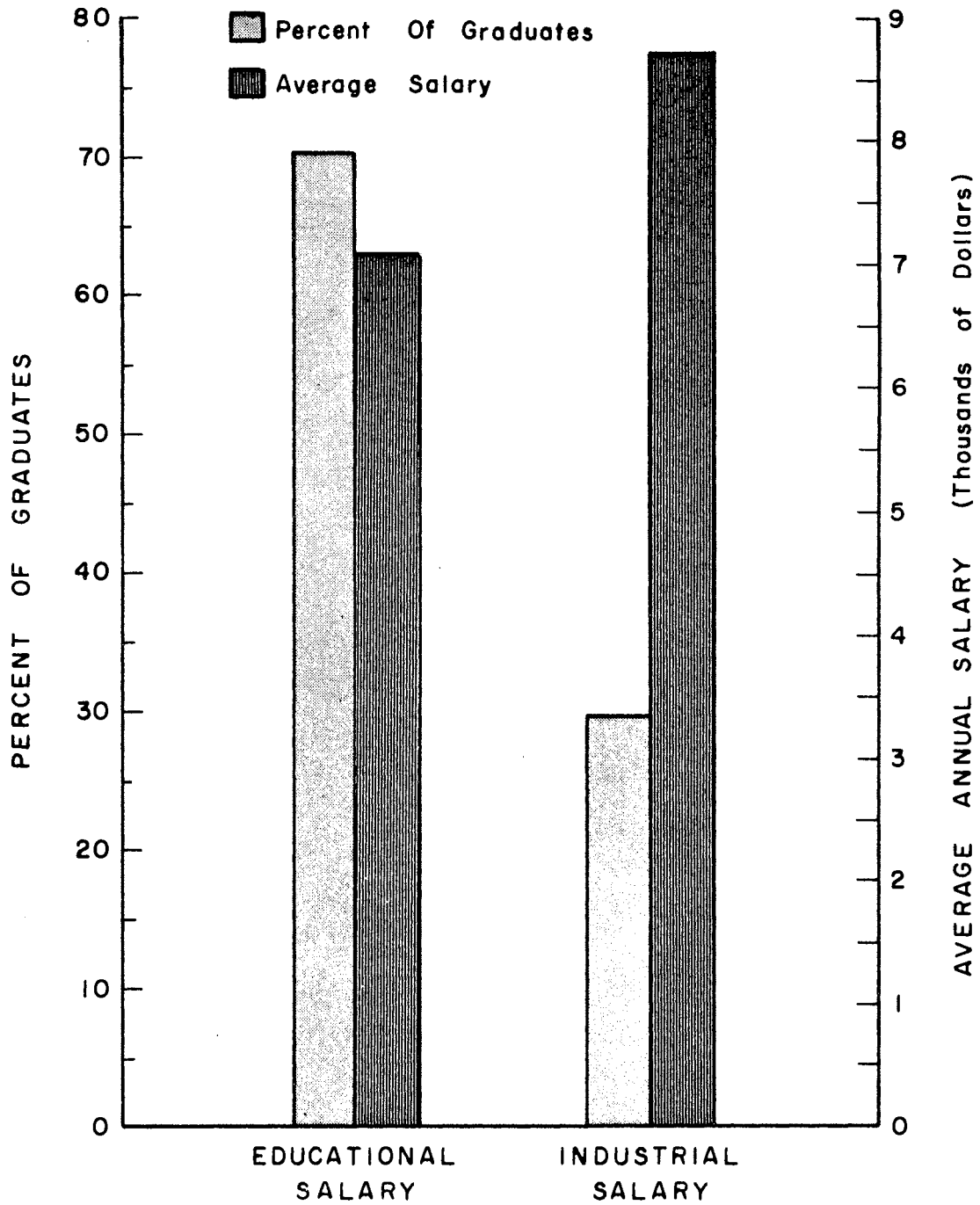


Figure 7. A Comparison of the Present Average Salary and Per Cent of Graduates in Educational and Industrial Occupations

cent of the graduates indicated that it was adequate, and 28 per cent indicated that it was not.

By combining questions 9 and 12 it may be possible to detect what courses were most beneficial to the graduates. This comparison may also indicate what courses may need to be updated. From Table X and XII of Chapter III, it may be observed that the courses believed to be most significant have received the higher percentages. From Table X it appears that drafting and design, woodworking, and metalworking are the most popular courses chosen as a determining factor in securing positions. Graphic arts, electricity-electronics, crafts, plastics, general shop, power mechanics, and auto mechanics received considerably lower ratings which may indicate these courses need to be updated. From Table XII it appears that drafting and design, electricity-electronics, woodworking, metalworking, and crafts are the most preferred courses that apply to all positions. Graphic arts, plastics, general shop, power mechanics, and auto mechanics, appeared less important.

Question 13 pertains to the courses the graduates feel need to be expanded to meet the requirements of an up-to-date program. From Table XIII in Chapter III, it appears that drafting and design, electricity-electronics, and metalworking, as indicated by the graduates, definitely need to be expanded.

