

ABSTRACT OF THESIS

AN ANALYSIS OF INDUSTRIAL RESOURCES AND THE EXTENT OF THEIR USE IN THE  
TEACHING OF INDUSTRIAL ARTS IN A SELECTED REGION OF CENTRAL KENTUCKY

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The purpose of this study was to make an analysis of the educational resources made available by selected industries, and to ascertain the extent of their utilization in the teaching of industrial arts in that region. Specifically, "industrial resources" included field trips, consultants, teaching aids, summer employment, research and development activities, use of mailing lists, sponsorship of programs, use of subsidiary companies, surplus equipment, scholarships, externships and library resources.

The data were secured by designed questionnaires mailed to a selected sample of 100 industries engaged in five manufacturing areas (printing and graphic arts industries, lumber and wood products firms, sheet metal and metal stamping companies, electrical and electronic component manufacturers, and machine and machine parts industries), and a total of forty-nine instructors who were teaching industrial arts classes in the public secondary schools within the same geographical region. Data concerning the availability of local industrial resources for use in the industrial arts program were ascertained. The data and its analysis present the responses of various personnel of manufacturing enterprises and offers a comparison of the diversified industrial



groupings within the five industrial classifications. The extent of use of local industrial resources in the instructional enrichment of the industrial arts programs was ascertained and presented.

Based on the data provided by the respondents of the samples, the significant findings of the study were that industry will cooperate with local industrial arts programs by providing various resources, particularly field trips, assistance in arranging and conducting seminars, personnel as consultants and resource persons, sample products, literature describing manufacturing processes, free teaching aids and materials, establishment of summer employment programs for students of employable age, sharing in the research and development and experimentation findings, utilizing mailing lists, serving as a liaison with affiliated companies, provide surplus or obsolete equipment and materials and use of industrial technical libraries. Industrial arts teachers were utilizing, to some degree, industrial resources which were being made available by local industries.

The total potential of local industrial resources in the central Kentucky region was not determined in this study. Due to inconsistencies in the responses from teachers when compared to those of industry, it would seem appropriate that further research be conducted in depth relevant to variables that were not of primary importance in the design of this study. Based upon the findings of this study, extensive research should be conducted concerning the various types of local industrial classifications within a given community. These additional studies should present extensive data and information pertinent to each

industrial group in order that all available resources in each category may be identified for possible educational utilization to its fullest extent. Provisions should also be made to keep the information current.

Accepted by:

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IN A SELECTED REGION OF KENTUCKY

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A Thesis  
Presented to  
the Faculty of the School of Education  
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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts in Education

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by  
Jack Wayne Moreland

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Accepted by the faculty of the School of Education,  
Morehead State University, in partial fulfillment of the requirements  
for the Master of Arts in Ed. degree.

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## CHAPTER I

### THE PROBLEM

#### Statement of the Problem

It was the purpose of this study to make an analysis of the educational resources made available by selected industries in the central Kentucky region, and to ascertain the extent of their utilization in the teaching of industrial arts in that region.

#### Need for the Study

This study was designed to concentrate on a particular phase of education, that of industrial arts in the public secondary schools of central Kentucky. Industrial arts is defined later in this chapter as a study of industry. It appears that the study of industry may be facilitated by utilizing those resources which are made available by industries. There are many possibilities for utilizing industrial resources and the use of those resources has been advocated by leaders in the field of industrial arts for many years. Brown advocated the use of community resources as follows:

Leaders in industrial arts education have advocated for many years that industrial arts experiences should help students develop insights and understandings of the impact and importance of industry in American life.<sup>1</sup>

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<sup>1</sup>Robert E. Quast, "A Study of the Local Industrial Resources, Their Availability, and Extent of Use in the Teaching of Industrial Arts in the Dallas Independent School District, Dallas, Texas" (unpublished Master's thesis, North Texas State University, Denton, Texas, 1957), p. 21.



The importance of utilizing industrial resource information is also expressed by Wilber in his work:

Relatively little has been written concerning the use of community resources by industrial arts classes. This is somewhat strange, in light of the importance of the subject both from the standpoint of strengthening relationships between the industrial arts department and the public and from the standpoint of effectiveness in teaching.<sup>2</sup>

According to Wilber, the use of only a portion of the resources available, that of human and material and its relation to local industry, has tremendous wealth for the enrichment of the industrial arts program. There appear to be numerous reasons for the consideration of local resources but these may be combined into a few general categories. Wilber listed four valid reasons for utilizing local community resources for the industrial arts programs as summarized in the following: (1) relationships between the school and the community can be improved; (2) local resources are brought to the attention of students; (3) educational efficiency may be increased; and (4) otherwise unavailable materials are provided.<sup>3</sup>

Wilber defined community resources as including industries, libraries, business concerns, individuals, museums and other community materials.<sup>4</sup> The values resulting from resource utilization may be listed many ways. The final value however, appears to be the concepts each individual student develops in the way of meaningful understanding

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<sup>2</sup>Gordon O. Wilber, Industrial Arts in General Education (Scranton, Pennsylvania: International Textbook Company, 1954), p. 247.

<sup>3</sup>Ibid., p. 248.      <sup>4</sup>Ibid., pp. 251-255.

of himself in relation to his community, Nation, the world, and the universe.

The utilization of local industrial resources in an industrial arts program depends primarily upon the objectives of the program. Course objectives will by necessity, control or influence greatly the planning and organizing of any educational program. These objectives may vary in different locations and communities. One assumption of this study was that industrial arts teachers in the central Kentucky region support the objectives of industrial arts as presented in the November 1966 publication of the Kentucky Education Bulletin, Number 11, entitled "The Program of Industrial Arts Education in Kentucky." Therefore, the possible relationships between objectives of industrial arts and the application of educational industrial resources were not considered as a major feature of the design of this study.

As previously mentioned, several educators have expressed a need in the establishment of a closer relationship between the industrial arts program and those materials and resources which are provided by various industrial concerns which would enrich the educational program. Often the typical industrial arts teacher does not realize that particular industrial firms are interested in providing resources in addition to field trips, and some teaching aids and materials. Conversely, many industries are unaware of industrial arts program's needs and interests in establishing working relationships with interested local teachers. This study was an attempt to bridge the gap in this respect.



The apparent dirth of related studies does in no case imply the insignificance of such a study. In view of few studies conducted in this particular area, it was judged that a relative need for such a study was necessary.

#### Recent and Related Studies

The necessity of keeping abreast with the current developments of our technological society has caused educators and laymen to question individual and community needs. These studies have, for the most part, been made in specific localities in order to determine the needs and interests of the people involved. Related studies which have been conducted in this area include that of John A. Woodward in 1940 at North Texas State University, Charlie Pollan in 1950 at North Texas State University, also in the year 1950 Lester E. Boyd at the University of Florida, Robert E. Quast in 1957 at North Texas State University, and Keith D. Bishop in 1965 at San Diego State College.

Due to the unavailability of primary resource materials, the following three summaries made by Quast were accepted.

Woodward conducted a study of the community resources in Wise County, Texas. This study included a survey of all the resources of the county and a survey to analyze the utilization of these resources. Woodward concluded that the utilization of local resources was not adequate and recommended that a more adequate program of utilization of educational resources be established by the schools of Wise County.

In 1950, Pollan conducted a study to determine a sound plan of using Ferris County resources as instructional aids. A survey of the local resources and of the utilization of the school was made. Based on the data collected, it was concluded that the use of the available community resources as instructional aids was democratically, psychologically, and sociologically sound.

In the study entitled "Local Industrial Arts Resources Pertinent to Schools of Pinellas County, Florida," Boyd suggested that a study of the industries would supply a source for comparison for the industrial arts students, for a study of anything, if limited to one, will allow no comparison; therefore, the study will probably be opinionated, narrow, and biased.<sup>5</sup>

The nature of the study conducted by Bishop<sup>6</sup> was to illustrate the value of educational field trips and recommend their proper organization and utilization. The second objective was to survey and evaluate the woodworking industries in San Diego County for potential woodworking field trip sites. The intent of Bishop was to contact a large number of woodworking industries which represented a diverse number of products manufactured. A total of sixty-two industries were contacted and assistance was sought in helping to arrange field trips to these industries. Bishop also utilized interview techniques with those industrial representatives who had displayed a cooperative attitude in the initial contact.

Results of the interview method in the collection of data indicated that a total of thirty woodworking industrial representatives expressed a desire to assist. Bishop also experienced a "field trip" within each industry which provided the basis for an evaluation of each. A descriptive field trip guide sheet was prepared for each industry as an aid to the reader.

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<sup>5</sup>Quast, op. cit., p. 21.

<sup>6</sup>Keith D. Bishop, "Survey of Field Trip Opportunities in the Woodworking Industry in the City and County of San Diego" (unpublished Master's thesis, San Diego State College, San Diego, California, 1965).



Conclusions made by Bishop as the result of data analyzed were that the value of a field trip as an educational technique has been well documented, but the utilization of this technique has been limited. Many woodworking industries were willing to assist in educational field trips. Bishop concluded by stating that in order to reap the full benefit of field trip activities the student must be well prepared by the teacher.

Quast<sup>7</sup> set about to study the local industrial resources, to ascertain the availability of industrial resources for instructional enrichment of industrial arts, to determine the extent of utilization of available industrial resources in teaching industrial arts, and to make recommendations based upon findings of the study. The design of Quast's procedures for the collection of data dictated the use of a personal interview with the industrial arts teachers who were teaching in the Dallas County, Texas, public schools and with various local managerial personnel and representatives of manufacturers. Other sources for the procurement of data were publications of the Dallas Chamber of Commerce and the Texas Employment Commission.

Based upon the analysis of data collected, Quast stated that the findings indicated that the local industries in Dallas, Texas, would cooperate in enriching the educational program by making their plants available for visits by students and teachers, and by providing literature, sample products, and various human resources. Quast surveyed 130 industrial firms in four major industrial areas: metals,

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<sup>7</sup>Quast, op. cit.

woods, electrical, and paint and varnish industries. Forty-seven industrial arts teachers responded who were employed in the Dallas Independent School District during the 1955-1956 school year.

Conclusions made as a result of the findings were that some important values could accrue in the utilization of community resources in industrial arts programs, namely: local industrial resources can be brought to the attention of students; improved relations and more understanding may result between the school and community; otherwise unavailable materials and instructional aids may be provided; efficiency of the educational program may be increased; students may be offered a fairly true picture of the working conditions of the specific profession or occupation; and that the student's views of occupations and their possibilities may be broadened, as well as learning related and scientific facts.

Recommendations made by Quast can be summarized by the statement that extensive studies should be made of the various areas of local industry groupings. These studies should be made jointly by curriculum administrators and representatives of industry. As a result of extensive data and information compiled concerning each industrial group, the resources may be identified and utilized educationally to the fullest extent. Also provisions should be made to keep such information up to date. Another recommendation made was to review the present policies regarding field trips in the surveyed school system and modify time limitations allowing such excursions to be experienced by students during the school day. Quast's last



recommendation was to modify the specific policy of limiting two field trips per school year in order to provide for field trips to be made at the psychologically opportune time during the study of any industry or industrial area.

#### Definitions of Terms Used

Industrial arts program. The industrial arts program is defined as that phase of the general education program that is designed to develop within the individual an interest in industry and an understanding of the industrial processes common to modern society through a study of tools, materials, and production processes. The purpose of industrial arts and of all education, is to equip each individual student with those concepts, skills and understandings which will aid him in becoming a successful functioning citizen in a given society.

Industrial resources. Specifically, "industrial resources" include; field trips, consultants, teaching aids, summer employment, research and development, mailing lists, sponsorship of programs, use of subsidiary and parent companies, surplus equipment, scholarships, externships, and library resources.

Selected industries. Those industries which are listed in the Kentucky Directory of Manufacturers, 1967 edition, published by the Kentucky Department of Commerce, and various other publications of this nature, served as a reference in establishing correspondence for the study.

Field trip. The term field trip denoted an organized educational excursion. Teachers, students, school administration and industrial

personnel cooperatively organize and supervise those activities to be observed which cannot be found in the classroom environment.

Consultant. The term consultant referred to those professional personnel who make their services available to the industrial arts program in an advisory role.

Teaching aid. Teaching aids included the total amount of visual, audible and tangible materials which aid in the sense experiences of learning.

Summer employment. This term was applied to work experience gained during the summer season which financially and educationally aids the student of employable age.

Research and development. The terms research and development referred to those activities engaged in by industry at the experimental level, which can be made available and applicable to industrial arts curricula.

Mailing lists. This term alluded to the media of the postal services in the distribution of bulletins, teaching aids and materials, catalogs, and other related material and information by industries to educational institutions.

Sponsorship of programs. This area was related to the financial and organizational aspects of underwriting an educational endeavor; for example, an afternoon conference or seminar, or two-day institute.

Use of subsidiary or parent companies. The use of subsidiary or parent companies referred to those industries which possess resources that are under the administration of related companies, and are also available on a similar basis as other resources of the firm.



Surplus equipment. Surplus equipment included those materials and equipment which can be utilized in industrial arts programs, and are made available by industrial firms for purchase or without cost.

Scholarships. Financial aid granted to worthy students for the purpose of continuing or extending education was interpreted as scholarships.

Externships. This term differs from an internship program in that the experiences are "external" to the individual's primary position as an industrial arts teacher but provides an educational enhancement and supports his field of interest.

#### Rationale of the Study

As a result of the review of related literature it was apparent that this study should view the question of industrial resources on a broad spectrum. The selection of specific resources was made on an a priori basis. However, each can be defended in relation to its potential impact upon the industrial arts program. For example, many teachers lack industrial experience which hinder their teaching of industry. The educational experiences gained by an industrial arts teacher through various pre-planned activities within an industry, through an externship, could directly focus upon current technological, social and economic factors of industry. The utilization of effective communicative techniques by teachers in relating these experiences to students in the classroom would do much in aiding youth in the formation of current industrial concepts. Related to this area are the resources

that could reinforce the experiences of the student who may be employed in an industry in a variety of activities.

In addition, many secondary school libraries are limited in recent current technical resources due to restricted budgets and a lack of coordination between librarians and industrial arts teachers. The relationships resulting in the communication between industrial representatives and industrial arts teachers could provide a basis for the invitation to students and teachers into technical libraries which are maintained by local industry. Somewhat related to in-plant resources is the utilization of pre-planned field trips which allow the student and teacher to experience industry firsthand. The cooperation of industries in sharing in their research and development activities could influence the industrial arts programs greatly. These activities perhaps are least realized by teachers with regard to the potential impact that could up-date the industrial arts curriculum.

The use of industrial consultants could do much in enriching the program of industrial arts. Their utilization possibly could aid the teacher in concentrating upon a particular industrial concept, practice or process, that is relatively new. For example, a seminar presentation on the implications of or some technology growing out of the space industry as related to industrial arts programs would add the ingredients that possibly could influence content selection and/or curriculum modifications. Consultants may also be utilized effectively in direct contact with students in the classroom situation.



It can also be argued that the utilization of surplus equipment and materials donated or purchased from industrial concerns could greatly increase the opportunities for student experiences. A problem industrial arts has faced for the past half century and will continue to experience at an increasing level of difficulty is that of the laboratory becoming obsolete. Limited budgets and the size and type of equipment for schools compound the problem. Industrial equipment becomes obsolete more quickly due to competitive and economic factors and often this equipment can be effectively utilized in the industrial arts laboratory.

In summary, the major problem that industrial arts programs face, as well as all professions in our society, is that of technological obsolescence. The various resources discussed previously which are an inherent feature of this total study, are in the judgement of the writer, vital concerns that justify this and other research efforts.

#### Sub-Problems of the Study

In order to solve the problem of this study, the following sub-problems appear to demand resolution. Namely, to ascertain the availability of local industrial resources; and, to determine their utilization in industrial arts programs; to determine to what extent the background of the participating teachers may have in their responses in the study; and to investigate the opinions of industrial arts teachers regarding the reasons and/or attitudes for the utilization or lack of use of resources in the classroom.

### Limitations of the Study

There appear to be several factors which inherently may influence this study, namely, the sampling technique that was utilized, the respondents, and the inadequacies of the researcher. A generalization upon the results of this study cannot be valid in other areas since there was no attempt to define the geographic region as typical in the state of Kentucky or as related to other regions of the Nation. The fact that relationships may vary at different points of time would not permit the reader to infer that the findings of this study would be typical in other locales.

