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### A COMPARATIVE STUDY OF THE TECHNICAL AND ACADEMIC PREPARATION AND ACTUAL TEACHING ASSIGNMENT OF INDUSTRIAL ARTS TEACHERS

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A COMPARATIVE STUDY OF THE TECHNICAL AND ACADEMIC  
PREPARATION AND ACTUAL TEACHING ASSIGNMENT OF  
INDUSTRIAL ARTS TEACHERS

A Thesis Submitted to the Graduate Division in Partial  
Fulfillment of the Requirements for the  
Degree of Master of Science

By

Richard D. Holzrichter

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Pittsburg, Kansas

June, 1963

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## ABSTRACT

Industrial Education must undergo a continuous change since industry and science are constantly developing new materials and new uses for the old materials. Methods of construction and treatment of these materials are also changing rapidly. The schools must, as best as they can with their allotted funds, keep teachers and students up to date on the materials and methods used in this day and age.

The purpose of this study was to find those things the teachers regarded as important changes in the college curriculum that would better help keep them up to date on materials and methods and also help them in their teaching assignments. In order to acquire this information, questionnaires were sent to industrial arts teachers in Kansas asking for certain information and asking several questions. After collecting and organizing the material it was found that there are several changes needed in the industrial arts curriculum at Kansas State College of Pittsburg.

The changes within the industrial arts department were found to be mainly in the general shop and the drafting area. Several other changes were desired but were not as prominent as in the two above areas.

In the academic curriculum of the industrial arts teacher changes were also desired. Here again, there were two basic changes. These are: add more mathematics or



incorporate more mathematics and science into the industrial arts teachers curriculum; adapt or revise the education courses and program to the industrial arts teachers needs in his teaching assignments.



## CHAPTER I

### INTRODUCTION

#### Introduction to the Problem

Developing happy, healthy, and useful citizens is the purpose of education, but to do this the curriculum must be constantly revised and re-evaluated.

The school being responsible for this education must, therefore, revise its curriculum to meet outside requirements and changes. To ascertain the validity of changes, studies or surveys must be made in particular fields. A study of the entire college curricula by one or more institutions would be too large a task. One method of finding this information is to acquire data about the graduates working in different fields with the assumption that the present students will probably lead lives quite similar to those having preceded them.

A study of out-of-school graduates serves two purposes: it provides an opportunity for the collection of new curriculum materials and topics of study, and it makes possible an evaluation of school practices in terms of behavior of the former students.

This procedure of evaluating the department of a school in terms of its product is highly recommended for individual schools because of the opportunities it provides



for improvement and vitalization of the department's program and because of the way it stimulates the professional development of those engaged in it.

### Statement of the Problem and Related Questions

It was the purpose of this study to ascertain the technical courses and the minor taken in college by practicing industrial arts teachers and to compare these with their present and previous teaching assignments. From this comparison this thesis attempted to answer the following questions:

- a. Is the college curriculum broad enough for the practicing industrial arts teacher?
- b. Would more mathematics and science be beneficial to the industrial arts instructor in his present teaching assignments?
- c. Has a minor, if he has one, been beneficial to the industrial arts major in his teaching assignments?
- d. Is the academic curriculum broad enough to be of help to the industrial arts teacher in his teaching assignments?
- e. Is there a need for a state consultant of industrial arts in Kansas?

### Importance of This Study

The basic need for this study was to ascertain whether the Kansas State College of Pittsburg degree requirements of technical courses and academic work were sufficient to fill the broad needs of the practicing industrial arts teacher and to determine what changes, if any, need to be made in the industrial arts curriculum. This



study was prompted by the comments of some teachers stating that they were not qualified in some areas in which they were required to teach.

A secondary need for this study was indicated by a member of the committee working for a state consultant in industrial arts. This information will help ascertain if there are inconsistencies in public school industrial arts programs in Kansas, and help determine if there is a need for an industrial arts consultant to operate on a state wide basis.

#### Sources of Data and Method of Study

The method of study for this thesis was the descriptive method. A survey, by questionnaire, of practicing Industrial Arts teachers was made to ascertain their previous and present teaching assignments. The names and location of industrial arts graduates were secured from the files of the Industrial Education Department, the Placement Bureau, the Placement Bureau Annual Report of Kansas State College of Pittsburg, and the Kansas Vocational and Industrial Arts Teacher Directory. The questionnaires were mailed to the one hundred-fifteen graduates whose addresses were known, and 73 per cent or eighty-four questionnaires were returned. The information was recorded on master charts for tables which are included in this study.



### Limitations

This study was limited to industrial arts teachers with an industrial arts major who have graduated from Kansas State College of Pittsburg since 1955 and are now teaching in Kansas.

The academic work considered in this thesis applied to the minor field of those who had a minor and the general education courses required by the college.

### Definition of Terms

Terminology common to a discussion of teacher position and preparation has been subject to variation in interpretation. Classification of definitions of terms involved in this study was desirable.

Area: A group of activities, a section of a curriculum, or a part of a program.<sup>1</sup>

Course: Organized subject matter in which instruction is offered within a given period of time, and for which credit toward graduation or certification is usually given.<sup>2</sup>

Industrial Arts: A phase of the general education program concerned with orienting individuals, through study and experience, to the technical-industrial aids of society with consumers' goods, to be more efficient producers, to use leisure time more effectively and enjoyably, to have a greater appreciation of material culture, and to act more intelligently in regard to matters of health and safety, especially as affected by industry.<sup>3</sup>

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<sup>1</sup>Good, Carter V., Dictionary of Education, p. 28.