The current industrial arts instructional program is too narrow in scope. Not only is the content narrow with respect to course offerings, but the instructional content within the courses themselves is not as broad as the professionals in the field recommend.² This study reveals

²Ibid., p. 30.

a concentration of instruction in the traditional areas such as wood, metal, and drawing. To improve the program, more instructional content should be reflected in the subject areas of electricity-electronics, general shop, graphic arts, crafts, power mechanics, and auto mechanics. Instruction in plastics as it applies to industrial situations, not crafts, should be added. Little has been done in relating what is done in the school shop to what is done in industry. Courses to help students understand industry should be added in conjunction with a brief internship in industry. Also, the graduates expressed a need for additional preparatory work in mathematics, science, and English. Other subjects in shop maintenance, shop organization and management, and purchasing of tools and supplies should be expanded to adequately prepare the instructor for non-classroom activities.

CHAPTER V

SUMMARY

The intent of this study, as stated in Chapter I, is to determine possible answers to such questions as: (1) what vocations the graduates have chosen, (2) what factors influenced the choices, (3) how many have taught outside of Oklahoma, and (4) what opinions were concerning the relation of training in the area of industrial arts education to occupations. A mailing list of the graduates, for the ten years involved, was obtained and approximately 275 questionnaires were sent out. There was a total of 131 questionnaires returned that were usable.

The results of the survey indicated that (1) 8.39 per cent of the graduates are in some form of educational administrative positions, (2) 61.84 per cent of the graduates are in classroom teaching positions, and (3) 29.77 per cent of the graduates are in some form of industrial positions. It appeared that the majority of the graduates with bachelor's degrees may be expected to teach in classroom situations, or work in industrial situations. The majority of the graduates with master's degrees tend to either occupy classroom teaching positions or administrative positions. Of the 61.84 per cent of the graduates in classroom teaching, 76.19 per cent are in industrial arts, 8.33 per cent are in trade and industrial education, 11.90 per cent are in technical education, and 3.57 per cent are in other areas of classroom teaching.

Of those who returned questionnaires, 42.5 per cent hold master's degrees. On the national average, only 34.9 per cent of the industrial arts instructors have master's degrees.

It was discovered that 41.7 per cent of the graduates at some time or other have taught outside of Oklahoma. Presently 31.3 per cent of the graduates are teaching out of state because of better salaries. The average teaching salary in Oklahoma, as indicated by the graduates, is \$6,850.00. The average teaching salary out of state is \$7,695.22.

From the responses of the graduates in industry, 68.5 per cent indicated that the reason for going into industry was because of a better salary. The average educational salary was found to be \$7,095.95. The average industrial salary is \$8,756.41. It appears that the graduates are in industry due to a 23.7 per cent increase in salary.

The average industrial arts salary of \$6,905.00 ranked next to the lowest of all the occupations considered in this study. This salary is somewhat higher in relation to the national average industrial arts salary of 1962-63, which was \$6,200.00.

As indicated from the responses, 72.0 per cent stated that no particular industrial arts course was a determining factor in securing a position. It was noted that 64.4 per cent of the graduates indicated that the industrial arts curriculum in general was a determining factor in securing positions.

It appears that the predominate course areas that apply to all positions held since graduation are drafting and design, electricity-electronics, metalworking, woodworking, and crafts. As indicated from the responses almost all of the subject areas in industrial arts need to be revised and updated to keep pace with modern technology. New courses need to be added to the curriculum which reflect advances in technology.

CONCLUSION

From the data gathered in this study it appears that education must increase salaries to become competitive with industry. An increase in salaries will help stop the migration of Oklahoma's greatest resource--its people.

It is felt by the author that the industrial arts curriculum at Oklahoma State University very closely parallels the national industrial arts curriculum; however, the average university program does not measure up to the standards recommended by the professional leaders 10 to 20 years ago.¹ According to the graduates who responded; the current industrial arts program is too narrow in scope. Courses in drafting and design, electricity-electronics, and metalworking need to

¹U.S. Department of Health, Education and Welfare, Industrial Arts Education (Washington, 1966), p. 30.

be updated and expanded. To improve the program, more instructional content should be added or expanded in such areas as:

general shop	industrial training
power mechanics	mathematics
auto mechanics	science
graphic arts	English
crafts	shop maintenance
industrial plastics	shop organization and management
woodworking	education courses
industrial occupations	

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APPENDIX A

**OKLAHOMA STATE UNIVERSITY • STILLWATER**

Department of Industrial Arts Education
Industrial Education Building Room 104

74074

To: Oklahoma State University
Industrial Arts Graduate

April 26, 1967

From: Don E. Combrink, Graduate Student
Industrial Arts Education

The staff members of the Industrial Arts Education Department of Oklahoma State University are in the process of revising the course offerings. The purpose of this study is to guide the direction and strengthen the role of the industrial arts department at Oklahoma State University by determining the occupations of the graduates in relation to the course offerings.