Limitations also result from the subtle and uncontrollable bias within the responses made by participants. Teachers may have provided the "expected" responses which would tend to obscure actual practice. Since utilization is a relative term, the data collected may contain some error. In addition, teachers may have misinterpreted "local" industry and made references to industry at large when reporting their utilization of available resources. The questionnaires mailed to industries may have been completed by a person or persons who lacked firsthand knowledge of actual interrelationships with industrial arts teachers.

The exclusion of some industries within the selected region undoubtedly contributed to some degree to the results of the study. The initial sampling technique used which excluded smaller industries and various types of industries in the geographic region may also be reflected in the results of this study. In addition, the questionnaire



sent to teachers did not identify the comparative industries used in the final sample.

A fourth limitation of the study accrues from the inexperience of the writer as a researcher. The validity and reliability of the instruments were not scientifically investigated, which may allow discrepancies in the seeking of responses. Possible incorrect analysis and interpretation of the data also should be considered as one of the limitations of the study. Other more specific limitations are presented in conjunction with the analysis of the data in the following chapters.

## CHAPTER II

### BASIC RESEARCH DESIGN

This chapter of the study is concerned with a presentation of the basic characteristics of the selected region with emphasis upon the factors which have influenced educational and industrial growth. As a segment of this chapter, procedures for the collection of the data are presented.

#### Basic Characteristics of the Selected Region

In order to provide a foundation for the selected region's characteristics, a brief presentation of the state in general was deemed necessary. The Commonwealth of Kentucky's boundaries contain 40,398 square miles, which ranks thirty-seventh in size of the fifty states of the Union. Census statistics of 1960 indicated a total population of 3,038,156, which ranks twenty-second in the Nation.<sup>1</sup> Increases in population have been noted between the years 1940 and 1950 (3.5 per cent) and from 1950 to 1960 (3.2 per cent).<sup>2</sup> The median age of the total population approximated 27.6 years, and

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<sup>1</sup>"Kentucky," Compton's Pictured Encyclopedia, (1967 ed.) VIII, p. 33.

<sup>2</sup>Deskbook of Kentucky Economic Statistics, 1963 (Frankfort: Kentucky Department of Commerce, 1963), pp. 18-22.



almost one-fourth of the total population was between 20 and 39 years of age. Persons per household approached an average of 3.47.<sup>3</sup>

The total enrollment of students in elementary, secondary and higher (public and private) educational institutions numbered in excess of 394,000. These students attended 4,200 such schools. A breakdown of schools included thirty-nine higher educational schools (eight public), 552 secondary schools (465 public), and 3,529 elementary schools (3,272 public supported).<sup>4</sup>

Concerning employment and trends, the approximate total of employed persons was 935,944 according to the 1960 Census. Largest employers were: manufacturing approximately 200,000; trade 160,000; agriculture, forestry and fisheries 130,000; professional services 110,000; transportation, communication and utilities 70,000; construction 60,000; personal services 55,000; mining 40,000; government 38,000; finance, insurance and real estate 30,000; business and repair services 24,000; recreational services 10,000; and approximately 30,000 persons were employed in unclassified fields of work.<sup>5</sup>

According to the yearly value of the products, the people of the state produced goods and products which rank Kentucky as follows: factory goods, twenty-first in the United States; farm products,

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<sup>3</sup>Kentucky Metalworking (Frankfort: Kentucky Division of Economic Research, Department of Economic Development, February, 1962), p. 6.

<sup>4</sup>"Kentucky," op. cit., p. 34.

<sup>5</sup>Ibid.

twenty-ninth; mine products, fifteenth; forest products, twenty-third; and fisheries, thirty-second. Manufactured goods, compiled by millions of dollars added by manufacturing are listed according to the following: food and related products (approximately 360) ranks fifteenth of the fifty states; electrical machinery (320) ranks twelfth highest in the United States; tobacco products (220) ranks third in all states; chemical and allied products (200) ranks eighteenth; machinery, except electrical (130) sixteenth in rank; and fabricated metal parts (90) eighteenth highest in all states.<sup>6</sup>

Trade including wholesale, retail and service sales also indicate a healthy economic atmosphere. Retail sales rank Kentucky twenty-fourth of all states with approximately \$2,580,517,000. Service trades rank twenty-seventh with \$290,557,000 and wholesale trade rank twenty-ninth of all states with \$2,563,976,000 reported.<sup>7</sup>

Transportation throughout the state is facilitated by 3,544 miles of railways maintained by twenty-two rail road companies, and more than 67,000 miles of federal, state and local roadways. By 1970 a system of interstate and Defense Highways totaling approximately 616 miles will be completed within the state. There are more than forty non-commercial airports for public use and seven for private use spread over the state, with nine commercial airlines in operation. Navigable waterways total more than 1,300 miles excluding 190 miles of the Cumberland which is not accessible to other waterways.

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<sup>6</sup>Ibid., pp. 34-35.

<sup>7</sup>Ibid., p. 35.



Communications within the states are readily attained by numerous radio and television broadcasting stations. A substantial network of telephone systems operate in interstate and intrastate communications. Many local newspaper businesses as well as several state-wide publishers operate in Kentucky.<sup>8</sup>

According to the Division of Economic Research, in the Department of Economic Development at Frankfort, the industrial manufacturing growth in Kentucky has been a result of a number of favorable economic factors. Some of the most important factors are summarized as follows: (1) an adequate supply of easily trainable workers, currently numbering approximately 265,000 persons are available for industrial employment; (2) a well-balanced transportation system, air, road, rail and waterways, places almost one-half of the Nation's industrial and consumer markets within a few hours in transit from Kentucky's borders; (3) the state is in a central market position (for example Kentucky and twelve neighboring states account for forty-five per cent of the total metalworking employment in the United States); (4) adequate sites, reasonable construction costs and industrial financing assistance are available; (5) communities exist of a desired size with limited competition for labor, indicated by nearly one-half of the total population located in urban areas; and (6) a stable diversified tax structure, paralleling the tax distribution of the United States.

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<sup>8</sup>Kentucky Electronics (Frankfort: Kentucky Division of Economic Research, Department of Commerce, 1962), pp. 7-13.

average and also comparing favorably with other states. These features contribute greatly to the expansion of industrial manufacturing in Kentucky.<sup>9</sup>

Concerning vocational education, the State of Kentucky has supported a system to raise the skill of laborers through vocational schools since 1938. There are fourteen such schools spread over the state. County and regional vocational technical schools are administered by local boards, and State vocational technical schools are administered by the State Department of Education. Instruction is provided for high school students who choose to terminate their formal education at the secondary level and to others who desire to learn a skill or trade although they are no longer attending a public school.<sup>10</sup>

Many of the characteristics of the state in general regarding industry are also present to some degree in the central Kentucky region. This segment of the section is concerned specifically with the characteristics of, and those factors pertaining to industry within the selected region of the study. Briefly, those industries and industrial arts teachers who participated in the study were located in the counties of: Bourbon, Clark, Fayette, Franklin, Harrison, Jessamine, Madison, Scott and Woodford. Figure 1, page 20, entitled Population of Selected Counties indicate the 1960 Census statistics and the per cent of change between the years 1950 and 1960.

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<sup>9</sup>Kentucky Metalworking, op. cit., pp. vii-viii.

<sup>10</sup>Kentucky Electronics, op. cit., p. 14.



COUNTY	City	1960 POPULATION			PER CENT CHANGE 1950-1960
		Total	Urban	Rural	
BOURBON		18,178		10,387	
	Paris		7,791		54
	Millersburg		913		10
	North Middleton		291		-9
CLARK		21,075		10,888	
	Winchester		10,187		10
FAYETTE		131,906	111,940*	19,966	
	Lexington		62,810		13
FRANKLIN		29,421		11,056	
	Frankfort		18,365		54
HARRISON		13,704		8,063	
	Cynthiana		5,641		16
JESSAMINE		13,625		6,577	
	Nicholasville		4,275		26
	Wilmore		2,773		19
MADISON		33,482		17,012	
	Richmond		12,168		18
	Berea		4,302		28
SCOTT		15,376		8,390	
	Georgetown		6,986		27
	Stamping Ground		353		-11
	Sadieville		276		-22
WOODFORD		11,913		7,853	
	Versailles		4,060		47
	Midway		1,044		10

\*denotes unincorporated urban areas

FIGURE 1

POPULATION OF SELECTED COUNTIES  
 (FROM THE DESKBOOK OF KENTUCKY ECONOMIC STATISTICS, 1963,  
 KENTUCKY DEPARTMENT OF COMMERCE, 1963, pp. 18-24)

Lexington experienced a thirteen per cent increase in population, which is somewhat lower than three other cities within the sample region. This is particularly true of Frankfort, Paris and Versailles, which were credited with increased percentages of fifty-four, fifty-four and forty-seven per cent, respectively. Three of the smallest urban areas, all totaling less than 1000 persons, showed a slight decrease in population.<sup>11</sup>

Other features of the Lexington area lend themselves to the growth of industrialization. Truck lines, commercial air and rail service to all points in the United States are available from the city of Lexington. Two of the transcontinental interstate highways converge in the center of the selected region. Lexington is also at the center of the intrastate highway network which includes the East and West Kentucky Toll Roads. Lexington and the surrounding areas have become an educational hub. There are seven institutions of higher learning within an hour's drive of the city, excluding the University of Kentucky and Transylvania College located in Lexington. Other features of the region contributing to the growth of industrialization are abundant labor supply, availability of industrial sites and adequate utilities.<sup>12</sup>

In order to simplify the descriptions of the types of industries which were included in the final sample, Figure 2, page 22, is presented.

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<sup>11</sup>Deskbook of Kentucky Economic Statistics, 1963, op. cit.,  
pp. 18-24.

<sup>12</sup>Kentucky Electronics, op. cit., p. 29.



Type of Industry	Number of Industries	Total Number Employed*	Representative Products
Electrical and electronic component manufacturing	19	4,653	electrical parts, electronic controls, electroplating
Printing and graphic arts firms	21	1,149	newspaper, offset, job printing
Machine and metal parts manufacturing	26	9,455	typewriters, special machinery, gauges, dies, jigs
Sheet metal and metal stamping	18	1,766	metal stampings, sheet metal products
Lumber and wood products	<u>16</u>	<u>1,059</u>	custom work, millwork, paper products
Total	100	18,082	

\*Covered by unemployment insurance

FIGURE 2

COMPARATIVE DESCRIPTION OF FINAL SAMPLE INDUSTRIES  
 (FROM THE 1967 KENTUCKY DIRECTORY OF MANUFACTURERS,  
 KENTUCKY DEPARTMENT OF COMMERCE, 1967.)

A comparison of the industry groups by the total number of industries in the five classifications is presented, listing the total number of persons employed, and representative products which are manufactured within the industrial group. Machine and metal parts manufacturing firms selected for the sample totaled thirty-one, representing approximately one-third of the entire sample of industries who were included in the study. Lumber and wood product firms and electrical and electronic component manufacturers were represented in the sample by seventeen companies in each group. Printing and graphic arts industries were represented by twenty-one companies and fourteen aluminum, sheet metal fabrication industries.

#### Procedures for Collection of Data

In order to establish a basis for this section a brief reintroduction of the problem appears to be necessary. The nature of this study was to survey selected industries, within a specific region, ascertain the availability of educational resources and to indicate the extent of use in the teaching of industrial arts within the same region. This study was designed to collect data and to make inferences concerning the relationships between industrial arts programs in the public secondary schools of central Kentucky and local industrial firms.

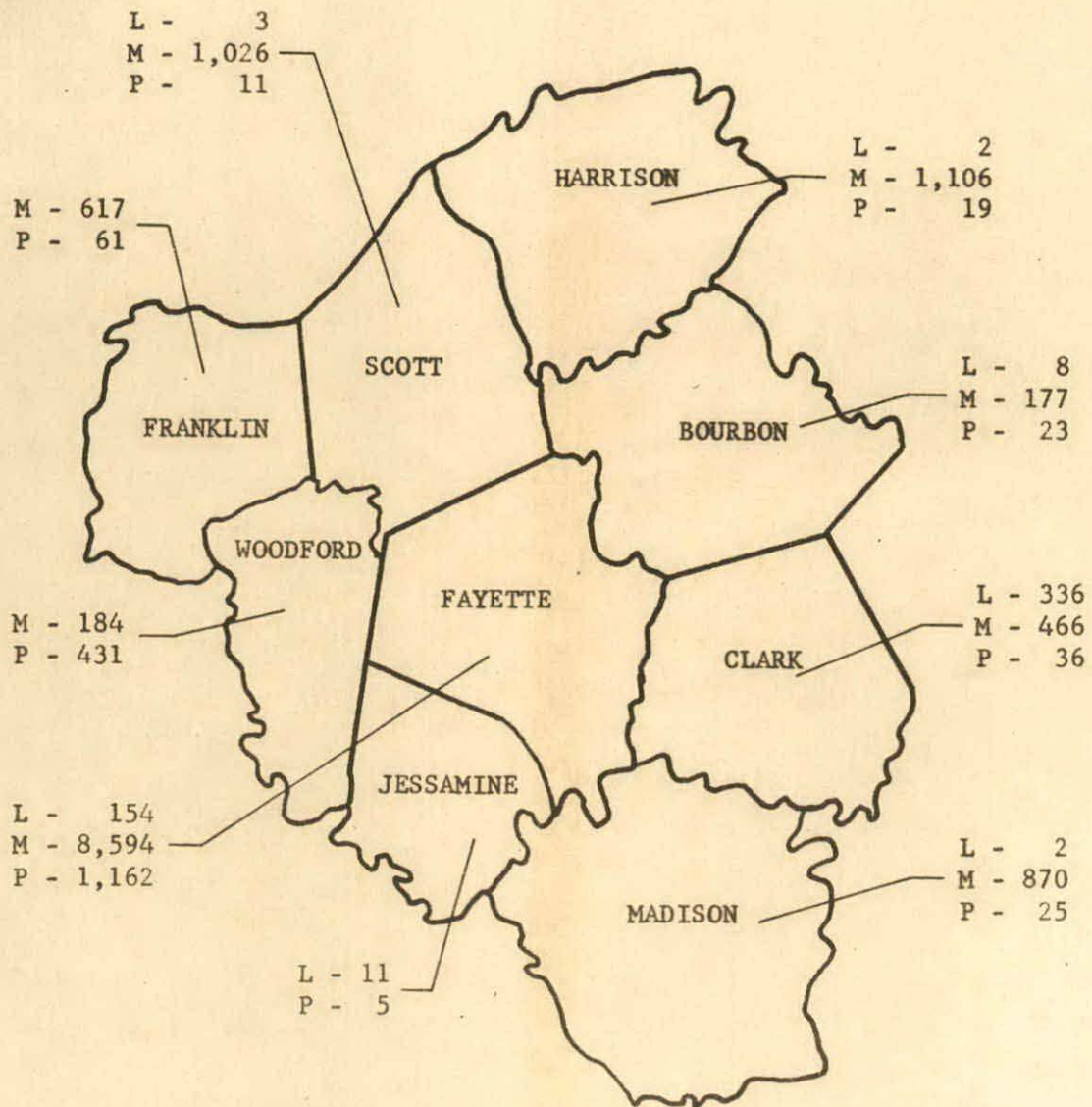
The method of collecting and treating the data for this problem appeared to be quite complex. In order to simplify these requirements, the following major steps were outlined in addition to those presented in Chapter One: a rationale needed to be established for the selection



of industries, questionnaires needed to be developed for use by teachers and industrial representatives, methods of tabulation needed to be designed, and procedures established for the study and analysis of the data that would appear in subsequent chapters.

During the period of time that this study was in the formulation stages, Mr. James Disney, State Supervisor of Industrial Arts was contacted and introduced to the nature and problem of the proposed study. He expressed a need for research in this particular phase of industrial arts, especially in this state, including the central Kentucky region. Mr. Disney gave encouragement to the writer and made available a state directory, which included all public schools within the Commonwealth of Kentucky. This official Directory was annotated regarding respective industrial arts teachers and courses offered in the general curricula of industrial arts. The current directory for the year 1966-1967 proved unsurpassed as a resource in determining the sample to be used as well as names and addresses of the teachers.