<sup>2</sup>Ibid., p. 106.

<sup>3</sup>Ibid., p. 216.



Teaching Field: A teaching field may well be considered to include all the different branches of a subject that may be taught in high school; that is, all the different branches of English grouped under English, and all history, economics, political economy, and sociology under social studies.<sup>4</sup>

### Related Studies

There are no studies which are directly related to this study; however, there are a few which have parts which are related to it. Gonser's<sup>5</sup> study of graduates with industrial arts majors found that less academic work or a combining of several courses was preferred so that more technical areas could be covered in industrial arts.

A study of graduates from three different colleges by Cain<sup>6</sup> showed that over half of the industrial arts majors taught subjects outside their field, indicating that prospective industrial arts teachers may be required to accept some teaching responsibilities other than in their major field. He also found that approximately one-fourth of the teachers were teaching courses within their own field without

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<sup>4</sup>State of Kansas, Department of Public Instruction, Secondary School Handbook, 1956, Kansas State Department of Public Instruction, Topeka, 1955, p. 37.

<sup>5</sup>Gonser, Martin E., "A Follow-up Study of Graduates with Majors in Industrial Arts from 1935-1949" (unpublished Master's thesis, Kansas State College of Pittsburg, Pittsburg, Kansas, 1950).

<sup>6</sup>Cain, Cecil Richard, "An Analysis of the Industrial Arts Teaching Position and Teacher Preparation" (unpublished Graduate thesis, Indiana University, Bloomington, Indiana, 1958).



any technical training in college for this course, indicating they had acquired the skill some where else.

Two other studies, made by Saunders<sup>7</sup> and Wilson<sup>8</sup> indicate that mathematics and physical science were the most preferred minors. Saunders' study also indicated there were preferences for not having a minor, a minor in social science or a minor in physical education. The general education courses most preferred were mathematics, general psychology, physical science, and guidance.

Another study, by Nelson<sup>9</sup>, of college graduates of North Texas State College found that a minor in mathematics, business administration or physics were the most helpful to students with an industrial arts major.

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<sup>7</sup> Saunders, William R., "A Study of Graduates with Majors in Industrial Education from Kansas State College of Pittsburg, from 1949 to 1955" (unpublished Master's thesis, Kansas State College of Pittsburg, Pittsburg, Kansas, 1956).

<sup>8</sup> Wilson, Donald Lee, "A Follow-up Study of the Negro Graduates in Industrial Education from Kansas State College of Pittsburg up to 1958" (unpublished Master's problem, Kansas State College of Pittsburg, Pittsburg, Kansas, 1959).

<sup>9</sup> Nelson, Avery Frank, "Follow-up Study of Industrial Arts Graduates of North Texas State College" (unpublished Graduate thesis, University of Missouri, Columbia, Missouri, 1955).



## CHAPTER II

### PRESENTATION OF DATA

The preceding chapter related the importance of this study, presented the related information concerned with it, and gave the statement and questions to be answered in the following pages. The limitations of the study and definition of terms to be used were also given.

The rate of return of the questionnaires was 73 per cent, or 84 of the one-hundred-fifteen mailed. Of these 84 returns three were cancelled. Two questionnaires were cancelled because of an earlier graduation date than that required by this study, and the third was cancelled because of the respondent having had a physical education major and an industrial arts minor.

The results of the study show that a wide variety of courses were taken by most of the industrial arts majors teaching in Kansas. This is shown in the following pages by tables and written information.

#### Industrial Arts Majors Teaching Industrial Arts

From the eighty-one valid questionnaires returned, three industrial arts majors were not teaching industrial arts for the following reasons: two were going to school to further their education; one has resigned from teaching due to better opportunities and pay in industry. This



makes 3.7 per cent of industrial arts teachers who had dropped out of teaching at the time of this study. Actually one teacher or 1.2 per cent had permanently left the teaching field. This can be compared to the four-point-three per cent of all teachers in Kansas who have ceased teaching in the 1962-63 school year.<sup>10</sup>

### Technical Training of Industrial Arts Majors

The technical training of industrial arts teachers is quite varied compared with the thought that some people have expressed. Drafting, woodworking and general shop were the most frequent areas taken as shown in Table I on the following page; however, most students had taken at least three or four technical areas. Table I, shows the number and per cent of students enrolled in the different technical areas. Of all the areas listed in the questionnaire, there were no students who had taken all of these areas.

Since woodworking is a relatively popular subject in senior high schools over the state it would be expected to have a high percentage of students taking it. Table I indicates that sixty-five, or 80.2 per cent of the teachers surveyed enrolled in woodworking. Thus, the teachers would

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<sup>10</sup> Kansas State Teachers Association, Statistics Kansas Teachers, 1962-63, Prepared under direction of the TEPS Commission, February, 1963, pp. 10 and 24.



tend to take it because they enjoyed it in senior high. The other areas are as follows: sixty-nine, or 85.2 per cent, enrolled in drafting; sixty, or 74.1 per cent, enrolled in general shop; thirty-seven, or 45.7 per cent, enrolled in metalwork; forty, or 49.4 per cent, enrolled in driver education; twenty-four, or 29.6 per cent, enrolled in auto mechanics and eight, or 9.8 per cent, enrolled in printing.

