

A STUDY OF INDUSTRIAL ARTS TEACHERS TEACHING  
IN KANSAS DURING THE SCHOOL YEAR 1958-59

by

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TABLE OF CONTENTS

INTRODUCTION . . . . .	1
OBJECTIVES . . . . .	1
PROCEDURE. . . . .	2
DOCUMENTARY INFORMATION. . . . .	3
TEACHERS SALARIES. . . . .	5
Conclusions . . . . .	12
SUBJECTS AND SUBJECT FIELDS TAUGHT BY INDUSTRIAL ART TEACHERS. . . . .	13
Conclusions . . . . .	18
TEACHER TRAINING . . . . .	19
Conclusions . . . . .	26
SHOP FINANCE . . . . .	27
Conclusions . . . . .	32
ACKNOWLEDGMENT . . . . .	33
BIBLIOGRAPHY . . . . .	34
APPENDIX . . . . .	36

## INTRODUCTION

Of the 596 Kansas secondary schools 517 offered industrial arts in their programs of study. These 517 schools employ a total of 717 industrial arts teachers. After having taught industrial arts several years and finding that little information was available concerning other teachers of industrial arts, the author became especially interested in obtaining more information regarding them. In this study he endeavored to find what subjects were being taught by these 717 industrial arts teachers, the ways they handled shop finances, the preparation these teachers had for their teaching, and the salaries they were receiving.

The information collected will be useful to the instructor, superintendent, and school board who are planning new or different industrial arts programs, or for determining salary schedules. It will also be useful to teacher training colleges in setting up their curriculums to meet the needs of Kansas secondary schools and in advising prospective teachers concerning the opportunities of teaching industrial arts in Kansas. Aside from the uses already mentioned, the study is of use to the author in determining how other teachers handled some of the common problems found in high school shops and in helping him to decide the best methods of handling these problems himself.

## OBJECTIVES

- I. To determine the salaries of teachers of industrial arts
  - A. Salary received in relation to degree

- B. Salary received in relation to years of experience
  - C. Salary received by teachers of industrial arts who had coaching duties
  - D. Salary received by teachers of industrial arts who had administrative duties
- II. To discover information concerning teacher training
- A. The names of the colleges which trained the Kansas industrial arts teachers
  - B. The number of semester hours teachers had in industrial arts
  - C. Some improvements in college instruction recommended by experienced industrial arts teachers
- III. To learn what subjects were being taught by teachers of industrial arts
- A. The industrial arts subjects they were teaching
  - B. The subject combinations which were being taught
- IV. To learn how money was handled in the industrial arts classes in Kansas
- A. When students paid for projects
  - B. Who took money for projects
  - C. The amount of money that had to be collected from students

#### PROCEDURE

Two methods were used to obtain data to meet the objectives of this study. Questionnaires were sent to 280 different schools throughout the state. Particular attention was given to see that schools of all types, both as to enrollment and location, were represented. This questionnaire was designed to obtain information concerning the handling of money in industrial arts classes and also determine in what manner teachers on the job thought college preparation for industrial arts teachers could be improved. The



questionnaire was designed to be easily answered and to give accurate data. A copy of the questionnaire is included in the appendix on page 36. Of the 280 questionnaires that were sent, 178 were returned by the date requested. A postcard was then sent to those teachers who had not made replies requesting them to do so. A form of this post card is included on page 39 of the appendix. After requesting these teachers to return their questionnaires, 35 more were returned, making a total of 213. This was 76% of the questionnaires which were sent out.

Information concerning teachers' salaries, teachers' training, and the subjects taught was procured from the State Department of Accreditation, Topeka, Kansas. Every high school in Kansas desiring to be accredited by the State Board of Education must file annually with the high school supervisor a high school principal's organization report. Reports were available on all but one high school in Kansas. From these reports information was obtained to complete the form on page 38 of the appendix. From this form the directory of industrial arts and vocational industrial personnel in Kansas, which is on file at the office of industrial engineering and industrial arts at Kansas State University. Certain information given in this directory was tabulated and included in the main body of this paper.

#### DOCUMENTARY INFORMATION

A directory of industrial arts and vocational personnel in Kansas was prepared from information obtained from the State Department of Accreditation at Topeka, Kansas. In this directory can be found the names of each Kansas school, its classification,

the name of the industrial teacher, the salary, the years experience, the degree held, the college attended, extra duties of the teacher, and the classes taught. The directory is a document of much information used in this thesis and may be procured at the office of Industrial Engineering and Industrial Arts at Kansas State University, Manhattan, Kansas.

Table 1 shows all of the teachers in Kansas who taught industrial arts. By looking at this table one can see how many industrial arts teachers had coaching duties, the number that had administrative duties, those with bachelor degrees, those with master degrees, and the salary each received.

It is noticeable from this table that the highest paid industrial arts teachers were neither coaches nor administrators. This is understandable, however, because these teachers were more specialized in their fields and taught in larger schools where it was not necessary for them to teach other subjects.

It is interesting to note that the highest paid industrial arts teacher in Kansas had only a bachelor degree. This teacher taught printing at Wichita East High School and held an AB degree.