As a preliminary phase of this investigation, a graphic representation of the geographic region under consideration seemed necessary. Figure 3 outlines the selected region. Data for the construction of such an illustration was obtained from the 1967 Kentucky Directory of Manufacturers and recent publications prepared by Chambers of Commerce of the respective cities and counties in the central Kentucky region. Ten major classifications of industries grouped according to the Standard Industrial Classification code are as follows: (1) food and kindred products, (2) tobacco processing



## KEY

(Number of employees covered by unemployment insurance)

L - Lumber and Furniture Industries

M - Machinery, Metal Products and Equipment Industries

P - Printing, Publishing and Paper Industries

FIGURE 3

DISTRIBUTION OF INDUSTRIES PERTINENT TO THE  
STUDY WITHIN THE SELECTED GEOGRAPHIC REGION  
(FROM THE 1967 KENTUCKY DIRECTORY OF MANUFACTURERS,  
KENTUCKY DEPARTMENT OF COMMERCE, 1967.)



and redrying, (3) clothing, textile and leather, (4) lumber and furniture, (5) printing, publishing and paper, (6) chemicals, petroleum and rubber, (7) stone, clay and glass, (8) primary metals, (9) machinery, metal products and equipment, and (10) other non-classifiable industries. Classifications were further stratified on the basis of the number of employees within each industrial group. Only those industries whose employees were covered by unemployment insurance were included in this sub-classification.

The design of this study suggested that the selection of industrial arts teachers must also be representative of the same geographic region of Kentucky. Figure 4 shows a distribution of teachers. The data used in the assembling of this geographic illustration were secured from the previously described Directory of industrial arts teachers in the state. As a result of the comparison of both geographic illustrations the geographic limitations of the study were determined. The demands of an adequate sampling technique required approximately fifty industrial arts teachers in order to supply a sufficient quantity of returned questionnaires. It appeared that a sample made up of the total number of teachers included within the selected nine counties would be satisfactory.

The next problem encountered by the writer was the selection of an adequate sample of industries from the geographic area. One of the first criteria for the basis of selection was the relationship of the industry to the curricular areas of the industrial arts program within the selected region. The Directory from the office of the state

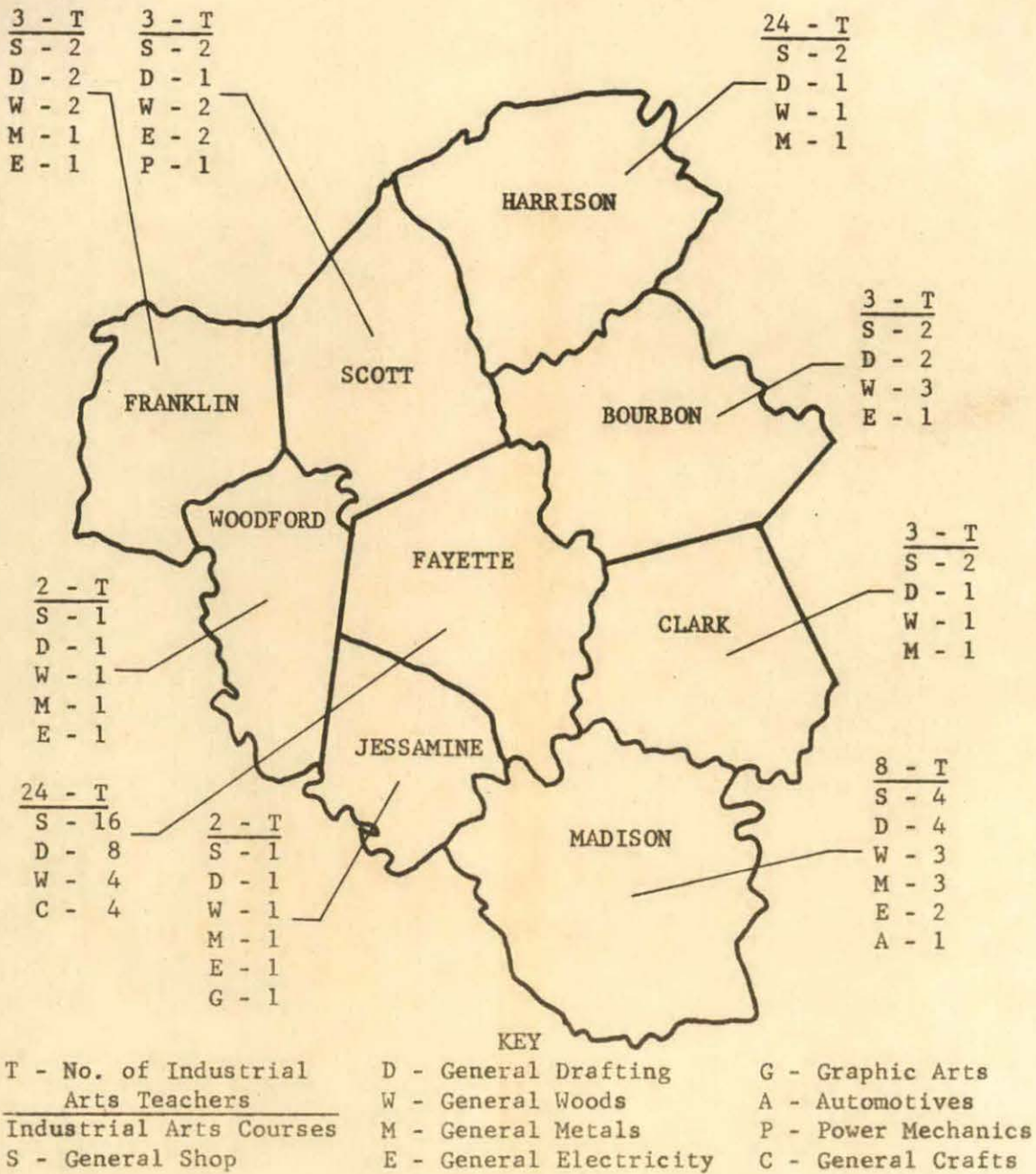


FIGURE 4

DISTRIBUTION OF INDUSTRIAL ARTS TEACHERS AND COURSES OFFERED TO INDUSTRIAL ARTS STUDENTS (FROM THE "DIRECTORY OF INDUSTRIAL ARTS TEACHERS IN KENTUCKY PUBLIC SCHOOLS 1966-1967" DEPARTMENT OF EDUCATION, DIVISION OF INDUSTRIAL ARTS SUPERVISION, 1966.)



industrial arts supervisor provided the investigator with the general areas taught by each industrial arts teacher. The areas which are offered in industrial arts in the junior and senior high schools typically are: general shop, general woodworking, general metalworking, general graphic arts, general drafting, general electricity, general crafts, power mechanics, and automotives. The heaviest concentration of subject offerings was in general shop, drafting, woods, metals, and electricity. Based upon the implied relationship of industries to industrial arts courses, those industries selected for the initial sample were classified into the following general categories: lumber and wood products, graphic arts and printing industries, electronic and electrical firms, machinery and machine parts, and aluminum and sheet metal fabrication firms. To some degree the graphic language, a means of communication, of any industry is dependent upon technical drawing. Typically, drafting is incorporated into the substance of most industrial arts classes.

It was felt that smaller industries would be limited to a great extent in providing resources to educational institutions in the event resources were available. A drawing of one hundred industries seemed adequate for sampling the approximately two hundred industries which met the criteria described above. It was felt that a large sampling by using questionnaire techniques would perhaps result in unnecessary expenditures in time and finances in the tabulation of similar responses.

One hundred industries were selected at random from the pre-determined classifications in order to provide a stratified sampling

of the more than two hundred industries located in the geographic region. In addition, one industry was drawn from each initial sample by sub-classification for use as a pilot study on the effectiveness of the instrument and research design. Upon the basis of recommendations made by the three industries that responded in the pilot study, no major revisions were deemed necessary in adjusting the instruments. However suggestions made by the participating industrial representatives relating to the method of treatment of data were incorporated.

The development of a questionnaire designed for completion by industrial representatives was paralleled by the simultaneous evolution of an instrument constructed for use by industrial arts teachers. Both instruments were constructed with the aid of educational research guides particularly, Good, Barr and Scates, and other sources. Assistance was obtained in the evaluation, refinement, adjustment and re-evaluation of the questionnaires with members of the thesis committee. Conferences were also held with industrial arts teachers in the surrounding area, including high school and university instructors, and their suggestions concerning the instrument were most beneficial.

Several design features of the instruments seem worthy of some discussion. The brevity of both questionnaires was important due to the limited amount of time that each respondent could spend. The interrelationships of the questionnaires in seeking responses were necessary in order to provide a basis for the comparison of data. Instruments designed for both sources of data were constructed to seek approximate figures instead of specific tabulations, which permitted



industrial arts teachers and industrial representatives to exhibit their discretion in response. Also, each questionnaire provided facilities for the name of the respondent and his position. Methods for the tabulation of data were partially determined by the design of the instruments, but tabulation procedures were also pre-determined and incorporated. Tabulation was simplified due to the nature of the responses requested in the instruments.

Offset process duplication, assembly and mailing of the instruments were completed during the week of April 23, 1967. A follow-up mailing was initiated fifteen days after the first mailing. Tabulation of the data was conducted upon the return of the instruments, which was facilitated by stamped, self-addressed envelopes.

At this point in the study, the major task of analyzing the data and inferring relationships and drawing implications remains as the larger portion of the study.

## CHAPTER III

### THE AVAILABILITY OF LOCAL INDUSTRIAL RESOURCES FOR USE IN INDUSTRIAL ARTS PROGRAMS

A phase of this study involved a survey to attempt to determine the extent of industrial resources which are available to industrial arts programs in secondary schools within the central Kentucky region. Additionally, the industrial arts program was defined as a part of the general education program that attempts to develop within the student an interest in industry, and an understanding of industrial processes. This is accomplished, in part, through the study of tools, materials and the production of useful and significant products. The formation of concepts regarding industry as a dominant societal force is of major importance.

The responses of industries surveyed during the study were made by presidents, managers, men in charge of public relations, vice-presidents, district managers, owners and other personnel. The data entered in Table I, page 32, represents the responses of representatives of fifty-seven industries (57 per cent). These data are divided into five major categories and are as follows: fifteen representing machine and metal parts manufacturing companies; twelve responses from sheet metal and metal stamping firms; seven representing industries dealing with lumber and wood products; ten responses from printing and graphic arts firms; and thirteen returned questionnaires from electrical and electronic components manufacturing companies.



TABLE I  
RESPONSES OF TOTAL SAMPLE INDUSTRIES

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
1. Would your firm permit industrial arts students to tour your plant?	57	50	7
2. Would your firm permit industrial arts teachers to tour your plant?	57	55	2
3. Would your firm assist in arranging and conducting a seminar for industrial arts teachers?	55	27	28
4. Would your firm cooperate with industrial arts teachers by making personnel available as consultants in industrial arts classes, if limited to two visits per school year?	54	39	15
5. Would your firm assist industrial arts teachers in making an employee available outside regular classes?	50	26	24
6. Would your firm place sample products in the industrial arts classrooms or in displays?	48	38	10
7. Does your firm have literature concerning the product(s) and manufacturing processes that would be available to industrial arts teachers?	54	20	34
8. Would your firm supply industrial arts teachers with free teaching aids and materials for use in industrial arts classes?	48	15	33

TABLE I (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
9. Would your firm cooperate with industrial arts teachers and school guidance personnel in establishing summer employment programs for students who are of employable age?	52	27	25
10. Would your firm share in the research and development of new processes and materials with industrial arts teachers, once they are no longer restricted to the company?	48	24	24
11. Would your firm make use of mailing lists for the distribution of current catalogs, bulletins and related information to industrial arts teachers?	48	18	30
12. Would your firm serve as a liaison in the utilization of your parent or subsidiary companies in the distribution of industrial resources to the industrial arts programs within your region?	30	14	16
13. Would your firm make surplus or obsolete equipment and materials available for purchase by industrial arts departments?	50	30	20
14. Would your firm make surplus or obsolete equipment and materials available as a grant to industrial arts programs?	44	21	23



TABLE I (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
15. Would your firm grant financial aid to worthy industrial arts students in the form of educational scholarships?	45	6	39
16. Does your firm maintain a technical library at this particular plant which industrial arts teachers and students may use?	55	13	42
17. Would your firm make externships available to industrial arts teachers during the summer months?	47	10	37
18. Does your firm have any other available information or related materials that would be useful to the teachers or students of industrial arts?	45	4	41

Several industries did not respond to all questions in the instruments, consequently some of the following percentages are based on a total number less than fifty-seven responses. A substantial majority (88 per cent) of the industries surveyed demonstrated an interest in having industrial arts teachers and students tour their facilities. According to these findings, industrial arts teachers would be permitted to visit five companies where students were not welcome. Only two firms polled would allow neither students nor teachers to visit. Nearly half (49 per cent) of the responses indicated a willingness to assist in arranging and conducting a seminar for industrial arts teachers. It is important to note that more than seventy per cent of the responding industries would cooperate with industrial arts teachers by making personnel available as consultants in industrial arts classes. Approximately one-half (52 per cent) of the responding firms would assist industrial arts teachers in making an employee available outside regular classes. Many companies (79 per cent) indicated that they would place sample products in classrooms or in displays.

Twenty-seven of the participating fifty-seven industries (52 per cent) indicated their favorable concern in cooperating with industrial arts teachers and school guidance personnel in establishing summer employment programs for students who are of employable age. Twenty-four companies (50 per cent) would share in the research and development of new processes and materials with industrial arts teachers, once restrictions were no longer relevant to such activities.



Thirty-seven per cent of the industries responded that their firm possessed literature concerning the product(s) and manufacturing processes of their firm indicated that such information could be made available to industrial arts teachers. Thirty-two per cent of these industries would make teaching aids and materials available without cost for use in the classroom. Thirty-seven industries would forward catalogs, bulletins and related information to industrial arts teachers via postal services if requested to do so. Fourteen companies (46 per cent) would serve as a liaison in the utilization of their parent or subsidiary companies in the distribution of industrial resources to local industrial arts programs. Thirteen industries (23 per cent) indicated that their firm maintained a technical library at that particular plant, and would make their facilities available to industrial arts teachers and students.

Concerning the availability of externships to industrial arts teachers, ten industries indicated that their firm was interested in establishing such an arrangement in contrast to thirty-seven (79 per cent) who stated that they were unable to do so.

Concluding the significant findings concerning responding industries in general, a number of firms (60 per cent) would make surplus or obsolete equipment and materials available for purchase by industrial arts departments and several (47 per cent) would extend such resources without cost.

Twelve industrial representatives, in addition to the fifty-seven participating industries, returned letters expressing a desire

not to be included in the study for various reasons. For example, company activities were confidential, firms had limited managerial personnel, operations were restricted and other factors were cited and consequently were not included in the tabulation and analysis of the study. One particular instrument was returned from Lexington which had no identification and responses were incomplete. Similarly, this questionnaire could not be tabulated, and was not included in the findings of this study.

#### The Metals Industries

The metal industries constitute an important segment of the economy and society of our nation. Their influences may be traced to each American citizen in his average daily routine of living. The many materials, devices, tools and equipment made possible through the intelligent utilization of the engineering knowledge and products of the metals industries provide for the many comforts and conveniences we enjoy in our everyday pursuit of living. In order to develop within the student, an understanding and appreciation of the many aspects of these industries, the program of industrial arts includes such areas.

For reasons of expediency in the design of this study the metals industries were subdivided into machine and metal parts manufacturing and firms manufacturing sheet metal and metal stamping products. Data presented in Table II, page 38, reflects the responses made by representatives of fifteen machine and metal parts firms concerning their availability as local industrial resources for use in industrial arts.