TABLE I

## PER CENT AND NUMBER OF STUDENTS TAKING TECHNICAL AREAS

Areas	Number	Per Cent
Auto Mechanics	24	29.6
Drafting	69	85.2
Driver Education	40	49.4
General Shop	60	74.1
Metalwork	47	45.7
Printing	8	9.8
Woodworking	65	30.2

In the general shop area, as shown in Table II on the following page, wood was the most frequently taken with metal being second. Electricity, plastics, crafts and drafting were of equal importance as shown by the number of students taking these fields in general shop. Graphic arts was taken by only one student in general shop.



TABLE II

PER CENT AND NUMBER OF TEACHERS TAKING  
DIFFERENT FIELDS IN GENERAL SHOP

Fields	Number	Per Cent
Woodworking	45	75.0
Metalworking	30	50.0
Electricity	12	20.0
Plastics	12	20.0
Crafts	12	20.0
Drafting	12	20.0
Graphic Arts	1	1.6

Table III shows the answers to the question concerning the extent of the teacher's technical training in college, the results are as follows: Thirty-seven, or 45.7 per cent, stated that their technical training was broad enough; forty-two, or 54.3 per cent, stated that their technical training was not broad enough.

TABLE III

NUMBER AND PER CENT OF TEACHERS INDICATING  
BROADNESS OF TECHNICAL TRAINING IN COLLEGE

Breadness	Number	Per Cent
Broad Enough	37	45.7
Not Broad Enough	42	54.3



Technical Areas Now Being Taught

Table IV shows that technical areas being taught by industrial arts teachers were not offered as often as the areas were taken in college. Woodworking was the most frequent area taught. It was taught by fifty teachers, which was 61.7 per cent of the total answers received. Drafting was second with forty-one teachers teaching it. This represented 50.6 per cent of the answers received. All the areas are shown in Table IV.

TABLE IV

PER CENT AND NUMBER OF TEACHERS NOW  
TEACHING TECHNICAL AREAS

Areas	Number	Per Cent
Woodworking	50	61.7
Drafting	41	50.6
General Shop	30	37.0
Driver Education	18	22.2
Metalwork	17	21.0
Auto Mechanics	9	11.1
Printing	3	3.7
Electricity	3	3.7
Crafts	3	3.7
Welding	2	2.5
Small Engine Repair	1	1.2
Plastics	1	1.2



### Technical Areas Previously Taught

Areas which were previously taught by industrial arts teachers, but are no longer being taught by these particular teachers, are presented in Table V. Drafting and woodworking were discontinued more than the other areas, but not one had a high percentage. The highest number of classes dropped at the present time was drafting with sixteen. Woodworking and driver education were next with eleven and ten teachers respectively, not presently teaching these areas.

TABLE V

#### TECHNICAL AREAS PREVIOUSLY TAUGHT BY TEACHERS

Areas	Number
Drafting	16
Woodworking	11
Driver Education	10

### Technical Courses Wanted But Not Taken in College

A comment often made by teachers is that they wished they had been able to take a certain course or courses when they were in college. The main reason they were not taken was because the required courses took "precedence" over those courses they wanted to take. In this survey they were given a chance to indicate which courses they wanted



to take but could not for various reasons. The results are shown in Table VI.

TABLE VI

PER CENT AND NUMBER OF TECHNICAL COURSES  
WANTED BUT NOT TAKEN

Areas	Number	Per Cent
Metalwork	30	37.0
Electricity	20	24.7
Auto Mechanics	11	13.6
Plastics	10	12.3
Driver Education	7	8.6
Printing	5	6.2
General Shop	3	3.7
Crafts	3	3.7
Woodworking	1	1.2
Upholstry	1	1.2
Welding	1	1.2
Small Engine Repair	1	1.2

Areas Taught Without Formal College Preparation

It has been said that many teachers were teaching courses in which they had little or no preparation. The results of this survey, as shown in Table VII, indicates that very few are now teaching or have ever taught subjects they had not taken in college. They may not have had adequate training, but they have taken courses concerned with the area. The survey shows that electricity was being taught by six teachers who had no training in the area.



Metalwork had three; crafts had two; welding and small engine repair each had one teacher who had not had college training in these areas.

TABLE VII

NUMBER OF TEACHERS TEACHING TECHNICAL  
AREAS WITHOUT COLLEGE TRAINING

Areas	Number
Electricity	6
Metalwork	3
Crafts	2
Welding	1
Small Engine Repair	1

Areas Taken Not Used

The survey shows that all of the areas taken in college are not being used. Table VIII shows the number of teachers who took course work in the area but are not teaching it at present. Of those who took auto mechanics courses sixteen, or 66.6 per cent, had not taught in this area at the time of the study. Others taken by the teachers surveyed but not used are as follows: drafting not used by nineteen, or 27.5 per cent; driver education not used by twelve, or 30.0 per cent; general shop not used for fourteen, or 23.3 per cent; metalwork not used by fourteen, or 37.8 per cent; printing not used by four, or 50.0 per cent; woodworking not used by twelve, or 18.5 per cent.