It is desirable to know the present status of the industrial arts graduates so that an evaluation of the present program may be made. This information is also desirable so that conditions and practices that now exist can be made known. It will also be useful in identifying trends and detecting weakness in Oklahoma State University's industrial arts education program.

I am making a survey to collect the necessary information for the purpose of writing a master's degree thesis entitled, "A Survey of the Occupations of Oklahoma State University Industrial Arts Graduates During 1956-66." I am attempting to contact all the graduates over the past ten years so that a detailed description can be made.

The enclosed questionnaire is designed to secure this information in the most direct manner possible. I have attempted to keep this questionnaire brief and objective to conserve your time in answering the questions.

Your cooperation will be greatly appreciated in completing the questionnaire and returning it in the enclosed, self-addressed and stamped envelope.

Approved By:

A handwritten signature in cursive script that reads "L. H. Bengtson".

L. H. Bengtson, Chairman
Industrial Arts Education

A SURVEY OF THE OCCUPATIONS OF OKLAHOMA STATE UNIVERSITY
INDUSTRIAL ARTS GRADUATES DURING 1956-1966

Don E. Combrink, Graduate Student
Department of Industrial Arts Education
Oklahoma State University
Stillwater, Oklahoma
Spring, 1967

We would appreciate your answering the following questions to the best of your ability and returning this questionnaire immediately in the self-addressed and stamped envelope.

Name _____
(Last) (First) (Middle)

Street _____

City _____ State _____ Zip Code _____

Year Graduated, Bachelor _____ Masters _____ Other _____

Please check what position you presently hold.

1. Administration
Superintendent _____ Principal _____ Other _____
Please Specify _____

2. Classroom Teaching
Industrial Arts _____ Trade and Industrial _____ Technical _____
Other _____ Please Specify _____

3. Industry
Executive _____ Supervisory _____ Employee _____ Other _____
Please Specify _____

4. Please list IN ORDER those positions that you have held since graduation from Oklahoma State University.

Position	From	To
_____	_____	_____
_____	_____	_____

5. Have you ever taught out of the state of Oklahoma? Yes ___ No ___
 If yes, why? Salary _____ Location _____ Other _____
 Please Specify _____
6. If you are employed in education, please check the salary nearest your annual income.
- | | | |
|---------------|---------------|---------------|
| \$4,000 _____ | \$6,000 _____ | \$8,000 _____ |
| \$4,500 _____ | \$6,500 _____ | \$8,500 _____ |
| \$5,000 _____ | \$7,000 _____ | \$9,000 _____ |
| \$5,500 _____ | \$7,500 _____ | \$9,500 _____ |
| | | Above _____ |
7. If you are presently employed by industry, please check the salary nearest your annual income.
- | | | |
|---------------|---------------|----------------|
| \$4,000 _____ | \$7,000 _____ | \$10,000 _____ |
| \$5,000 _____ | \$8,000 _____ | Above _____ |
| \$6,000 _____ | \$9,000 _____ | |
8. If you have chosen some form of industry as your vocation, please state your reason (s) for your choice.
 Better salary _____ Better working conditions _____ Difficulty in working with the public _____ Other _____
 Please Specify _____
9. Was any individual Industrial Arts course the determining factor in securing any positions which you have held? Yes ___ No ___ If Yes, which course? _____
10. Did you have any pre-college courses in Industrial Arts? Yes ___ No ___
 Please Specify _____
11. Was the Industrial Arts curriculum a determining factor in securing any positions which you have held? Yes ___ No ___
12. Please check the following Industrial Arts areas that apply to all positions held since graduating: A. Graphic Arts (Printing) _____
 B. Drafting and Design _____ C. Electricity-Electronics _____
 D. Woods _____ E. Metals _____ F. Crafts _____ G. Others _____
13. Which of the above AREAS do you feel should be expanded to meet the need of an up-to-date Industrial Arts program? (Refer to previous question and check those that apply)
 A. _____ B. _____ C. _____ D. _____ E. _____ F. _____ G. _____
14. Name SPECIFIC COURSES in the area that you feel should be expanded or added that will meet the needs of a present day Industrial Arts program.

VITA

Don Edward Combrink

Candidate for the Degree of

Master of Science

Thesis: A SURVEY OF THE OCCUPATIONS OF OKLAHOMA STATE UNIVERSITY
INDUSTRIAL ARTS GRADUATES DURING 1956-1966

Major Field: Industrial Arts Education

Biographical:

Personal Data: Born in Tonkawa, Oklahoma, January 17, 1944, the son of Charles E. and Ina A. Combrink.

Education: Graduated from Tonkawa High School in 1962; received an Associate of Science degree from Northern Oklahoma College in 1965; received the Bachelor of Science degree from Oklahoma State University with a major in Industrial Arts Education in 1967; completed requirements for the Master of Science degree at Oklahoma State University in May, 1968.

Professional Organizations: Phi Delta Kappa, Iota Lambda Sigma, Red Red Rose, Phi Kappa Phi.