TABLE II  
 RESPONSES OF MACHINE AND  
 METAL PARTS MANUFACTURING FIRMS

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
1. Would your firm permit industrial arts students to tour your plant?	15	12	3
2. Would your firm permit industrial arts teachers to tour your plant?	15	14	1
3. Would your firm assist in arranging and conducting a seminar for industrial arts teachers?	15	6	9
4. Would your firm cooperate with industrial arts teachers by making personnel available as consultants in industrial arts classes, if limited to two visits per school year?	15	8	7
5. Would your firm assist industrial arts teachers in making an employee available outside regular classes?	13	5	8
6. Would your firm place sample products in the industrial arts classrooms or in displays?	14	8	6
7. Does your firm have literature concerning the product(s) and manufacturing processes that would be available to industrial arts teachers?	15	5	10
8. Would your firm supply industrial arts teachers with free teaching aids and materials for use in industrial arts classes?	15	3	12

TABLE II (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
9. Would your firm cooperate with industrial arts teachers and school guidance personnel in establishing summer employment programs for students who are of employable age?	15	9	6
10. Would your firm share in the research and development of new processes and materials with industrial arts teachers, once they are no longer restricted to the company?	13	2	11
11. Would your firm make use of mailing lists for the distribution of current catalogs, bulletins and related information to industrial arts teachers?	14	2	12
12. Would your firm serve as a liaison in the utilization of your parent or subsidiary companies in the distribution of industrial resources to the industrial arts programs within your region?	5	2	3
13. Would your firm make surplus or obsolete equipment and materials available for purchase by industrial arts departments?	15	6	9
14. Would your firm make surplus or obsolete equipment and materials available as a grant to industrial arts programs?	14	4	10



TABLE II (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
15. Would your firm grant financial aid to worthy industrial arts students in the form of educational scholarships?	14	3	11
16. Does your firm maintain a technical library at this particular plant which industrial arts teachers and students may use?	15	5	10
17. Would your firm make externships available to industrial arts teachers during the summer months?	14	2	12
18. Does your firm have any other available information or related materials that would be useful to the teachers or students of industrial arts?	13	1	12

Characteristics most noticeable of this industrial group were the responses made to five particular phases of the questionnaire. Machine and metal parts manufacturers contributed to the high percentage of favorable responses of all industries to the first two items in the instrument. Twelve of the reporting fifteen companies responded favorably (80 per cent) to the question regarding the possibilities of permitting industrial arts students to tour their plant. Two industries in addition to the above twelve would permit industrial arts teachers to visit their facilities, totaling more than ninety-three per cent of those responding. Eight firms (53 per cent) would cooperate with industrial arts teachers by making personnel available as consultants in industrial arts classes not more than twice per school year. Also eight of the machine and metal parts manufacturing companies would place sample products in industrial arts classrooms or in displays if requested by teachers. Nine firms (60 per cent) would cooperate with industrial arts teachers and school guidance personnel in establishing summer employment programs for students of employable age. Six companies (40 per cent) would make surplus or obsolete equipment and materials available for purchase by industrial arts departments and four would make such resources available without cost.

Concerning sheet metal and metal stamping industries several characteristics were in contrast and other responses paralleled those presented in the above discussion. Table III, page 42, indicates the responses of twelve industries regarding their industrial resources.



TABLE III

## RESPONSES OF SHEET METAL AND METAL STAMPING INDUSTRIES

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
1. Would your firm permit industrial arts students to tour your plant?	12	11	1
2. Would your firm permit industrial arts teachers to tour your plant?	12	12	0
3. Would your firm assist in arranging and conducting a seminar for industrial arts teachers?	11	7	4
4. Would your firm cooperate with industrial arts teachers by making personnel available as consultants in industrial arts classes, if limited to two visits per school year?	11	9	2
5. Would your firm assist industrial arts teachers in making an employee available outside regular classes?	10	6	4
6. Would your firm place sample products in the industrial arts classrooms or in displays?	10	8	2
7. Does your firm have literature concerning the product(s) and manufacturing processes that would be available to industrial arts teachers?	10	4	6
8. Would your firm supply industrial arts teachers with free teaching aids and materials for use in industrial arts classes?	8	3	5

TABLE III (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
9. Would your firm cooperate with industrial arts teachers and school guidance personnel in establishing summer employment programs for students who are of employable age?	11	2	9
10. Would your firm share in the research and development of new processes and materials with industrial arts teachers, once they are no longer restricted to the company?	10	3	7
11. Would your firm make use of mailing lists for the distribution of current catalogs, bulletins and related information to industrial arts teachers?	10	5	5
12. Would your firm serve as a liaison in the utilization of your parent or subsidiary companies in the distribution of industrial resources to the industrial arts programs within your region?	10	4	6
13. Would your firm make surplus or obsolete equipment and materials available for purchase by industrial arts departments?	11	6	5
14. Would your firm make surplus or obsolete equipment and materials available as a grant to industrial arts programs?	9	2	7



TABLE III (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
15. Would your firm grant financial aid to worthy industrial arts students in the form of educational scholarships?	9	1	8
16. Does your firm maintain a technical library at this particular plant which industrial arts teachers and students may use?	12	2	10
17. Would your firm make externships available to industrial arts teachers during the summer months?	10	1	9
18. Does your firm have any other available information or related materials that would be useful to the teachers or students of industrial arts?	8	0	8

All twelve firms responding would welcome industrial arts teachers to visit their facilities, however one company would not permit students to tour their industry. Seven companies of the responding eleven (63 per cent) working in sheet metal and metal stamping industries would assist in arranging and conducting a seminar for industrial arts teachers, whereas six (40 per cent) machine and metal parts manufacturing companies would do so. Nine firms (82 per cent) would cooperate with industrial arts teachers by making personnel available as consultants in industrial arts classes, comparing with (54 per cent) of the responding machine and metal parts manufacturing industries, who indicated that they would extend such resources. Eight firms would place sample products in industrial arts classrooms or in displays if requested. In contrast to machine and metal parts manufacturing companies (82 per cent) sheet metal and metal stamping firms (18 per cent) responded that they would cooperate with industrial arts teachers and school guidance personnel in establishing summer employment programs for students of employable age. Fifty per cent of the sheet metal and metal stamping firms responding would utilize postal services in the distribution of current catalogs, bulletins and related information to industrial arts teachers who were on their mailing lists, whereas a low percentage (14 per cent) of industries in machine and metal parts manufacturing category would provide this service to teachers and industrial arts departments. Six firms (54 per cent) would make surplus or obsolete equipment and materials available for purchase by industrial arts departments.



In conclusion, the number of responding sample industries of the metals industries comprise a substantial number (47 per cent) of the responding sample. In view of this fact, areas that were analyzed show little difference in the overall trends of the data, with the exception of the availability of externships. A total of three firms (in the two metals areas) indicated that their companies would make externships available to industrial arts teachers during the summer months, whereas the remainder of the three sample industrial classifications would make seven externship programs available.

#### Lumber and Wood Products Industries

Since the earliest days of mankind, the media of wood has enjoyed much prominence in the fashion of tools, modes of travel and shelter. The utilization of wood and wood products in homebuilding and furnishings are indicative of their popularity in this period. Also of extreme importance in our society is the use of wood products in the paper and allied industries. The increased demands and consumption of paper products is partly the result of new technologies and their applications to new processes and marketing techniques.

Typical wood industries within the sample region were: millwork, prefabricated panels, cabinet and furniture companies, paper container manufacturing and specialty work. Three such representatives submitted letters desiring not to participate in the study, and one questionnaire was completed by a company official outside the geographic region of the survey and did not subscribe to the predetermined limitations of

the study. The data presented in Table IV represent the responses received from the management of seven companies engaged in the wood product industries. Unanimous consent was given concerning the possibility of permitting industrial arts students to tour their industrial facilities, however, one firm would not allow teachers to do so without their students. Five companies (71 per cent) desired to place sample products in the industrial arts classrooms or in displays if requested. An absence of teaching aids and materials prompted five industries to respond negatively to their possibility of supplying these resources. However, five firms indicated favorably to cooperating with school personnel in establishing summer employment programs for students of employable age and sharing in the research and development of new processes and materials with industrial arts teachers. None of the responding industries would grant financial aid to industrial arts students in the form of educational scholarships. Two firms would serve as a liaison in the utilization of related companies in the procurement of resources for local industrial arts programs.

Although a small number of the sample industries responded in this industrial classification, significant contrasts to the overall trend of the survey are evident. A considerably higher percentage (83 per cent) of the lumber and woodworking industries would cooperate with industrial arts teachers and school guidance personnel in establishing summer employment programs for students of employable age than the total industries (near 50 per cent) who would do so.



TABLE IV  
 RESPONSES OF LUMBER AND  
 WOOD PRODUCTS INDUSTRIES

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
1. Would your firm permit industrial arts students to tour your plant?	7	7	0
2. Would your firm permit industrial arts teachers to tour your plant?	7	6	1
3. Would your firm assist in arranging and conducting a seminar for industrial arts teachers?	7	1	6
4. Would your firm cooperate with industrial arts teachers by making personnel available as consultants in industrial arts classes, if limited to two visits per school year?	6	4	2
5. Would your firm assist industrial arts teachers in making an employee available outside regular classes?	7	2	5
6. Would your firm place sample products in the industrial arts classrooms or in displays?	5	5	0
7. Does your firm have literature concerning the product(s) and manufacturing processes that would be available to industrial arts teachers?	6	2	4
8. Would your firm supply industrial arts teachers with free teaching aids and materials for use in industrial arts classes?	6	1	5

TABLE IV (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
9. Would your firm cooperate with industrial arts teachers and school guidance personnel in establishing summer employment programs for students who are of employable age?	6	5	1
10. Would your firm share in the research and development of new processes and materials with industrial arts teachers, once they are no longer restricted to the company?	6	5	1
11. Would your firm make use of mailing lists for the distribution of current catalogs, bulletins and related information to industrial arts teachers?	5	3	2
12. Would your firm serve as a liaison in the utilization of your parent or subsidiary companies in the distribution of industrial resources to the industrial arts programs within your region?	2	2	0
13. Would your firm make surplus or obsolete equipment and materials available for purchase by industrial arts departments?	6	4	2
14. Would your firm make surplus or obsolete equipment and materials available as a grant to industrial arts programs?	3	1	2



TABLE IV (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
15. Would your firm grant financial aid to worthy industrial arts students in the form of educational scholarships?	5	0	5
16. Does your firm maintain a technical library at this particular plant which industrial arts teachers and students may use?	7	1	6
17. Would your firm make externships available to industrial arts teachers during the summer months?	6	1	5
18. Does your firm have any other available information or related materials that would be useful to the teachers or students of industrial arts?	4	1	3

These industries, lumber and woodworking, responded that many (83 per cent) would cooperate with industrial arts teachers in sharing the findings of their research and development of new processes and materials. The total number of sample industries (near 50 per cent) responded that they would aid teachers in this industrial resource.

#### The Printing and Graphic Arts Industries

Printing and graphic arts industries constitute to a large degree an important segment of our society's economy. Their influences may be accounted in the large consumption of printed and processed materials in business, education and in leisure activities. Certainly in the central Kentucky region, the abundance of these industries indicates the relative importance of their existence. Graphic arts courses, per se, are limited in the secondary schools within the region. However, these areas are often presented in exploratory general shop courses.

The data entered in Table V, page 52, indicate the responses made by representatives of ten printing and related graphic arts industries, concerning their availability as local industrial resources for use in industrial arts programs. One firm in this category submitted a letter desiring not to participate in the study. All firms in this particular classification would permit industrial arts teachers to tour their plant. One of these companies would not allow industrial arts students to visit their industry. Seven industries (70 per cent) would cooperate with industrial arts teachers by making personnel available as consultants in industrial arts classes. A number (83 per cent) of companies would not supply teachers free teaching materials.



TABLE V  
 RESPONSES OF PRINTING AND GRAPHIC ARTS INDUSTRIES

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
1. Would your firm permit industrial arts students to tour your plant?	10	9	1
2. Would your firm permit industrial arts teachers to tour your plant?	10	10	0
3. Would your firm assist in arranging and conducting a seminar for industrial arts teachers?	9	4	5
4. Would your firm cooperate with industrial arts teachers by making personnel available as consultants in industrial arts classes, if limited to two visits per school year?	9	7	2
5. Would your firm assist industrial arts teachers in making an employee available outside regular classes?	8	5	3
6. Would your firm place sample products in the industrial arts classrooms or in displays?	6	6	0
7. Does your firm have literature concerning the product(s) and manufacturing processes that would be available to industrial arts teachers?	10	2	8
8. Would your firm supply industrial arts teachers with free teaching aids and materials for use in industrial arts classes?	6	1	5

TABLE V (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
9. Would your firm cooperate with industrial arts teachers and school guidance personnel in establishing summer employment programs for students who are of employable age?	7	3	4
10. Would your firm share in the research and development of new processes and materials with industrial arts teachers, once they are no longer restricted to the company?	7	7	0
11. Would your firm make use of mailing lists for the distribution of current catalogs, bulletins and related information to industrial arts teachers?	7	2	5
12. Would your firm serve as a liaison in the utilization of your parent or subsidiary companies in the distribution of industrial resources to the industrial arts programs within your region?	3	1	2
13. Would your firm make surplus or obsolete equipment and materials available for purchase by industrial arts departments?	7	6	1
14. Would your firm make surplus or obsolete equipment and materials available as a grant to industrial arts programs?	6	5	1



TABLE V (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
15. Would your firm grant financial aid to worthy industrial arts students in the form of educational scholarships?	6	0	6
16. Does your firm maintain a technical library at this particular plant which industrial arts teachers and students may use?	8	3	5
17. Would your firm make externships available to industrial arts teachers during the summer months?	5	2	3
18. Does your firm have any other available information or related materials that would be useful to the teachers or students of industrial arts?	7	1	6

Several companies indicated a lack of free teaching aids and materials in their possession which could be made available for use in industrial arts classrooms. Seven firms (100 per cent) would cooperate with teachers in sharing in the research and development of new processes and materials with industrial arts teachers. Regarding the utilization of parent or subsidiary companies, one firm indicated a willingness to serve as a liaison in establishing relations between their related industries and teachers. Six firms (60 per cent) would make surplus or obsolete equipment and materials available for purchase, and five companies would extend such items to industrial arts departments without cost.

In conclusion, several significant characteristics of this industrial classification compare with the data tabulated concerning all industries in the final sample. For example, a higher percentage (62 per cent) of this industrial sample would assist industrial arts teachers in making an employee available outside regular classes than the combined sample industries (52 per cent). All responding industries in this group would place sample products in classrooms or displays as compared to approximately seventy-nine per cent of the total industries who were surveyed. Similarly all firms in the printing and graphic arts industries would share in the research and development of new processes and materials, whereas thirty-two per cent of all industries would provide this resource. Eighty-five per cent of this industrial classification would make surplus or obsolete equipment and materials available for purchase compared to sixty per cent of all industries



would provide such resources, and more than eighty per cent of all firms in this category would make these resources available without cost as compared to forty-seven per cent of all industries who would.

#### Electrical and Electronic Component Industries

The electrical and electronic component industries have perhaps received much attention due to the increased demands made by space and aeronautical technology. Also contributing to the new knowledges and techniques of the related industries are newer systems and advanced systems of communications. The central Kentucky area is experiencing a relatively rapid growth of these industries. Many industrial arts course offerings do not specifically schedule classes in electrical/electronic subject areas, but are introduced in exploratory general shop experiences.

Data presented in Table VI, page 57, record the responses received from thirteen companies engaged in electrical and electronic component manufacturing concerning their availability as local industrial resources for use in industrial arts programs. All thirteen firms extended permission to industrial arts teachers regarding plant visitation, however, two firms would not allow students to visit. Nine companies would assist in arranging and conducting a seminar for industrial arts teachers. Eleven firms would cooperate with teachers by making personnel available as consultants in industrial arts classes. Eleven (85 per cent) would place sample products in the industrial arts classrooms or in displays, if requested.