TABLE VIII

## NUMBER AND PER CENT OF AREAS TAKEN AND NOT USED

Areas	Number	Per Cent
Auto Mechanics	16	66.6
Drafting	19	27.5
Driver Education	12	30.0
General Shop	14	23.3
Metalwork	14	37.8
Printing	4	50.0
Woodworking	12	18.5

Number of Hours Each Teacher is Teaching Industrial Arts

By having the teachers indicate how many hours per day they were teaching each course they were assigned, the results in Table IX were concluded. Only two teachers were teaching seven hours a day while forty were teaching six hours and thirty were teaching five hours a day. There were only eight teaching four hours a day and one teaching three hours per day.



TABLE IX

NUMBER OF TEACHERS TEACHING A  
CERTAIN NUMBER OF HOURS PER DAY

Number of Hours	Number of Teachers
7 Hours	2
6 Hours	40
5 Hours	30
4 Hours	8
3 Hours	1

Table X shows the number and per cent of teachers teaching a certain number of hours of industrial arts per day. In this survey only one, or 1.2 per cent, teacher is teaching seven hours per day in industrial arts. Twenty, or 24.7 per cent, are teaching it six hours per day; thirty-three, or 40.7 per cent, are teaching it five hours per day; twelve, or 14.7 per cent, are teaching it three hours per day; seven, or 8.6 per cent, are each teaching it two and three hours per day and one, or 1.2 per cent, is teaching it one hour per day.



TABLE X

NUMBER AND PER CENT OF TEACHERS TEACHING INDUSTRIAL  
ARTS A CERTAIN NUMBER OF HOURS PER DAY

Number of Hours	Number of Teachers	Per Cent of Teachers
7 hours	1	1.2
6 hours	20	24.7
5 hours	33	40.7
4 hours	12	14.7
3 hours	7	8.6
2 hours	7	8.6
1 hours	1	1.2

Data on Minor and Academic Subjects

There are two degree plans leading to the Bachelor of Science in Education degree with a major in industrial arts at Kansas State College of Pittsburg. One option requires a minor area of twenty-four semester hours with thirty to forty-five hours in the major field. The second option does not require a minor, but forty-eight to fifty-four semester hours are required within the industrial arts department with an area major. In this survey only one teacher did not have a minor.

The minors most often taken by industrial arts majors were Social Science, Health and Physical Education, Mathematics, and Physical Science and Chemistry. Art, Business Administration and Military Science were each



taken as a minor by one person. These data are reported in Table XI.

TABLE XI

## NUMBER AND PER CENT OF TEACHERS IN EACH MINOR FIELD

Minor Field	Number of Teachers	Per Cent of Teachers
Social Science	30	37.3
Health and Physical Education	21	25.9
Mathematics	15	18.5
Physical Science and Chemistry	11	13.4
Art	1	1.2
Business Administration	1	1.2
Military Science	1	1.2
No Minor	1	1.2

Table XII reports the number and per cent of teachers teaching some course work in their minor area. Of those taking a minor, some had three minors and are now teaching in all three. However, out of 98.8 per cent of the teachers having a minor, only nineteen, 23.4 per cent, are actually teaching in their minor field at present. Thirty-three, or 40.7 per cent, have taught in their minor field; but they are not teaching in it at present. This means that 64.1 per cent have used their minor field in their teaching and 35.9 per cent have not used their minor.



TABLE XII

NUMBER AND PER CENT OF TEACHERS TEACHING  
IN THEIR MINOR AREA

	Number	Per Cent
Presently Using Minor	19	23.4
Have Taught in Minor but not at time of Study	33	40.7
Total Having Used Minor	52	64.1
Have Not Used Minor	29	35.9

Another question pertinent to the study was whether more science and mathematics would be beneficial to the industrial arts teacher. The results, in Table XIII, show that forty, or 48.9 per cent, felt that the present amount was satisfactory, but forty, or 48.9 per cent, also felt that more science and mathematics is necessary in the industrial arts curriculum. One person failed to answer the question.

TABLE XIII

NUMBER AND PER CENT OF TEACHERS DESIRING  
MORE MATHEMATICS AND SCIENCE

	Number	Per Cent
Desired More	40	48.9
Satisfied with Present Amount	40	48.9
Did Not Answer Question	1	1.2



The professional education requirements are a part of the academic curriculum. The responses to the question concerning whether or not they were beneficial are reported in Table XIV. The survey found that 53.1 per cent of the teachers felt professional education courses were beneficial, but many wrote at the bottom of the questionnaire that too many education courses are too repetitious and boring. Also, thirty-eight, or 46.9 per cent, felt that they were not beneficial.

TABLE XIV

OPINION OF TEACHERS CONCERNING VALUE OF  
PROFESSIONAL EDUCATION COURSES

	Number	Per Cent
Were Beneficial	43	53.1
Were Not Beneficial	38	46.9

Statements Connected With the Survey

Some statements included on the questionnaire revolved around courses which could be included or should be required in the industrial arts curriculum and around the validity of the education courses. Some of the courses requested were: course on making training aids; course to study different text books and their value as text books or as reference books; course on welding; course on power



mechanics; course on electricity; course on shop mathematics; course on carpentry, and a course on small gasoline engines. Of these, welding, carpentry, electricity and training aids are currently available. None of the preceding were requested by more than three people. Another request was that the metal section be improved, which has been done. Two other requests made, each by one person, were that a basic counseling course be added to the curriculum and be required with a maintenance course for all industrial arts teachers. One suggested that more time be spent on the purchasing of yearly supplies.

Education courses were accused of being boring, repetitious, and seldom used. More courses in a student's major would have been more beneficial than the education courses taken and required.



### CHAPTER III

#### ANALYSIS OF DATA

The previous chapter gave the information acquired from the questionnaires received from industrial arts teachers teaching in Kansas at the present time. The rate of return was eighty-one from one hundred-fifteen, or 73 per cent. This chapter shall make comparisons and also analyze the information acquired.

#### Comparisons and Analysis of Technical Areas Taken in College

From the information gathered only one industrial arts major involved in the study has dropped from teaching since 1955 in Kansas. This is 1.2 per cent and is a low percentage compared with the 4.3 per cent of teachers dropping from the whole field of teaching in Kansas.<sup>11</sup> However, this does not show what percentage prepared for teaching and did not enter the teaching field. This would possibly raise both percentages. This does indicate that the industrial arts field is holding those who began to teach. This could be considerably different since industrial arts majors have an excellent background which is wanted in industry, and industry is offering higher wages. On the basis of the

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<sup>11</sup> Kansas State Teachers Association, Statistics  
Kansas Teachers, 1962-63, Prepared under direction of The  
TEPS Commission, February, 1963, pp. 10 and 24.



above factors, the college is doing a good job of preparing the teacher to stay in the field of teaching.

Drafting, woodworking and general shop were the most popular courses of the technical training taken by most teachers. However, drafting and general shop are required, so this would be the reason for those being taken most frequently. Even though both courses are required, only 85.2 per cent took drafting and only 74.1 per cent took general shop. One explanation could be that some took the questionnaire as meaning that they completed a sequence in those areas. If this is true, then the 85.2 per cent is logical, but the questionnaire also indicated 'courses'. Then, if the above is not true 14.8 per cent managed to get by without taking drafting of any kind, and the way the curriculum is set up at Kansas State College, this is highly improbable. This then indicates that the questionnaire was not answered properly and is not completely valid in this case.

The same explanation could hold true for general shop, which was taken by only 74.1 per cent according to the results of the questionnaire. In Table XV the number and per cent of the teachers are given who took the various fields of work covered in the general shop.



TABLE XV

NUMBER AND PER CENT OF TEACHERS TAKING  
TECHNICAL FIELDS IN THE GENERAL SHOP

Fields of Study	Number	Per Cent
Woodwork	51	85.
Metalwork	42	70.
Drafting	33	54.3
Plastics	29	48.3
Electricity	29	48.3
Crafts	29	48.3
Graphic Arts	1	.016

The field taken most in general shop was wood. Out of the sixty teachers who took general shop fifty-one, or 85 per cent, took wood as one of their fields in general shop. This would again be for the same reasons given in the preceding paragraph. Metal was the next highest, taken by forty-two teachers, or 70 per cent. Metalwork has risen in popularity since more industrial products are made of metal. Many home products are also made of metal.

Plastics, electricity, crafts, and drafting were taken by 48.5 per cent to 54.5 per cent of the sixty teachers who took general shop. These fields being low indicates that they probably were not stressed as heavily or that the facilities were not as good for these fields as they were for wood and metal. This would indicate the necessity for a revision in general shop practices or that more adequate equipment is necessary.



Graphic arts was taken by one teacher in general shop. This definitely indicates a need for revision in this field; however, the reason for this being so low is that the facilities are very poor. No actual printing equipment is contained in the general shop; therefore, this would definitely hinder the graphic arts section. This field should be developed since many teachers have expressed an interest in printing at one time or another.

The results given in chapter two show that 54.3 per cent of the teachers felt that their technical training was not broad enough. This is an indication that the curriculum at Kansas State College is not fulfilling the desires of the industrial arts teachers out in the field. This is also indicated by the number of teachers wanting to take certain courses but who were unable to. The main courses desired were metalwork, by 37 per cent, electricity, by 24.7 per cent, auto mechanics, by 13.6 per cent, and plastics by 12.3 per cent. The demand for the others was not great enough to be of any significance at this time. A number of things have been done to help this situation. These are: practical electricity courses have been added; metalwork area has been expanded; plastics is being offered as a separate course; Option II is now more readily available, giving more time to take desired industrial arts courses. These are steps in the right direction. Since all of the above courses are essential to any teacher



teaching general shop and general shop is relatively popular in most schools, a course should be required in each area. This would eliminate the problem of the technical training not being broad enough. This would also give the teacher more confidence in knowing more about the industrial arts field. Too many students take only what they want and later are sorry that they could not take some other courses. This is partially the reason for their technical training not being broad enough.

Table I, on page nine, showing the number and per cent of students taking technical areas, also gives an indication that more areas are needed to broaden a teacher's technical training. Auto mechanics, metalwork, printing, and driver education are taken by less than 50 per cent of the students. Several probable reasons for this are that interest for these areas is not aroused by the faculty and that these courses are not required. Possibly more information needs to be given to the students about these areas and better and more facilities need to be made available.

From the areas now being taught by industrial arts teachers, wood rates the highest with fifty, or 61.7 per cent of the teachers teaching it. This leaves only fifteen who took woodworking who were not teaching it at the time of this study. This indicates that wood is still popular but has dropped in popularity. This could also mean that



some teachers have changed areas or to jobs not requiring wood. Wood definitely has an important position in the curriculum, but it needs some revising. Two things which may help to get more students to take wood in college is to have more up-to-date facilities and to have better instruction using modern industrial practices. This is not a reflection on the college curriculum since most public school teachers receive little help or encouragement from their superiors.