TABLE VI  
 RESPONSES OF ELECTRICAL AND ELECTRONIC  
 COMPONENT MANUFACTURING INDUSTRIES

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
1. Would your firm permit industrial arts students to tour your plant?	13	11	2
2. Would your firm permit industrial arts teachers to tour your plant?	13	13	0
3. Would your firm assist in arranging and conducting a seminar for industrial arts teachers?	13	9	4
4. Would your firm cooperate with industrial arts teachers by making personnel available as consultants in industrial arts classes, if limited to two visits per school year?	13	11	2
5. Would your firm assist industrial arts teachers in making an employee available outside regular classes?	12	8	4
6. Would your firm place sample products in the industrial arts classrooms or in displays?	13	11	2
7. Does your firm have literature concerning the product(s) and manufacturing processes that would be available to industrial arts teachers?	13	7	6
8. Would your firm supply industrial arts teachers with free teaching aids and materials for use in industrial arts classes?	13	7	6



TABLE VI (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
9. Would your firm cooperate with industrial arts teachers and school guidance personnel in establishing summer employment programs for students who are of employable age?	13	8	5
10. Would your firm share in the research and development of new processes and materials with industrial arts teachers, once they are no longer restricted to the company?	12	7	5
11. Would your firm make use of mailing lists for the distribution of current catalogs, bulletins and related information to industrial arts teachers?	12	6	6
12. Would your firm serve as a liaison in the utilization of your parent or subsidiary companies in the distribution of industrial resources to the industrial arts programs within your region?	10	5	5
13. Would your firm make surplus or obsolete equipment and materials available for purchase by industrial arts departments?	11	8	3
14. Would your firm make surplus or obsolete equipment and materials available as a grant to industrial arts programs?	12	9	3

TABLE VI (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
15. Would your firm grant financial aid to worthy industrial arts students in the form of educational scholarships?	11	2	9
16. Does your firm maintain a technical library at this particular plant which industrial arts teachers and students may use?	13	2	11
17. Would your firm make externships available to industrial arts teachers during the summer months?	12	4	8
18. Does your firm have any other available information or related materials that would be useful to the teachers or students of industrial arts?	13	1	12



Of outstanding significance among the responses made by the electrical and electronic component industries was the favorable indication of nine industries (75 per cent) concerning their policies in making surplus or obsolete equipment and materials available without cost to industrial arts departments. In conclusion, several areas of this classification are significantly different from the responses that are representative of the total final sample. For example, fifty-four per cent of these industries who responded would make available to industrial arts teachers literature concerning their products and manufacturing, but thirty-seven per cent of all industries who were surveyed would provide this resource. Seven companies of this category would supply industrial arts teachers with free teaching aids and materials for use in classes contributing to forty-six per cent of all industries who would provide these resources. Fifty per cent of the electricity and electronic industries who responded would utilize mailing lists for the distribution of current catalogs, bulletins and related information to industrial arts teachers, however, thirty-seven per cent of all industries would do so. Nine of the responding graphic arts and printing firms (75 per cent) would make surplus or obsolete equipment and materials available to industrial arts programs without cost, however twenty-one (47 per cent) of the final sample would provide these resources.

One other industrial arts area has not been surveyed and discussed per se in the study. It was assumed, that a majority of

the available industries would be engaged in drafting activities or operate an engineering department or both. Therefore, the area of drafting was assumed to be included in the other areas discussed.



## CHAPTER IV

### THE UTILIZATION OF LOCAL INDUSTRIAL RESOURCES WHICH ARE AVAILABLE TO INDUSTRIAL ARTS PROGRAMS

#### Presentation of Industrial Responses

The preceding chapter presented data and information concerning the responses of a number of industrial firms with respect to their human and material resources which are available for use by local industrial arts programs. The extent to which these resources are utilized in the teaching of industrial arts in the public secondary schools of the selected region is presented in this chapter.

A total of 100 representative industries in five manufacturing areas were contacted for the purpose of determining the availability of resources and the extent those resources were being used for educational purposes in the industrial arts program. The data presented in Table VII, page 63, indicate the responses of industrial personnel of fifty-seven industries (57 per cent of those surveyed) engaged in manufacturing in the general areas of machine and metal parts, sheet metal and metal stamping, lumber and wood products, printing and graphic arts, and electrical and electronic component manufacturing. Part of the data presented in this chapter were gained through a set of secondary questions included in the instrument designed for use by industrial representatives. For example, the first question surveyed referred to the possibility of a firm granting permission for industrial

TABLE VII  
 RESPONSES OF INDUSTRIES CONCERNING RESOURCE USE

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
1. Has your firm had any secondary students enrolled in industrial arts classes tour your plant recently?	41	10	31
2. Has your firm had any industrial arts teachers to tour your plant recently?	55	8	47
3. Has your firm assisted in arranging and conducting a seminar for industrial arts teachers since January of 1966?	26	0	26
4. Has your firm cooperated by providing consultants in industrial arts classes since January 1, 1966?	36	0	36
5. Has your firm provided industrial arts teachers assistance outside regular classes?	25	0	25
6. Has your firm placed sample products in the industrial arts classrooms or in displays recently?	38	1	37
7. Has your firm placed any available literature concerning your product(s) and manufacturing processes, in industrial arts classrooms recently?	16	1	15
8. Has your firm supplied industrial arts teachers with teaching aids and similar materials for use in industrial arts classes recently?	12	1	11



TABLE VII (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
9. Has your firm cooperated with industrial arts teachers and school guidance personnel in establishing summer employment programs for students of employable age?	26	6	20
10. Has your firm assisted in the research, development and experimentation of new processes and materials with industrial arts teachers recently?	23	0	23
11. Has your firm utilized mailing lists for the distribution of current catalogs, bulletins and related information to industrial arts teachers since January 1966?	18	0	18
12. Has your firm cooperated in the utilization of related companies in the distribution of industrial resources to the industrial arts programs in your region since January 1966?	13	2	11
13. Has your firm made surplus or obsolete equipment and materials available for purchase by industrial arts departments since January 1, 1966?	28	6	22
14. Has your firm made such equipment and/or materials available as a grant to industrial arts programs, since January of 1966?	20	4	16

TABLE VII (continued)

Question	Number of Companies Responding to the Question	Their Responses	
		Yes	No
15. Has your firm granted financial aid to industrial arts students in the form of educational scholarships since January, 1966?	6	1	5
16. Has your firm made library resources and related materials available for use by industrial arts programs since January, 1966?	11	1	10
17. Has your firm made externships available to industrial arts teachers recently?	10	1	9



arts students to tour their industry. If the first was answered in the affirmative, a secondary question requesting utilization was asked. (e.g., Has your firm had any secondary students, enrolled in industrial arts classes, to tour your plant recently?) Therefore, the total number of responses which are represented in Table VII equal those who responded favorably as presented in Table I, on page 22.

As a means of restricting responses to a specific time, respondents were asked to relate their answer to questions of utilization during the period of January 1, 1966 to May 1967. For the purposes of readability, the time period will not be referred to in the remainder of this discussion.

According to the responses made by all industries in the final sample, ten firms (24 per cent) stated that their company had been visited by industrial arts students recently, while eight firms (17 per cent) indicated that recent visitations had been made by industrial arts teachers without their students. None of the industries surveyed had assisted in arranging and conducting a seminar for industrial arts teachers. Similarly, none of the firms in the final sample indicated that they had provided consultants in industrial arts classes recently, nor had they provided assistance to industrial arts teachers outside regular classes.

One firm had placed literature concerning their products and manufacturing processes in industrial arts classes. One of the industries surveyed had placed sample products in an industrial arts classroom or display, and an industry had supplied industrial arts

teachers with teaching aids and similar materials for use in industrial arts classes. Six firms (43 per cent) had cooperated with industrial arts teachers and school guidance personnel in the establishment of summer employment programs for students of employable age. None of the sample industries had aided industrial arts teachers by sharing the findings of their research and development and experimentation.

None of the industries surveyed in the study had utilized mailing lists for the purpose of distributing current catalogs, bulletins and related information to industrial arts teachers. Two firms had aided in establishing relationships with their affiliated companies and local industrial arts teachers.

Six firms (46 per cent) had made surplus or obsolete equipment and materials available for purchase by industrial arts departments and four companies had made similar resources available without cost. One firm had granted financial aid by way of educational scholarships to an industrial arts student for further education, and one industry had made an externship program available to an industrial arts teacher.

Several underlying factors were evident in the responses that industrial representatives entered in the questionnaires regarding the utilization of their firm's resources in the local industrial arts departments. The presentation of these factors and others which influenced the results of this study are discussed in the summarized findings of the final chapter.

#### Presentation of Industrial Arts Teachers Responses

This section of Chapter IV presents the responses received from thirty-six of forty-nine (a 71 per cent return) industrial arts



teachers indicating the extent to which available local industrial resources are utilized in their industrial arts programs. Table VIII, page 69, represents the replies made in their utilization of resources.

Ten industrial arts teachers (48 per cent) indicated they had taken their students on excursions to local industry and nineteen (53 per cent) had visited industrial plants without their students. Fifteen teachers (43 per cent) had attended seminars and similar functions made possible through the cooperation of industry and industrial arts teachers. Eleven teachers (31 per cent) reported that various personnel from local industry had been invited to serve as resource persons in the industrial arts classrooms, and seventeen teachers (51 per cent) had contacted resource persons from local industry for the purpose of obtaining information to be used in the industrial arts classroom.

Whenever feasible, twenty-five industrial arts teachers (73 per cent) stated that sample products loaned or contributed by local industrial firms were used. Twenty-four teachers (68 per cent) indicated their utilization of local industrial literature for instructional purposes. Seventeen industrial arts teachers (53 per cent) stated that audio-visual aids and related materials prepared or made available by local industries had been utilized in their classrooms.

Nine teachers (27 per cent) responded that information concerning the research and development of new processes and materials or equipment had been requested and received from local industrial firms.

TABLE VIII  
 RESPONSES OF INDUSTRIAL ARTS TEACHERS  
 CONCERNING USE OF RESOURCES

Question	Number of Teachers Responding to the Question	Their Responses	
		Yes	No
1. Have you taken students in your industrial arts classes on any visits to local industry since January 1, 1966?	36	10	26
2. Have you visited any local industrial plants since January of 1966?	36	19	17
3. Do you attend seminars made possible through the cooperation of industry?	35	15	20
4. Have you invited persons from local industry to come into your industrial arts classrooms and laboratories to serve as resource persons since January 1966?	36	11	25
5. Have you contacted resource persons from local industry for the purpose of obtaining information to be used in your classes?	33	17	16
6. Do you use sample products contributed or loaned by local industry whenever feasible?	34	25	9
7. Do you use industrial literature that is available from local industries for instructional purposes in your industrial arts classes?	35	24	11



TABLE VIII (continued)

Question	Number of Teachers Responding to the Question	Their Responses	
		Yes	No
8. Do you use available audio-visual aids and related materials in your classrooms which are prepared by or made available through local industry?	32	17	15
9. Have you cooperated with guidance personnel and local industries in establishing summer employment programs for students of employable age?	34	8	26
10. Have you requested and received information concerning the research and development of new processes and materials or equipment from local industry?	33	9	24
11. Does your department receive bulletins, catalogs and/or related materials from local industries, (a) without solicitation?	35	13	22
(b) upon request?	24	22	2
12. Have local industries served as a liaison with your department in establishing relations with their parent or subsidiary companies in utilizing their resources?	30	8	22
13. Has your department or school purchased surplus or obsolete equipment and/or materials from local industries for use in industrial arts classes since January of 1966?	35	7	28

TABLE VIII (continued)

Question	Number of Teachers Responding to the Question	Their Responses	
		Yes	No
14. Has your department or school received as a grant, surplus or obsolete equipment and/or materials from local industries for use in industrial arts classes since January of 1966?	37	5	32
15. Have you sought financial aid through scholarships or loans for students from industries for the purpose of continuing a student's education beyond high school?	35	13	22
16. Have you used library resources and related materials located in and made available through local industry for use in your industrial arts classes?	35	9	26
17. Have you requested and received assistance in your own education and experience through an externship made available by industry?	34	2	32
18. Do you use industrial resources for instructional enrichment in your industrial arts classes in any other way?	33	10	23



Concerning the resources of bulletins, catalogs and related materials provided by local industry, thirteen teachers (39 per cent) disclosed that such materials were received without solicitation, whereas twenty-two (92 per cent) teachers stated that these resources were received upon request. Nine teachers (25 per cent) had used library resources and related materials located in and made available through local industries for use in their industrial arts classes.

Eight industrial arts teachers (26 per cent) related that local industries had served as a liaison with their industrial arts departments in the establishment of relationships with affiliated companies in utilizing their resources. Seven teachers (20 per cent) stated that their industrial arts departments had purchased surplus or obsolete equipment and/or materials from local industries and five (13 per cent) indicated that such resources had been made available without cost.

Thirteen industrial arts teachers (37 per cent) indicated that financial aid through scholarships or loans for students from industries had been investigated for the purpose of continuing education beyond high school. Eight teachers (23 per cent) had cooperated with school guidance personnel and local industries in the establishment of summer employment programs for students of employable age. Externships within local industry had been experienced by two industrial arts teachers during the summer of 1966.

Ten teachers (30 per cent) responded that other industrial resources had been utilized in instructional enrichment within their

industrial arts programs. Examples of such resources were the utilization of industrial application forms and interview sheets for class presentations, comparison of similar products when those of students approximate those produced by industry, use of some industrial drawings, building samples for architectural drafting classes, and materials that related to economic and social change.

#### Specific Extent of Use as Reported by Both Samples

This segment of the chapter is concerned with the specific utilization of industrial resources as indicated by the responding industrial arts teachers and representatives of industry. The design of the survey instruments provided the writer with data concerning the availability of resources and the extent of their use. However, the presentation of their use would be incomplete if specific data were not discussed concerning the number of times resources have been provided by local industry and utilized by industrial arts teachers.

Table IX, page 74, represents the data compiled from the responses made by industrial representatives and industrial arts teachers. Both groups of respondents indicate that approximately twenty-one visits have been made by industrial arts students within local industry since January of 1966. Industrial arts teachers report that local industry has permitted them to visit approximately seventy-five times, whereas twenty-eight visits were reported by industrial personnel.

Compiled data indicated that three seminars had been arranged and conducted by local industries and that eleven industrial arts



TABLE IX  
COMPARISON OF THE RESPONSES OF PARTICIPANTS IN THE STUDY

QUESTION (Adapted From Instruments For The Purpose of Presentation of Corresponding Data)	RESOURCES - EXTENT OF USE AS REPORTED BY:	
	TEACHERS	INDUSTRIAL REPRESENTATIVES
1. How many visits within local industry have been experienced by industrial arts students?	23	19
2. How many visits have been experienced by industrial arts teachers in local industry?	75	28
3. How many seminars have been (a) arranged and conducted in industry? (b) attended by industrial arts teachers?	-- 11	3 --
4. How many times have local firms made personnel available as consultants in industrial arts classes?	26	2
5. How many resource persons outside regular industrial arts classes have been provided by industry?	70	0
6. How many times have sample products been placed in industrial arts classrooms?	--	1
What percentage of display or classroom materials have been contributed or loaned by local industry?	10% (average)	--

TABLE IX (continued)

QUESTION (Adapted From Instruments For The Purpose of Presentation of Corresponding Data)	RESOURCES - EXTENT OF USE AS REPORTED BY:	
	TEACHERS	INDUSTRIAL REPRESENTATIVES
7. In how many classrooms has company literature concerning products or processes been placed?	--	10
What percentage of classroom literature has been provided by industry?	10% (average)	--
8. How many times has industry supplied free teaching materials for use in industrial arts classrooms?	--	3
9. How many students have partic- ipated in a summer employment program pre-planned by school personnel and industry?	32	28
10. How many times have local indus- tries shared with teachers in the findings of research and develop- ment activities?	83	0
11. How many industrial arts teachers are listed on your firm's mailing lists?	--	0
12. How many times has industry served as a liaison in estab- lishing relationships with industrial arts teachers?	12	0
13. How many times have local industries provided obsolete materials and/or equipment for purchase to industrial arts departments?	7	5



TABLE IX (continued)

QUESTION (Adapted From Instruments For The Purpose of Presentation of Corresponding Data)	RESOURCES - EXTENT OF USE AS REPORTED BY:	
	TEACHERS	INDUSTRIAL REPRESENTATIVES
14. How many times have local industries provided obsolete materials and/or equipment without cost to industrial arts departments?	3	6
15. How many times have industrial arts students been aided by local industry in continuing education?	--	1
How many times have industrial arts teachers sought aid for industrial arts students for the purpose of continuing education?	37	--
16. How many times have local industrial technical libraries been utilized by industrial arts teachers?	73	3
17. How many industrial arts teachers have experienced an externship program in local industries?	2	1
18. How many other local industrial resources are available for use in industrial arts programs?	6	2

teachers had attended such functions. Industrial arts teachers revealed that local firms had made personnel available as consultants to industrial arts classes twenty-six times, whereas industrial personnel who responded, indicated that two persons had served as consultants. Industrial arts teachers reported the utilization of industrial resource persons outside industrial arts classes to be approximately seventy times, whereas responding industries indicated that resource persons had not been provided. Concerning the number of times that sample products had been placed in industrial arts classrooms or in displays, industry related that they had done so once. Teachers indicated that an average of ten per cent of their materials had been contributed or loaned by local industry. Industry responded that company literature concerning products or processes had been provided approximately ten times. Again, teachers cited an average of ten per cent of all literature as being provided by local industry.