Drafting is being taught by forty-one, or 50.6 per cent of the teachers, and sixty-nine have taken it in college. This means that twenty-eight teachers are not presently teaching drafting. Since 49.4 per cent are not teaching drafting, and from this 14.8 per cent had not taken drafting courses, this indicates that drafting is not being used as it should.

Table IV shows the per cent and number of teachers now teaching technical areas that were offered in college, plus small engine repair. Those shown are being taught by 37 per cent or less of the teachers surveyed. The factors indicate a definite need for a state consultant to advise and promote these areas. This gives an indication that many areas are excluded from the public school curriculums in Kansas, and are areas which should be in the curriculum. These areas will help develop a different outlook toward industry and the possibilities it has available.



The complaint of many teachers, that they are teaching areas for which they have no training is unfounded. There is little basis for this complaint. Ten teachers were teaching areas in which they had not had training, while there were six teaching electricity without formal training. This complaint will be corrected since electricity has been added to the industrial arts department.

Many teachers have said their technical training was not broad enough, but the survey shows that many areas were taken and not used. Auto mechanics was taken by twenty-four teachers, and only nine are now teaching it. This means that 64 per cent of those who took auto mechanics are not using it at the present time. The other areas, shown in Table VIII, do not have as high a per cent as auto mechanics. This broad background evidently is not as necessary as some seem to think it is, or it again might indicate that some areas are not offered in the public schools and should be.

Many industrial arts teachers have made remarks that they were unable to teach sufficient hours in industrial arts. According to the results of this study, given in Table X, those not teaching a majority of industrial arts courses are in a minority. The 65.4 per cent of teachers teaching five and six hours a day in industrial arts indicated that a majority of the teachers are not teaching more than one hour of something other than



industrial arts. Part of those teaching industrial arts five hours a day possibly have a free hour. Adding the teachers who are teaching industrial arts seven, six, five, and four hours a day, shows that 81.3 per cent of the teachers are not teaching more than two classes other than industrial arts. This would indicate that most industrial arts teachers were hired to teach industrial arts and not their minor. This is also indicated by only nineteen teachers now teaching in their minor field. The 18.7 per cent who are teaching more hours or just as many hours in their minor field as in industrial arts are a very small group.

#### Comparison and Analysis of Academic Areas

The old argument of having more hours in a person's major and no minor has some basis. Out of the eighty-one valid returns, forty-nine, or 60.5 per cent, were teaching only industrial arts. However, out of this forty-nine, twenty-three had taught in their minor field, but they were not teaching in it now. This gives some basis for changing to only a major in industrial arts. The twenty-three who used their minor indicated that the industrial arts teacher is being relieved of his minor duty; therefore, giving some basis for having an area major without a minor. Comparing



these data with those stated by Cain<sup>12</sup>, also gives the indication that industrial arts teachers have been relieved of their minor duties since his study showed that over half the industrial arts teachers were teaching outside their field, and now only 39.5 per cent are using their minor.

The previous paragraph gave some factors for not having a minor, but there is some evidence that a minor is needed. Thirty-three had taught in their minor field, so the minor was needed; however, only nineteen, or 23.4 per cent, at the time of the study were actually using their minor. This definitely indicates that the minor is becoming less important but still is needed in at least one-fourth of the teaching jobs.

The academic curriculum, usually education courses and the general education courses, dovetails with the argument of having only a major in industrial arts. Academic, as used by an industrial arts teacher, usually means courses other than the education courses. The results show that 83.3 per cent of the teachers surveyed felt the academic curriculum was adequate indicating that the academic curriculum was filling the needs of the industrial arts teacher. However, 16.7 per cent felt that the curriculum

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<sup>12</sup>Cain, Cecil Richard, "An Analysis of the Industrial Arts Teaching Position and Teacher Preparation" (unpublished Graduate thesis, Indiana University, Bloomington, Indiana, 1958).



is inadequate and 25.8 per cent of the 83.3 per cent felt that it is too broad. This gives some indication that the teachers are not sure of their needs. This correlates some with the study made by Gonser<sup>13</sup>, who found that less academic work or a combining of several courses was preferred by the industrial arts teacher. Possibly a choice of courses could be given in the academic field or a change of requirements should be made leaving some courses out and replacing them with others more desirable. However, the 57.5 per cent who felt that it is adequate show that a major change need not be made, but minor changes should be made. These would have to be determined by the department.

Other data which indicated some change in the academic curriculum was that 50 per cent of the teachers thought that more science and mathematics would be desirable; however, 50 per cent indicated that they had sufficient mathematics and science. This correlates closely

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<sup>13</sup>Gonser, Martin E., "A Follow-up Study of Graduates with Majors in Industrial Arts from 1935-1949" (unpublished Master's thesis, Kansas State College of Pittsburg, Pittsburg, Kansas, 1950).



with the studies made by Saunders<sup>14</sup> and Wilson<sup>15</sup> which stated that the most desired minors were mathematics and physical science. Both of these areas, math and science, are becoming more and more important in this day and age. All industrial areas require the use of mathematics and science in some form, and possibly they should be included in the curriculum.

Education was taken separately since so many complaints were given concerning it. With only 53 per cent of the industrial teachers answering that they are beneficial, it is shown that a revision is necessary in this area. However, if the results are the same for areas other than industrial arts, then the education department needs to revise its curriculum in such a way that the courses are interesting and consist of information that can be used by the teacher in the field.

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<sup>14</sup> Saunders, William R., "A Study of Graduates with Majors in Industrial Education from Kansas State College of Pittsburg, from 1949 to 1955" (unpublished Master's thesis, Kansas State College of Pittsburg, Pittsburg, Kansas, 1956).

<sup>15</sup> Wilson, Donald Lee, "A Follow-up Study of the Negro Graduates in Industrial Education from Kansas State College of Pittsburg up to 1958" (unpublished Master's problem, Kansas State College of Pittsburg, Pittsburg, Kansas, 1959).



## CHAPTER IV

### SUMMARY AND CONCLUSIONS

#### Summary

The basic purpose of this study was to compare the technical and academic preparation of industrial arts teachers with what they are actually teaching in the field. This comparison was done to help determine where the industrial arts curriculum, at Kansas State College, could be improved or changed if necessary. The questionnaire used was sent to industrial arts teachers teaching in Kansas at the time of the study and who had graduated from Kansas State College since 1955. One hundred-fifteen questionnaires were sent, of which eighty-four were returned. Three were invalid because of earlier graduation dates or not being an industrial arts major. The total return was 73 per cent. Eighty-one questionnaires were used in processing the data given in the previous chapters.

It was found that drafting and general shop were not taken by every teacher included in this study.

An asset to the department was that of eighty-one teachers only one has ceased teaching and gone to work for industry. This gives the industrial arts department a lower average per cent of teachers leaving teaching than the over all average of all teachers in Kansas.



Woodworking was found to be the most popular subject taken in the industrial arts department and was also the most often taught, but it also has been dropped by eleven teachers in Kansas. Woodworking had the highest rate of courses being dropped.

The general shop area was found to be needing some revision since most of the areas in general shop were not taken by a large percentage of the students who took general shop. Wood and metal were taken by almost everyone, but the others were relatively low, taken by less than 50 per cent of the teachers.

Many teachers felt their technical training was not broad enough, which was also indicated by the request for courses not taken in college. However, many teachers were not teaching the courses they had taken, particularly in auto mechanics. This would indicate that the technical training was too broad, but to have a well-rounded industrial arts background a teacher should have some technical knowledge in all the different areas.

Drafting has become secondary to several of the other areas. It has been taken by more teachers, but is not being taught by 49.4 per cent of them, which is a lower percentage than wood and some of the other areas.

The minor fields taken by industrial arts majors are varied with health and physical education and social science being taken the most by industrial arts teachers.



Several teachers had two or three minors and were using all three in their teaching at present. However, there was a considerable drop in the use of the minor which gives some justification for not taking a minor field with industrial arts. In some cases it was essential since one-fourth of the teachers are using their minor.

The academic curriculum, other than industrial arts or education courses, has a wide acceptability by most industrial arts teachers. Most teachers realize it is important, but some felt it was too broad, while only 16.7 per cent felt it was inadequate. It was found that 50 per cent of the teachers believed that more science and mathematics would be beneficial in their teaching.

The education courses are taken by all students entering teaching and are always subject to ridicule and abuse. This study showed no exception. A large percentage of the teachers indicated they were beneficial; however, a number of the teachers wrote that they were boring and repetitious. Forty-seven per cent indicated that they were not beneficial.

### Conclusions

From the data acquired and through the analysis of the data, the following conclusions were reached:

1. No definite change of courses are recognized from this study since there was little demand for subjects which



are not already offered in the industrial arts curriculum.

2. Since all teachers did not take general shop who graduated after 1955, some revision should be made in the curriculum to make this possible.

3. A large per cent of the teachers, 54.3 per cent, indicated a need for study in more areas of technical training.

4. There is little basis for the complaint of teachers teaching in areas in which they have not had training, with possibly one exception, this being electricity. Electricity was being taught by six teachers who had no course work in the area, but this will be corrected in the future with the practical electricity courses which have been added to the industrial arts curriculum.

5. All the technical courses taken in college are not being taught by teachers in their teaching assignments; however, they do help broaden the knowledge of the industrial arts teacher.

6. The minor with an industrial arts major is no longer as important as it was in the past. This is shown in this study by only one-fourth of the teachers actually teaching in their minor field. From the years 1934 to 1949 over half of the industrial arts teachers were teaching in their minor field.

7. As expressed by 50 per cent of the teachers who responded to the questionnaire, there is lacking adequate training in mathematics and science for industrial arts teachers.



8. Professional education courses are not meeting the needs of the industrial arts teacher according to 47 per cent of the teachers who indicated that it was not beneficial to their teaching.

### Recommendations

In checking a college curriculum by doing a survey of the sort which has been done in this study, the former students may bring out the faults of the particular department involved. This study is no exception; however, many faults or inadequacies are due to the fast changing technology and materials in industry. Under the heading, given above, the following recommendations are given to assist in revising the industrial arts curriculum at Kansas State College of Pittsburg.

1. The results of this study show that the technical training of 54.3 per cent of the teachers was not sufficient. To correct this, a course in each area should be required.

2. Since many areas of industrial arts are not being taught in the public schools, it is indicated that more emphasis should be placed on the problem of securing the services of a state consultant for industrial arts.