According to teachers, local industry had not provided industrial arts classes with free teaching materials. However, industries responded that they had done so as many as three times. An apparent inconsistency is evident in the fact that industrial arts teachers revealed that the types of resources which were prepared or provided by local industries and used most were drawings, films, filmstrips and transparencies. Industries disclosed that twenty-eight industrial arts students had participated in a pre-planned summer employment program within industry established jointly by industrial arts teachers,



school guidance personnel and industrial personnel. However, teachers reported that thirty-two students had been involved in such programs. Industrial arts teachers indicated that information concerning research and development of new processes, materials and/or equipment had been requested and received eighty-three times from local industries, but industries in the survey replied that they had not made this information available.

Data compiled from both samples indicated that mailing lists were not utilized by industries in distributing resources to industrial arts departments. Industrial arts teachers reported that on twelve occasions local industries had served as a liaison in establishing relationships with affiliated companies, whereas industries maintained that they had not done so. Teachers reported that on seven occasions industries had provided obsolete material and/or equipment for purchase to industrial arts departments and the responding firms indicated that they made these resources available five times. Teachers disclosed that in three other situations industries had provided obsolete materials and/or equipment without cost and industries reported six occasions. One industry stated that an industrial arts student had been aided financially in continuing his education, and the sample of teachers reported that in the thirty-seven cases in which they had sought aid from industry, none had been granted such assistance.

Industrial arts teachers reported that on seventy-three occasions they had utilized local industrial technical libraries, however industrial data disclosed three such cases. Two of the responding industrial

arts teachers indicated that externship programs had been experienced within local industry, and industries reported one program.

Two industries indicated that they possessed other resources which were not surveyed and industrial arts teachers reported six other resources of industry which were utilized. However the industrial representatives did not describe the specific resources. As mentioned in the preceding section, examples of other resources used in the industrial arts classroom were: industrial application forms and interview sheets for class presentation and discussion, a comparison of similar products when those of students approximate those produced by industry, use of some industrial drawings, use of building samples for architectural drafting classes, and materials relating to industry as a cause of economic and social change.

#### An Analysis of Personal Data Relative To Industrial Arts Teachers

This section of the chapter is concerned with the personal data of industrial arts teachers and the possible implications that selected factors may have upon the teachers' indicated opinions. For example, a sub-problem of this study was to analyze the data supplied by the teachers relative to the number of years as an industrial arts teacher and the number of years teaching experience in the present school system. Additional information which was furnished by the sample included the institution from which the industrial arts teacher graduated, the last degree earned and date received.



Several characteristics were noticeable relative to all responding industrial arts teachers. Twenty-one (58 per cent) of the participating thirty-six teachers indicated they had experience from one to four years as an industrial arts teacher. Twenty-seven teachers (75 per cent) stated that they had taught industrial arts in their present school system from one to four years. Fourteen teachers (39 per cent) possess master's degrees. Twenty-five (70 per cent) of the participants in the survey had received their last degree since 1963. Thirty-one (86 per cent) of the responding thirty-six industrial arts teachers were graduates of Eastern Kentucky State University at Richmond, Kentucky.

An attempt was made to determine the underlying reasons and/or opinions for the utilization or lack of use of industrial resources in the classrooms of industrial arts teachers in central Kentucky. A limitation which influenced the following data is that only those teachers who responded negatively to a majority of the first eighteen questions in the instrument, completed the five additional questions seeking an opinion.

Table X, page 81, represents the data compiled relative to the responses made by eighteen (50 per cent) of the thirty-six industrial arts teachers who participated in the study. Fifty-eight per cent of those persons who had less than five years experience as a teacher felt that the relative importance of an industrial arts teacher utilizing local industrial resources as a method of enriching educational programs was of great value. Sixty-seven per cent of those individuals

TABLE X

OPINIONS OF INDUSTRIAL ARTS TEACHERS  
BY EXPERIENCE AND DEGREES EARNED

1. Please indicate the relative importance of an industrial arts teacher utilizing local industrial resources as a method of enriching educational programs.

Opinion	Teaching Experience		Last Degree	
	1 to 4 yrs (n=12)	5 yrs or more (n=6)	A.B./B.S. (n=14)	M.A. (n=4)
of little value	--	--	--	--
of some value	25%	33%	36%	--
of great value	58%	67%	50%	100%
of no value	17%	--	14%	--

2. Please indicate your interest in establishing communications with local industry in determining what resources are available to industrial arts classes.

Opinion	Teaching Experience		Last Degree	
	1 to 4 yrs (n=12)	5 yrs or more (n=6)	A.B./B.S. (n=14)	M.A. (n=4)
(interested to)				
some degree	33%	17%	36%	--
very little	--	--	--	--
very much	50%	83%	57%	100%
not interested	17%	--	7%	--

3. In your opinion, what is the relative attitude of school administration toward the utilization of local industrial resources?

Opinion	Teaching Experience		Last Degree	
	1 to 4 yrs (n=11)	5 yrs or more (n=5)	A.B./B.S. (n=12)	M.A. (n=4)
(resources are)				
of questionable value	27%	80%	50%	25%
of little value	18%	20%	16%	25%
of much value	46%	--	25%	50%
of great value	9%	--	9%	--



TABLE X (continued)

4. What attitudes do local industries display in their interest in providing industrial resources for industrial arts programs?

Opinion	Teaching Experience		Last Degree	
	1 to 4 yrs (n=11)	5 yrs or more (n=6)	A.B./B.S. (n=13)	M.A. (n=4)
none demonstrated	36%	50%	54%	--
little interest shown	18%	50%	23%	75%
mildly interested	36%	--	23%	25%
eager to establish relationships	--	--	--	--
other	10%	--	--	--

5. In your opinion what is the relative attitudes of school administrators in cooperating with industrial arts departments and industry in obtaining resources?

Opinion	Teaching Experience		Last Degree	
	1 to 4 yrs (n=11)	5 yrs or more (n=6)	A.B./B.S. (n=13)	M.A. (n=4)
encouraged	18%	--	15%	--
discouraged	--	--	--	--
neither encouraged nor discouraged	82%	100%	85%	100%
other	--	--	--	--

who had five or more years experience felt that the utilization of such resources were of great value. Seventeen per cent of the less experienced teachers expressed the opinion that the utilization of such resources were of no value.

Concerning the degree of interest in establishing communications with local industry regarding the resources which are available for classroom use, fifty per cent of the less experienced teachers were interested very much and eighty-three per cent of those who had taught five years or more were very interested. Thirty-three per cent of the respondents in the larger group (those who had taught a fewer number of years) were interested to some degree in establishing communications with local industry and the remainder of the smaller group (those who had taught industrial arts classes five years or more) were interested to some degree. Seventeen per cent of the less experienced however indicated no interest in establishing communications with local industry.

Opinions also were expressed by teachers regarding the attitude of school administrators toward the utilization of local industrial resources by industrial arts programs. Eighty per cent of the teachers who had taught five years or more, indicated that it was their feeling that administrators questioned the value of such resources, and twenty per cent felt that administrators believed such resources are of little value.

However, forty-six per cent of the teachers who had taught from one to four years indicated that they believed school administrators



appraise resources to be of much value. Twenty-seven per cent responded that school administrators questioned the value of local industrial resources.

Concerning the attitudes that local industries display to industrial arts teachers in their interest in providing industrial resources for industrial arts programs, thirty-six per cent of the less experienced teachers and fifty per cent of the more experienced teachers revealed that no interest was demonstrated. Eighteen per cent and fifty per cent, respectively, stated that little interest had been shown. Thirty-six per cent of the less experienced teachers denoted that local industry was mildly interested.

The opinions of the responding industrial arts teachers relative to the attitude of school administrators in cooperating with industrial arts departments and local industry in obtaining resources were reported. Eighteen per cent of the teachers who had taught less than four years stated that relationships had been encouraged, whereas all other teachers indicated that relationships were neither encouraged nor discouraged.

The analysis of the relationships between those responses made by industrial arts teachers who had earned a bachelor's degree and those who had earned a master's degree revealed several significant characteristics. For example, 100 per cent of those who possess master's degrees indicated that the utilization of industrial resources as a method of enriching industrial arts programs was of great value, whereas only fifty per cent of the respondents who had been granted a bachelor's degree judged the use of resources to be of great value.

Concerning the degree of interest in the establishment of communications with local industry in determining what resources are or could be made available to industrial arts classes, fifty-seven per cent of the bachelor's degree teachers were interested very much, whereas 100 per cent of those who possess the master's degree responded that they were interested very much.

In the opinion of industrial arts teachers surveyed, the relative attitude of school administrators toward the utilization of local industrial resources was: one-half of the bachelor's degree teachers believed that administrators felt that resources are of questionable value, whereas one-half of the master's degree teachers believed school administrators judged such resources to be of much value.

Seventy-five per cent of the master's degree teachers believed that local industries display little interest in providing industrial resources for industrial arts programs. Fifty-four per cent of the bachelor's degree recipients felt that local industries demonstrated no interest in providing industrial resources for industrial arts programs.

The opinions of eighty-five per cent of the bachelor's degree teachers were that school administrators neither encouraged nor discouraged relationships with industrial arts departments and industry in obtaining resources. All teachers possessing master's degrees who responded to the question stated that relationships are neither encouraged nor discouraged by school administrators.



## CHAPTER V

### SUMMARY, MAJOR FINDINGS, AND RECOMMENDATIONS FOR FURTHER STUDY

#### Summary

The purpose of this study was to make an analysis of the educational resources made available by selected industries in the central Kentucky region, and to ascertain the extent of their utilization in the teaching of industrial arts in that region. In order to solve the problem of the study, the following sub-problems were judged necessary: to ascertain the availability of local industrial resources, to determine their utilization in the industrial arts programs, to determine to what extent the background of participating teachers may have had in their responses, and to investigate the opinions of industrial arts teachers regarding the reasons and/or attitudes for the utilization or lack of use of resources in the classroom.

The selection of specific resources was made on an a priori basis. However, each can be defended in relation to its potential impact upon the industrial arts program. Specifically, "industrial resources" which were surveyed and analyzed were: field trips, consultants, teaching aids, summer employment, research and development activities, mailing lists, sponsorship of programs, use of subsidiary companies, surplus equipment, scholarships, externships and library resources.

The data were secured by designed questionnaires mailed to a selected sample of 100 industries engaged in five manufacturing areas, and a total of forty-nine instructors who were teaching industrial arts classes in public secondary schools within the same geographic region. Industries contacted were those in the areas of machine and metal parts manufacturers, lumber and wood products industries, sheet metal and metal stamping industries, and printing and graphic arts industries. The selected industries were those listed in the Kentucky Directory of Manufacturers, 1967 edition, which was published by the Kentucky Department of Commerce at Frankfort, and various other publications of similar nature.

Available related studies (Quast, et.al.,) in the field of utilization of local community resources were reviewed. These studies substantiated the fundamental soundness of the use of local resources in the educational program. Previously conducted studies indicated that the use of available community resources as instructional aids is democratically, psychologically, and sociologically sound.

Data concerning the availability of local industrial resources for use in the industrial arts program were presented. The data and its analysis present the responses of various personnel of manufacturing enterprises and offers a comparison of the diversified industrial groupings within the five manufacturing areas included in the study.

The extent of use of local industrial resources in the instructional enrichment of the industrial arts programs was ascertained and reported. A presentation was made of the extent the background of



participating industrial arts teachers may have had in their responses which were based upon the information provided. An investigation of the opinions of industrial arts teachers concerning the reasons and/or attitudes of the utilization or lack of use of resources in the classrooms was also made.

The total potential of local industrial resources in the central Kentucky region was not determined in this study. However, a sample of wood, metal, electrical and graphic arts industries indicates there are many resources available for use in the industrial arts program. The design of this study appeared to survey nearly all of the resources which are made available for industrial arts programs since only four (14 per cent) of the industries stated that they had resources not included in the study.

#### Major Findings

Based on the data provided by the respondents in the samples, the significant findings of the study are presented in this section. Local industries will cooperate in enriching the educational programs by providing various resources: particularly, field trips, assistance in arranging and conducting seminars, personnel as consultants and resource persons, sample products and manufacturing processes, free teaching aids and materials, establishment of summer employment programs for students of employable age, sharing in the research and development and experimentation findings, utilizing mailing lists, serving as a liaison with affiliated companies, provide surplus or obsolete equipment and materials, and use of industrial technical libraries.

Findings of the study indicate that industries are less interested in providing financial aid to industrial arts students for the purpose of continuing their education, and making externships available to industrial arts teachers during the summer months.

Several significant differences were evident in the responses made by industries in the sub-classifications. For example, of the five industrial groups, two classifications (electrical and graphic arts industries) responded more favorably to the question regarding the possibilities of their firms assisting industrial arts teachers by making an employee available outside regular classes, than the remaining machine and metal parts, wood industries and sheet metal firms. However, respondents for the graphic arts and wood products companies indicated more support in the sharing of findings of research and development of new processes and materials with industrial arts teachers once their findings were no longer restricted to the company. The electrical and graphic arts industries supported the question of their firms in making surplus or obsolete equipment and materials available to industrial arts departments without cost or for purchase. Apparently the machine and metal parts, wood industries and sheet metal industries did not view this potential resource within the same range of possibility.

Approximately forty per cent of all industries sampled were in some manner affiliated with parent or subsidiary industries. The following statement was voluntarily included in the seeking of data and perhaps accurately accounts for several industries in their



negative response to the possibilities of making resources available for industrial arts programs: "Please remember that I am speaking as a local manager of a large company. Many of your questions answered 'no' by me would be answered 'yes' at the company level. Facilities and materials about which you are inquiring are very limited at this plant."

The utilization of local industrial resources, as indicated by the responses of the thirty-six participating industrial arts teachers, can be compared to the listing discussed above as those human and material resources which are provided by local industrial concerns. However, an apparent inconsistency appeared in the fact that industrial arts teachers and industrial representatives submitted data which did not correspond in all respects. Several contributing elements may have led to these discrepancies. For example, the specific industries which were surveyed in the study were not identified for the industrial arts teachers in order to restrict their report to only those who were considered in the study. "Local industry" was perhaps distorted in its meaning by industrial arts teachers.

The frequency of degree of use as reported by teachers appears at first glance to be inconsistent with the report from industry. It is quite likely that some teachers may have given "expected" answers to avoid a reflection on themselves, their school or institution from which they graduated. It is also conceivable that when several teachers reported some type of participation, that such experiences were a result of a single activity of an industry. It is also possible that

teachers were associating with representatives through informal relationships and the person who completed the questionnaire for an industry was not aware of either informal or some formal associations. However, both sources of data indicate that many industrial resources are available and that industrial arts teachers utilize these resources in their industrial arts program in varying degrees.

The opinions of responding industrial arts teachers indicated that a majority (61 per cent) of them judged the relative importance of industrial arts teachers utilizing local industrial resources as a method of enriching educational programs to be of great value. Seventy-two per cent indicated that they were interested very much in establishing communications with local industry in determining what resources are available for industrial arts classes.

Other findings of the study reveal that many firms had not received requests from industrial arts teachers concerning the availability of industrial resources. For example, forty-two industrial representatives reported that their firms had not received requests from industrial arts teachers for assistance outside the regular classes. Numerous other completed questionnaires indicated that resources such as teaching aids, sample products, literature and research and development findings could be provided if an interest was shown by industrial arts teachers. No attempt was made in this study to determine whose responsibility it is to make the initial contact, but it is apparent that in many situations, each group was waiting for the other to establish lines of communication. While participation



in this study may stimulate interest and establish contacts indirectly, it is not the purpose of this research to formally establish such relationships.

A sub-problem of this study was to analyze the data supplied by the industrial arts teachers relative to the number of years as an industrial arts teacher and the number of years of teaching experience in the present school system. Additional information was included regarding the institution from which the teachers graduated, the last degree earned and the date received. Twenty-one (58 per cent) of the responding thirty-six teachers indicated they had from one to four years of experience as an industrial arts teacher. Fourteen teachers (39 per cent) had earned master's degrees, and twenty-five (70 per cent) had received their last degree since 1963.

It is interesting to note that seventeen per cent of the teachers having taught from one to four years rate the potential of industrial resources as of no value whereas all teachers with five years or more experience judge this factor with some value or of great value. Apparently after a teacher has been away from a college environment and begins to feel the impact of technological obsolescence, he perceives community resources in a different perspective. It is also evident that the respondents having a master's degree agree unanimously on the great value of industrial resources.

Less experienced teachers are consistent in their responses when seventeen per cent indicate that they rate industrial resources to be of no value and at the same time demonstrate that they are not

interested in establishing communications with local industry. In fact thirty-three per cent of the teachers having one to four years of experience expressed only some interest in establishing relationships with industry. In contrast, eighty-three per cent of the more experienced teachers demonstrate very much interest in associating with industry for the purpose of classroom enrichment. Another consistency exists when 100 per cent of the persons with master's degrees respond that they are very much interested in establishing lines of communication with local industry.

Concerning the attitudes that local industries display in their interest in providing industrial resources for industrial arts programs, ten teachers revealed that industries had shown little interest or none. It is significant to note that 100 per cent of those teachers who had five years or more experience agreed that local industries demonstrated little or no interest in providing industrial resources.

Because of the small number of masters degree respondents in this phase of the study one can not over-generalize the findings. However, it would appear that the masters degree may effect responses concerning the relative importance of industrial resources in the industrial arts programs.

#### Recommendations for Further Study

Based upon the findings of this study, the following recommendations are proposed for consideration in future research: an intensive study should be made of the various types of local industrial groupings within a given community, further studies should present extensive data



and information pertinent to each industrial group in order that all available resources in each category may be identified for possible educational utilization to its fullest extent, and provisions should also be made to keep the information current.

There is a need for a depth study regarding the attitudes of industrial arts teachers as a factor in perceiving the relative importance of industrial resources as a method of enriching the classroom experience. Since the attitudes of school administrators toward the utilization of community resources may effect actual use by teachers, additional studies should attempt to measure such influences. Local policies and administrative problems, both legal and financial, could effect a teacher's use of community resources and therefore should be studied thoroughly. The design of this particular study did not negate the influences of the factors referred to above but such variables were not controlled or measured to any degree.

Additional studies may be warranted in the analysis of the various backgrounds of industrial arts teachers and the relationship of these factors to actual utilization of industrial resources. The role of teacher training institutions and their influence in utilizing industrial resources would perhaps provide a basis for interesting and worthwhile research.

The relationship of perceived goals, aims and objectives of industrial arts and the actual utilization of industrial resources would also merit in-depth studies. Although certain objectives of industrial arts have been promoted by many within the profession, it

is the interpretation of these objectives, at the discretion of each instructor, that effects the way these objectives will be achieved in the curriculum. The measurement of this factor was not included in the design of this study, but undoubtedly influenced the responses of the participating industrial arts teachers.



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## BIBLIOGRAPHY

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APPENDIXES



APPENDIX A

April 25, 1967

Jack W. Moreland  
Perratt Hall 10  
Morehead, Kentucky 40351

Dear Mr.

I am a graduate student at Morehead State University engaged in the Secondary Education Program. I am conducting a study which will lead to the completion of a Master's Degree Thesis dealing with secondary industrial arts programs and their relationships with local industries. I have the endorsement of the members of my Thesis Committee, the School of Education at Morehead State University and Dr. C. Nelson Grote, the Director of the Study.

A segment of the data is gained through a survey of the leading industries within the central Kentucky region and industrial arts teachers teaching within the same area. All information which is requested in the enclosed questionnaire will be included in the Study.

Your industry was selected within my sample and it is my sincere desire that you will give me your cooperation by completing the attached questionnaire. The instrument is constructed to invite response of both the smaller and larger industrial firms. In recognition of your valuable time, the questionnaire has been so designed to limit the amount of time required for its completion. You may refer the questionnaire to someone else. If possible, please return the enclosed instrument approximately ten days after the date received. For your convenience a self-addressed, stamped envelop is enclosed. Thank you very much for your consideration.

Respectfully,

Jack W. Moreland

Dr. C. Nelson Grote, Dean  
School of Applied Sciences and Technology  
Morehead State University  
Morehead, Kentucky 40351



## DEFINED TERMS WHICH WILL BE UTILIZED IN THE STUDY

Field Trip. Throughout this study, the term field trip will be used to denote an organized educational excursion. It is organized by the teacher, students and school for the purpose of observing activities which cannot be found in the classroom environment.

Consultant. The term consultant refers to those professional personnel who make their services available to the industrial arts program in an advisory role.

Teaching Aid. Teaching aids will comprise the total amount of visual, audible and tangible materials which aid in the sense experiences of learning.

Summer Employment. This term is applied to work experience gained during the summer season which financially and educationally enhances the student.

Research and Development. The terms research and development refer to those activities engaged in by industry at the experimental level, which can be made available and applicable to industrial arts curricula.

Mailing Lists. This term alludes to the media of postal services in distributing bulletins, teaching aids and materials, catalogs, and other related material by industries to educational institutions.

Sponsorship of Programs. This area is related to the financial and organizational aspects of underwriting an educational endeavor; for example, an afternoon conference, or two-day institute.

Use of Subsidiary Companies. The use of subsidiary companies refers to those industries which possess resources that are under the administration and control of the corporation, and are also available on a similar basis as other resources of the company.

Surplus Equipment. Surplus equipment will include those materials and equipment which can be utilized in industrial arts programs, made available by industrial concerns.

Scholarships. Financial aid granted to worthy students for the purpose of forwarding their education will be interpreted as scholarships.

Library Resources. Library resources is defined as those supplementary materials serving as educational aids provided in industrial firms which are unavailable through other channels.

Externships. This term alludes to the availability of an "internship program" which is contracted for the educational enhancement of a teacher involved in a variety of experiences within an industry.

## QUESTIONNAIRE TO BE USED BY

## INDUSTRY

Firm \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_ Telephone \_\_\_\_\_

Industrial Representative  
Completing this Questionnaire \_\_\_\_\_

Title or Position \_\_\_\_\_

This is a survey to attempt to determine the extent of industrial resources available to industrial arts programs in secondary schools within the central Kentucky region. The industrial arts program in Kentucky is a part of the general educational program that tends to develop within the individual an interest in industry and an understanding of industrial processes. Through the study of tools, materials, and the production of useful and significant products, the pupil advances in appreciation of industry's problems and needs.

For your convenience several of the terms used in the following instrument are included, and defined as to their specific meaning which will be utilized in the study.

1. Would your firm permit industrial arts students to tour your plant on a supervised and pre-planned field trip? Yes \_\_\_\_\_ No \_\_\_\_\_
  - (a) Has your firm had any secondary students enrolled in industrial arts classes tour your plant recently? Yes \_\_\_\_\_ No \_\_\_\_\_
  - (b) If so, approximately how many visits since January 1, 1966? \_\_\_\_\_
  
2. Would your firm permit industrial arts teachers to tour your plant?
 

Yes \_\_\_\_\_ No \_\_\_\_\_

  - (a) Has your firm had any industrial arts teachers to tour your plant recently? Yes \_\_\_\_\_ No \_\_\_\_\_
  - (b) If so, approximately how many since January 1, 1966? \_\_\_\_\_



3. Would your firm assist in arranging and conducting a seminar for industrial arts teachers? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) Has your firm assisted in arranging and conducting a seminar for industrial arts teachers since January 1966? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) If so, approximately how many? \_\_\_\_\_
4. Would your firm cooperate with industrial arts teachers by making personnel available as consultants in industrial arts classes, if limited to two visits per school year? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) Has your firm cooperated by providing consultants to industrial arts classes since January 1, 1966? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) If so, approximately how many times? \_\_\_\_\_
5. Would your firm assist industrial arts teachers in making an employee available outside regular classes? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) Has your firm provided industrial arts teachers assistance outside regular classes? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) If so, approximately how many times since January 1, 1966? \_\_\_\_\_
- (c) Has your firm received requests from industrial arts teachers for personnel assistance outside regular class hours, since January 1, 1966? Yes \_\_\_\_\_ No \_\_\_\_\_
6. Would your firm place sample products in the industrial arts classrooms or in displays? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) Has your firm placed sample products in the industrial arts classrooms or displays recently? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) If so, approximately how many classrooms or displays since January 1, 1966? \_\_\_\_\_
7. Does your firm have literature concerning the product(s) and manufacturing processes that would be available to industrial arts teachers? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) If so, would you make multiple copies available to the students in industrial arts classes? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) Has your firm placed any available literature concerning your product(s) and manufacturing processes, in industrial arts classrooms recently? Yes \_\_\_\_\_ No \_\_\_\_\_
- (c) If so, approximately how many classrooms since January of 1966? \_\_\_\_\_
8. Would your firm supply industrial arts teachers with free teaching aids and materials for use in industrial arts classes? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) Has your firm supplied industrial arts teachers with teaching aids and similar materials for use in industrial arts classes recently? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) If so, approximately how many times since January 1966? \_\_\_\_\_



9. Would your firm cooperate with industrial arts teachers and school guidance personnel in establishing summer employment programs for students who are of employable age? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) Has your firm cooperated with industrial arts teachers and school guidance personnel in establishing summer employment programs for these students? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) If so, approximately how many students participated in such a program during the summer of 1966? \_\_\_\_\_
10. Would your firm share in the research and development of new processes and materials with industrial arts teachers, once they are no longer restricted to the company? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) Has your firm assisted in the research, development and experimentation of new processes and materials with industrial arts teachers recently? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) If so, approximately how many times since January of 1966? \_\_\_\_\_
11. Would your firm make use of mailing lists for the distribution of current catalogs, bulletins and related information to industrial arts teachers? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) Has your firm utilized mailing lists for the distribution of current catalogs, bulletins and related information to industrial arts teachers since January 1, 1966? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) If so, approximately how many industrial arts teachers within your region are listed on your firm's mailing list(s)? \_\_\_\_\_
12. Would your firm serve as a liaison in the utilization of your parent or subsidiary companies in the distribution of industrial resources to the industrial arts programs within your region? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) Has your firm cooperated in the utilization of related companies in the distribution of industrial resources to the industrial arts programs in your region since January of 1966? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) If so, approximately how many times? \_\_\_\_\_
13. Would your firm make surplus or obsolete equipment and materials available for purchase by industrial arts departments? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) Has your firm made such equipment and/or materials available for purchase by industrial arts departments since January 1, 1966? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) If so, briefly describe the nature of the arrangement(s) and list representative materials and/or equipment.
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_



14. Would your firm make surplus or obsolete equipment and/or materials available as a grant to industrial arts programs? Yes  No
- (a) Has your firm made such equipment and/or materials available as a grant to industrial arts programs since January of 1966? Yes  No
- (b) If so, please briefly describe the nature of the arrangement(s) and list examples \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
15. Would your firm grant financial aid to worthy industrial arts students in the form of educational scholarships?
- High School Student Yes  No
- College Student Yes  No
- Vocational/Technical Student Yes  No
- (a) Has your firm granted financial aid to industrial arts students in the form of educational scholarships since January of 1966?
- High School Student Yes  No
- College Student Yes  No
- Vocational/Technical Student Yes  No
- (b) Briefly describe restrictions or limitations as to what the student may or may not study, if applicable.  
 \_\_\_\_\_  
 \_\_\_\_\_
- (c) If your firm has aided industrial arts students at any level by providing educational scholarships since January of 1966, please indicate the approximate number of students engaged in such an arrangement. \_\_\_\_\_
16. Does your firm maintain a technical library at this particular plant? Yes  No
- (a) Would your firm make available library resources and related materials for use in industrial arts programs? Yes  No
- Teachers Yes  No
- Students Yes  No
- (b) Has your firm made library resources and related materials available for use in industrial arts programs since January of 1966? Yes  No
- (c) If so, approximately how many times? \_\_\_\_\_
17. Would your firm make externships available to industrial arts teachers during the summer months? Yes  No
- (a) Has your firm made externships available to industrial arts teachers recently? Yes  No
- (b) If so, approximately how many times in the past two summers? \_\_\_\_\_

18. Does your firm have any other available information or related materials that would be useful to the teachers or students of industrial arts? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please briefly describe these aids and/or services which your firm has provided or is interested in developing for use by industrial arts teachers and students within your region \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\*\*\*\*\*

DO YOU WISH TO RECEIVE AN ABSTRACT OF THIS STUDY WHEN IT IS COMPLETED?

Yes \_\_\_\_\_ No \_\_\_\_\_

Name \_\_\_\_\_

Mailing Address \_\_\_\_\_

\_\_\_\_\_ Kentucky \_\_\_\_\_  
(city) (state) (zip)

IF YOU WISH TO MAKE ADDITIONAL COMMENTS CONCERNING THE STUDY, PLEASE DO SO ON THE REVERSE SIDE OF THIS PAGE.



APPENDIX B

April 25, 1967

Jack W. Moreland  
Perratt Hall 10  
Morehead, Kentucky 40351

Dear Mr.

I am a graduate student at Morehead State University engaged in the Secondary Education Program. I am conducting a study which will lead to the completion of a Master's Degree Thesis dealing with industrial arts programs and their relationships with local industries.

I have the endorsement of the members of my Thesis Committee, the School of Education at Morehead State University and Dr. C. Nelson Grote, Director of the Study.

A segment of the data is gained through a survey of the leading industries within the selected region and industrial arts teachers teaching within the same area. It is my sincere desire that you will give me your cooperation by completing the attached questionnaire. In recognition of your valuable time, the enclosed instrument has been so designed to limit the amount of time required for its completion. For your convenience a self-addressed, stamped envelop is enclosed. If possible, please return the instrument approximately ten days after the date received. Thank you very much for your consideration.

Respectfully,

Jack W. Moreland

Dr. C. Nelson Grote, Dean  
School of Applied Sciences and Technology  
Morehead State University  
Morehead, Kentucky 40351



## QUESTIONNAIRE TO BE USED BY

## INDUSTRIAL ARTS TEACHER

Name \_\_\_\_\_ Date \_\_\_\_\_

School Name \_\_\_\_\_ Phone \_\_\_\_\_

School Address \_\_\_\_\_

Industrial Arts Areas That You Teach \_\_\_\_\_

Grade(s) Taught \_\_\_\_\_

Total Number of Students in Your Industrial Arts Classes \_\_\_\_\_

Number of Years as an Industrial Arts Teacher \_\_\_\_\_

Number of Years as an Industrial Arts Teacher in This School System \_\_\_\_\_

What Is The Last Degree That You Were Granted? \_\_\_\_\_

Date \_\_\_\_\_ Institution \_\_\_\_\_

This is a survey to determine to what extent industrial arts teachers in central Kentucky use local industrial resources for instructional enrichment of industrial arts programs.