3. Of the teachers surveyed, 50 per cent indicated that more mathematics and science would be beneficial to them. A study of the industrial arts curriculum might be forthcoming to determine how much mathematics and science



the industrial arts teacher actually needs.

4. A study should be made to find out how the education courses can be better adapted to the industrial arts teacher in preparing him for his teaching assignments.

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## BIBLIOGRAPHY



## BIBLIOGRAPHY

Cain, Cecil Richard. "An Analysis of the Industrial Arts Teaching Position and Teacher Preparation" (An unpublished Graduate thesis, Indiana University, Bloomington, Indiana, 1958).

Conser, Martin E. "A Follow-up Study of Graduates with Majors in Industrial Arts from 1935-1949" (Unpublished Master's thesis, Kansas State College of Pittsburg, Pittsburg, Kansas, 1950).

Good, Carter V. Dictionary of Education.

Kansas State Teachers Association. Statistics Kansas Teachers, 1962-63, Prepared under direction of The TEPS Commission, February, 1963.

Karnes, Jr., John Wesley. "The Organization and Administration of Industrial Education on the State Level" (Unpublished Graduate thesis, University of Missouri, Columbia, Missouri, 1951).

Nelson, Avery Frank. "Follow-up Study of Industrial Arts Graduates of North Texas State College" (Unpublished Graduate thesis, University of Missouri, Columbia, Missouri, 1955).

Saunders, William R. "A Study of Graduates with Majors in Industrial Education from Kansas State College of Pittsburg, from 1949 to 1955" (Unpublished Master's thesis, Kansas State College of Pittsburg, Pittsburg, Kansas, 1956).

State of Kansas, Department of Public Instruction, Secondary School Handbook, 1956, Kansas State Department of Public Instruction, Topeka, Kansas, 1955.

Weber, Earl M. "A Comparative Study of Industrial Technology Programs in American Colleges and Universities, with Industrial Arts Teacher Education and Technical Institute Programs" (Unpublished Graduate thesis, The Pennsylvania State University, 1961).

Wilson, Donald Lee. "A Follow-up Study of Negro Graduates in Industrial Education from Kansas State College of Pittsburg up to 1958" (Unpublished Master's problem, Kansas State College of Pittsburg, Pittsburg, Kansas, 1959).



APPENDIX A



## QUESTIONNAIRE

The following areas are taught in the Industrial Arts Department at Kansas State College of Pittsburg. Please place an 'x' in the square or squares which fit the technical training you had in college, what you are now teaching, what you have previously taught, and areas in which you would like to have had training, but could not take at the time you were in college.

INDUSTRIAL ARTS AREAS	Areas Courses Taken In College	Areas Now Teaching	Areas Previously Taught	Areas Wanted Not Taken	Number Hours Teaching
Automotive Mechanics					
Drafting					
Driver Education					
General Shop					
Wood					
Metal					
Plastics					
Electricity					
Crafts					
Drafting					
Graphic Arts					
Metalwork					
Printing					
Woodworking					

The following areas are offered at Kansas State College of Pittsburg as minors to a major field. Please place an 'x' in the squares which correspond to your minor if you have one.

MINOR AREAS	Area Taken	Area Previously Taught	Area Wanted Not Taken	Number Hours
Biological Sciences				
Business Administration				
Education and Psychology				
Health and Physical Ed.				
Language and Literature				
Mathematics				
Military Science				
Music				
Physical Science and Chemistry				
Social Science				

Please answer the following by circling either yes or no.

1. Do you feel your technical training in college was broad enough? yes no
2. Would more mathematics and sciences have been beneficial to you? yes no
3. Has your minor, if you have one, been beneficial to you? yes no



The following areas are offered at Kansas State College of Pittsburg as minors to a major field. Please place an 'x' in the squares which correspond to your minor if you have one.

MINOR AREAS	Minor Area	Area Now Teaching	Area Previously Taught	Minor Hours Preferred	Number Hours Teaching
Art					
Biological Science					
Business Administration					
Education and Psychology					
Health and Physical Ed.					
Language and Literature					
Mathematics					
Military Science					
Music					
Physical Science and Chemistry					
Social Science					

Please answer the following by circling either yes or no.

- Do you feel your technical training in college was broad enough? yes no
- Would more mathematics and science have been beneficial to you? yes no
- Has your minor, if you have one, been beneficial to you in your job? yes no
- Was your academic curriculum broad enough? yes no
- Was your academic curriculum too broad? yes no
- Were your education courses beneficial? yes no

Please feel free to write any comments in the space below, plus any subjects you would like to see added to the industrial arts program at KSC of Pittsburg.



APPENDIX B



Dear Sir:

A study is being made of all KSC of Pittsburg graduates since 1955 who majored in industrial arts, and who are teaching in Kansas at the present time. This study is being done to help determine what is most beneficial in the industrial arts curriculum, and what is possibly the least desirable to the teacher in the field. This may help determine future changes in the industrial arts curriculum of KSC. A second reason for this study is for partial fulfillment of my master's program.

I know your time is valuable, but I shall greatly appreciate your cooperation in giving two to four minutes of your time that it takes to fill out the enclosed questionnaire. It is easy to answer and rather short. Please return as soon as possible in the self-addressed, stamped envelope.

Thank you.

Very truly yours,

Richard D. Holzrichter

Approved by  
Forest L. Penny  
Thesis Advisor