1. Have you taken students in your industrial arts classes on any visits to industry since January 1, 1966? Yes \_\_\_\_\_ No \_\_\_\_\_
  - (a) If so, approximately how many visits? \_\_\_\_\_
  - (b) Would you take your industrial arts classes on supervised and preplanned tours of industry if time and arrangements were made in advance with industry? Yes \_\_\_\_\_ No \_\_\_\_\_
  
2. Have you visited any industrial plants since January 1966? Yes \_\_\_\_\_ No \_\_\_\_\_
  - (a) If so, approximately how many times? \_\_\_\_\_
  - (b) Would you visit industrial plants if arrangements were made for you to do so? Yes \_\_\_\_\_ No \_\_\_\_\_

3. Do you attend seminars made possible through the cooperation of industry? Yes \_\_\_\_\_ No \_\_\_\_\_  
 (a) If so, approximately how many since January 1966? \_\_\_\_\_  
 (b) Would you attend seminars made possible by local industrial firms? Yes \_\_\_\_\_ No \_\_\_\_\_
4. Have you invited persons from local industry to come into your industrial arts classrooms and laboratories to serve as resource persons since January 1966? Yes \_\_\_\_\_ No \_\_\_\_\_  
 (a) If so, approximately how many persons? \_\_\_\_\_  
 (b) Would you solicit the aid of persons from local industry to come into your classroom to serve as a resource? Yes \_\_\_\_\_ No \_\_\_\_\_
5. Have you contacted resource persons from local industry for the purpose of obtaining information to be used in your classes? Yes \_\_\_\_\_ No \_\_\_\_\_  
 (a) If so, approximately how many persons since January 1966? \_\_\_\_\_  
 (b) Would you contact resource persons from local industry for the purpose of obtaining information to be used in your classes? Yes \_\_\_\_\_ No \_\_\_\_\_
6. Do you use sample products contributed or loaned by local industry whenever feasible? Yes \_\_\_\_\_ No \_\_\_\_\_  
 (a) If so, approximately what percentage of your display or classroom materials have been contributed or loaned by local industry? \_\_\_\_\_ %  
 (b) Would you use sample products contributed or loaned by local industry whenever feasible? Yes \_\_\_\_\_ No \_\_\_\_\_
7. Do you use industrial literature that is available from local industries for instructional purposes in your industrial arts classes? Yes \_\_\_\_\_ No \_\_\_\_\_  
 (a) If so, approximately what percentage of your classroom literature is provided by local industry? \_\_\_\_\_ %  
 (b) Would you request supplementary literature for instructional purposes from local industry? Yes \_\_\_\_\_ No \_\_\_\_\_
8. Do you use available audio-visual aids and related materials in your classrooms which are prepared by or made available through local industry? Yes \_\_\_\_\_ No \_\_\_\_\_  
 (a) If so, please indicate what types you use.  
 drawings \_\_\_\_\_ records \_\_\_\_\_  
 films \_\_\_\_\_ still pictures \_\_\_\_\_  
 filmstrips \_\_\_\_\_ tape recordings \_\_\_\_\_  
 photographs \_\_\_\_\_ transparencies \_\_\_\_\_  
 other (please describe) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



- (b) Would you use available audio-visual aids and related materials in your classroom which are prepared by or made available through local industry? Yes \_\_\_\_\_ No \_\_\_\_\_
9. Have you cooperated with guidance personnel and local industries in establishing summer employment programs for students of employable age? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) If so, approximately how many students have been engaged in such a program at your school? \_\_\_\_\_
- (b) Would you cooperate with guidance personnel and local industries in establishing summer employment programs for students of employable age? Yes \_\_\_\_\_ No \_\_\_\_\_
10. Have you requested and received information concerning the research and development of new processes and materials or equipment from local industry? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) If so, approximately how many times since January 1966? \_\_\_\_\_
- (b) Would you request information concerning the research and development of new processes and materials or equipment from local industry? Yes \_\_\_\_\_ No \_\_\_\_\_
11. Does your department receive bulletins, catalogs and/or related materials from local industries without solicitation? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) Does your department receive such materials upon request? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) Would you request that your department be placed upon the mailing lists of local industries for the purpose of distribution of bulletins, catalogs and/or related material? Yes \_\_\_\_\_ No \_\_\_\_\_
12. Have local industries served as a liaison in establishing relations with their parent or subsidiary companies? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) If so, approximately how many times since January 1, 1966? \_\_\_\_\_
- (b) Would you request the cooperation of local industries in serving as a liaison with their related companies? Yes \_\_\_\_\_ No \_\_\_\_\_
13. Has your department or school purchased surplus or obsolete equipment and/or materials from local industries for use in industrial arts classes since January of 1966? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) If so, please briefly describe the nature of the arrangement(s) and list representative materials and/or equipment.
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

- (b) Would you be interested in purchasing surplus or obsolete equipment and/or materials from local industries for use in industrial arts classes if applicable and if made available for purchase? Yes \_\_\_\_\_ No \_\_\_\_\_
14. Has your department or school received as a grant, surplus or obsolete equipment and/or materials from local industries for use in industrial arts classes since January of 1966? Yes \_\_\_\_\_  
No \_\_\_\_\_
- (a) If so, please briefly describe the nature of the arrangement(s) and list examples. \_\_\_\_\_  
\_\_\_\_\_
- (b) Would you be interested in receiving surplus or obsolete equipment and/or materials from local industries as a grant for use in industrial arts classes? Yes \_\_\_\_\_ No \_\_\_\_\_
15. Have you sought financial aid through scholarships or loans for students from industries for the purpose of continuing a student's education beyond high school? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) If so, approximately times since January of 1966? \_\_\_\_\_
- (b) Have you sought financial aid for high school students for the purpose of providing funds in order for that student to continue his education? Yes \_\_\_\_\_ No \_\_\_\_\_
- (c) If so, approximately how many times since January of 1966? \_\_\_\_\_
16. Have you used library resources and related materials located in and made available through local industry for use in your industrial arts classes? Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) If so, approximately how many times since January of 1966? \_\_\_\_\_
- (b) Would you request the use of library resources and related materials located in and made available through local industry for use in your industrial arts classes? Yes \_\_\_\_\_  
No \_\_\_\_\_
17. Have you requested and received assistance in your own education and experience through an externship made available by industry?  
Yes \_\_\_\_\_ No \_\_\_\_\_
- (a) If so, briefly describe the nature of the arrangement(s).  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



(b) Would you request assistance in the form of an externship with local industry if made available to you? Yes \_\_\_\_\_  
No \_\_\_\_\_

18. Do you use industrial resources for instructional enrichment in your industrial arts classes in any other way? Yes \_\_\_\_\_ No \_\_\_\_\_  
If so, how do you use industry as a resource?

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DO YOU WISH TO RECEIVE AN ABSTRACT OF THIS STUDY WHEN IT IS COMPLETED?

Yes \_\_\_\_\_ No \_\_\_\_\_

Name \_\_\_\_\_

Mailing Address \_\_\_\_\_  
(street or route)

\_\_\_\_\_ Kentucky  
(city) (state) (zip)

If you have responded negatively to the majority of the items on the preceding pages of the questionnaire, please complete the following form. This section of the instrument is an attempt to determine the reasons and/or attitudes for the utilization or lack of use of industrial resources in the classrooms of industrial arts teachers in central Kentucky.

1. Please indicate the relative importance of an industrial arts teacher utilizing local industrial resources as a method of enriching educational programs.
  - \_\_\_\_\_ of little value
  - \_\_\_\_\_ of some value
  - \_\_\_\_\_ of great value
  - \_\_\_\_\_ of no value
  
2. Please indicate your interest in establishing communications with local industry in determining what resources are available to industrial arts classes.
  - \_\_\_\_\_ interested to some degree
  - \_\_\_\_\_ interested very little
  - \_\_\_\_\_ interested very much
  - \_\_\_\_\_ not interested
  
3. In your opinion, what is the relative attitude of school administrators toward the utilization of local industrial resources?
  - \_\_\_\_\_ resources are of questionable value
  - \_\_\_\_\_ resources are of little value
  - \_\_\_\_\_ resources are of much value
  - \_\_\_\_\_ resources are of great value
  
4. What attitudes do local industries display in their interest in providing industrial resources for industrial arts programs?
  - \_\_\_\_\_ no interest is demonstrated
  - \_\_\_\_\_ little interest is shown
  - \_\_\_\_\_ industry is mildly interested
  - \_\_\_\_\_ industries are eager to establish relationships
  - \_\_\_\_\_ other: \_\_\_\_\_



5. In your opinion, what is the relative attitude of school administrators in cooperating with industrial arts departments and industry in obtaining resources?

\_\_\_\_\_ relationships are encouraged  
\_\_\_\_\_ relationships are discouraged  
\_\_\_\_\_ relationships are neither encouraged or discouraged  
\_\_\_\_\_ other: \_\_\_\_\_

IF YOU WISH TO MAKE ADDITIONAL COMMENTS CONCERNING THE STUDY,  
PLEASE DO SO ON THE REVERSE SIDE OF THIS PAGE.

APPENDIX C



May 11, 1967

Jack W. Moreland  
10 Perratt Hall  
Morehead, Kentucky 40351

Dear Mr.

Approximately two weeks ago you were to receive by mail the enclosed questionnaire. In the event the questionnaire did not reach your desk or was mislaid, I am including a duplicate for your convenience.

As you recall, I am a graduate student at Morehead State University engaged in the Secondary Education Program. I am conducting a study which will lead to the completion of a Master's Degree Thesis dealing with industrial arts programs and their relationships with local industries.

A segment of the data is gained through a survey of the leading industries within the selected region and industrial arts teachers teaching within the same area. It is my sincere desire that you will give me your cooperation by completing the attached questionnaire. At this point the returned responses indicate a favorable reaction to the survey, however your return would substantiate the data of my sample. For your convenience, a self-addressed, stamped envelope is enclosed.

Thank you very much for your consideration.

Respectfully,

Jack W. Moreland

Dr. C. Nelson Grote, Dean  
School of Applied Sciences and Technology  
Morehead State University  
Morehead, Kentucky 40351

APPENDIX D



LISTING OF INDUSTRIAL ARTS TEACHERS

IN FINAL SAMPLE BY COUNTY

BOURBON

William C. Berry  
Chester A. Greynolds  
James B. Johns

CLARK

Dover Cornett  
Bill L. Evans  
J.C. Duncan Morrow

FAYETTE

Thomas E. Anderson  
John H. Brock  
Richard D. Brown  
Rudy G. Collins  
L. Bart Daugherty  
Paul D. Frazer  
James E. Green  
Overton K. Green  
George T. Grimes  
Lester L. Halsey  
Walter R. Hill  
Robert Hobson  
James O. Hume  
Roger Kincer  
John W. Knox  
Eliud F. Marrs  
Chester N. Mielcarek  
Eddie B. Murphy  
Winston F. Osborne  
Lindsay Reynolds, Jr.  
Wendell H. Salmons  
Grover O. Stephens  
Wallace J. Williams

FRANKLIN

William T. Barnes  
Franklin D. Music  
Gene T. Roach

HARRISON

George D. Graham  
James S. Way

JESSAMINE

Edgar L. Berry  
Minton E. Whitt

MADISON

Thomas S. Davis  
Ray G. Gabbard  
Jack R. Hall  
James R. Hall  
Donald W. Hudson  
Carl E. Hurley  
Daniel J. Presnell  
Kay William Wheeler

SCOTT

Carl Philpot  
Joseph B. Sparks  
John C. Thomas

WOODFORD

Alvin E. Dodson  
Roger W. Prewitt

APPENDIX E



LISTING OF INDUSTRIAL FIRMS IN  
FINAL SAMPLE BY CLASSIFICATION

(\* Industry Included in the Pilot Study)

ELECTRICAL AND ELECTRONIC INDUSTRIES

A. O. Smith Corporation  
Mt. Sterling

Electric Parts Corporation  
Georgetown

Engineered Devices Company  
Lexington

General Electric Company  
Kentucky Glass Plant  
Lexington

General Electric Company  
Lexington Lamp Plant  
Lexington

Georgetown Cable Products Inc.  
Georgetown

Industrial Plating Inc.  
Lexington

Ken-Wel Inc.  
Frankfort

Mid-States Enterprises, Inc.  
Lexington

Production Plating Inc.  
Cynthiana

Semicon Associates Inc.  
Lexington

Square D Company  
Lexington

Sylvania Electric Products Inc.  
Versailles

Sylvania Electric Products Inc.  
Winchester

Texas Instruments Inc.  
Versailles

Trigometer Inc.  
Frankfort

Visumatic Industrial Products Division  
Lexington

Westinghouse Electric Corporation  
Richmond

\* Woodford Mfg. Company  
Versailles

W. R. Stamler Corporation  
Millersburg

#### PRINTING AND GRAPHIC ARTS INDUSTRIES

Berea Publishing Company  
Berea

Blue Grass Press Inc.  
Frankfort

Butlers Printing  
Lexington

Central Printing Company  
Lexington

Cynthiana Publishing Company  
Cynthiana

Daily Register Company  
Richmond

Frankfort Publishing Company  
Frankfort

Hasco Newspaper Inc.  
Mt. Sterling

Horseman Publishing Company  
Lexington



Hurst Printing Company  
Lexington

Keystone Printery Inc.  
Lexington

Lexington Herald-Leader Company  
Lexington

Lexington Photo-Engraving Company  
Lexington

Magna Graphic Inc.  
Lexington

Paris Daily Enterprise  
Paris

Rand McNally & Company  
Versailles

Record Publishing  
Lexington

Rees Printing Company  
Winchester

Roberts Printing Company  
Frankfort

Thoroughbred Record  
Lexington

\* Transylvania Printing Company  
Lexington

Winchester Sun Co. Inc.  
Winchester

#### MACHINE AND METAL PARTS INDUSTRIES

Best Tool & Die Company Inc.  
Cynthiana

Blake & Johnson Company  
Cynthiana

Blue Grass Mfg. Company Inc.  
Lexington

Brown Machine Works Inc.  
Lexington

C. & C. Cutter Company  
Georgetown

Carbide Products Inc.  
Georgetown

Central Screw Company  
Frankfort

Dresser Industries  
Berea

Dreyer Whitehead & Goedecke Inc.  
Frankfort

Dura Corporation Paris  
Paris

\* Fayette Tool & Mfg. Corporation  
Lexington

George W. Gayle & Sons  
Frankfort

H. K. Porter Company Inc.  
Frankfort

H. K. Porter Company Inc.  
Richmond

Hydro Plastic Company  
Georgetown

International Business Machines  
Lexington

Irving Air Chute Company Inc.  
Lexington

Ladish Company  
Cynthiana

Parker Seal Company  
Lexington

Partner Tool Service  
Lexington



Quik Tool & Die Company Inc.  
Lexington

Southern Bedding Company Inc.  
Lexington

Star Tool & Die Company Inc.  
Lexington

Stiohn Products Corporation  
Georgetown

Trane Company  
Lexington

Universal Wire Spring Division  
Georgetown

Westinghouse Air Brake Company  
Lexington

#### SHEET METAL AND METAL STAMPING INDUSTRIES

Bailer-Willmott Mfg. Company Inc.  
Lexington

Bell Mfg. Company  
Paris

Bundy Tubing Company  
Cynthiana

Bundy Tubing Company  
Winchester

Cranfill-Frey Company Inc.  
Lexington

\* Eagle Window Sales Inc.  
Lexington

Gay-Bell Corporation  
Paris

Georgetown Metal Stamping Company  
Georgetown

H. H. Thomas Sheet Metal Works  
Lexington

Kawneer Company Inc.  
Cynthiana

Kentucky Die Casting Corporation  
Georgetown

Key Tool & Die Company  
Lexington

Leggett & Platt Inc.  
Winchester

Lexington Tent & Awning Company  
Lexington

Liberty Engineering & Mfg. Company Inc.  
Lexington

Preferred Stampings Inc.  
Georgetown

Robinson Tool & Die Inc.  
Richmond

Rogers Aluminum Inc.  
Lexington

Scott County Aluminum Company  
Georgetown

#### LUMBER AND WOOD PRODUCTS INDUSTRIES

Clark County Lumber  
Winchester

Dixie Cup Division  
Lexington

Faulkner-Fain Company Inc.  
Nicholasville

Frankfort Lumber & Mfg. Company Inc.  
Frankfort

George E. Tomlinson Company Inc.  
Winchester

\* Haddix Lumber Company Inc.  
Lexington



International Paper Company  
Versailles

Kentucky Hardwood Lumber Corporation  
Winchester

Llewellyn Lumber Company  
Berea

McCammish Glasscock Inc.  
Winchester

Mallard Pen & Pencil Company Inc.  
Georgetown

Pennington Lumber & Supply  
Frankfort

Perry Lumber Company  
Lexington

Savage Lumber & Mfg. Company Inc.  
Lexington

Smith Haggard Lumber Company  
Lexington

Stratton Lumber Company  
Nicholasville

Vogue Rattan Mfg. Company Inc.  
Lexington

## VITA

Jack Wayne Moreland was born April 17, 1944, the firstborn of Nelson Jesse and Lorena Wright Moreland of Georgetown, Kentucky. His early education was gained in the rural public elementary and secondary schools of Scott County. He entered Morehead State University in 1962 and earned a Bachelor of Science Degree with an Area of Concentration in Industrial Arts in June of 1966. The Master of Arts Degree in Education (Secondary Education Program) was pursued following the completion of undergraduate studies.

During his undergraduate and masters program, he participated as a student member of the American Industrial Arts Association, the Kentucky Industrial Education Association and is a past president of the Industrial Arts Club (1965-1966), and former member of the Council of Presidents at Morehead State University. He is a charter member of the campus men's social fraternity - Pas Adelphi. In 1965-1966 he was elected to Who's Who Among Students in American Colleges and Universities.

He is married to the former Patricia Jane DeMoss also of Scott County. Presently, he is employed in the Fayette County Public School System at Lafayette Senior High School as a drafting instructor. Future aspirations are post-graduate education and a position as a technical drawing instructor in a community college, junior college or university.