Some teachers of industrial arts received very low salaries, which were much lower than the average for the state. Almost all of these low paid teachers taught in non-public schools where the pay for all teachers was very low.

There were twenty-eight industrial arts teachers in Kansas who did not have degrees. A number of these teachers had Trade and Industrial Certificates which were issued to persons: (3 p.28)

# TEACHERS SALARIES

Table 1. Full time teachers of industrial arts, the degree held, and the salary received.

	Teachers of industrial arts : who are neither coaches nor : administrators			Teachers of industrial : arts who have coaching : duties			Teachers of industrial : arts who have adminis- : trative duties		
	Bachelor : degree	Master : degree	No : degree	Bachelor : degree	Master : degree	Bachelor : degree	Master : degree		
7,900-7,999	1								
7,800-7,899									
7,700-7,799		1							
7,600-7,699									
7,500-7,599	1	1							
7,400-7,499									
7,300-7,399									
7,200-7,299									
7,100-7,199		2							
7,000-7,099		1							
6,900-6,999		3							
6,800-6,899									
6,700-6,799									
6,600-6,699		2							
6,500-6,599		2							
6,400-6,499	1	4							
6,300-6,399	1	1							
6,200-6,299		2	1	1	1				
6,100-6,199	1	3	1						
6,000-6,099	1								
5,900-5,999	1	7	1	1	1			1	
5,800-5,899	3	4	2					3	
5,700-5,799	4	2	4					1	
5,600-5,699	4	6	1		1			1	
5,500-5,599	3	7	2	1	2			2	
5,400-5,499	5	7	7		1			2	
5,300-5,399	3	7		2				2	
5,200-5,299	12	7	1	1	1	2		5	
5,100-5,199	12	6	1	1	3			4	
5,000-5,099	8	7		3				5	
4,900-4,999	12	7	1	5	1			2	
4,800-4,899	17	3	1	5	2			2	
4,700-4,799	7	8	1	9					
4,600-4,699	17	6		13	2			1	
4,500-4,599	23	8		18	1			1	
4,400-4,499	17	6		16				1	
4,300-4,399	27	4	1	13	1				
4,200-4,299	32	1	2	21					
4,100-4,199	16	2		12					
4,000-4,099	37	1		24					
3,900-3,999	16			10				1	
3,800-3,899	17			8		1			
3,700-3,799	5	1	1	2					
3,600-3,699	4			1					
3,500-3,599	3			1					
3,400-3,499	1	1						1	
3,300-3,399	2								
3,200-3,299									
3,100-3,199									
3,000-3,099		1		1					
2,900-2,999		1							
2,800-2,899									
2,700-2,799									
2,600-2,699									
2,500-2,599				1					
2,400-2,499									
2,300-2,399	2								
Number	316	132	28	170	17	3		37	
Mean Salary	4,541.	5,255.	5,289.	4,318.	5,123.	4,733.		5,148.	

Note: Of a total of 717 teachers in the state only 703 are listed on this table. Three of the teachers omitted were part time teachers, the degree of one teacher was omitted from the principals' reports, and the salary of ten teachers was omitted from them.

graduating from high school having completed two years of successful journeyman trade experience beyond the learning period. The applicant shall also be recommended by the Kansas State Supervisor of Trade and Industrial Education.

Other teachers who did not have degrees and who did not hold Trade and Industrial Certificates were older teachers, beginning their teaching under the Smith Hughes Act when a degree was not necessary, according to information obtained from the secretary in the office of school accreditation at Topeka, Kansas.

Table 2 portrays some very interesting facts about industrial arts teachers with bachelor degrees who had neither coaching nor administrative duties. There were a large number of teachers in the state who had one or two years experience, but the number of teachers with more years experience diminished each year. There was a big drop from forty-eight teachers with two years experience to only twenty with three years experience. From ten years experience on the number of teachers diminished so much that an accurate showing was not made.

There were two main explanations for this drop. In the first place many withdrew from teaching after the first year or two. Many would-be teachers found that they did not like to teach, while others left teaching for better paying jobs. On the other hand, some of these teachers received master degrees and therefore were no longer shown on this part of the table.

The mean salary for these beginning teachers was \$4,037. The mean salary after the first year rose less than \$100. per year until the tenth year. After that there were insufficient teachers to demonstrate an accurate rise in salary. Schools organizing new salary schedules would be interested in what other schools were



Table 2. Teachers of industrial arts who were neither coaches nor administrators who held bachelor degrees.

Years Experience	:	Number	:	Percent	:	High Salary	:	Low Salary	:	Mean Salary
1	:	48	:	15.2	:	4,900	:	3,500	:	4,038.
2	:	48	:	15.2	:	5,700	:	3,300	:	4,167.
3	:	20	:	6.3	:	5,100	:	3,900	:	4,370.
4	:	20	:	6.3	:	5,800	:	2,300	:	4,240.
5	:	11	:	3.4	:	5,200	:	4,000	:	4,391.
6	:	15	:	4.7	:	5,200	:	3,700	:	4,427.
7	:	12	:	3.8	:	5,500	:	4,200	:	4,658.
8	:	24	:	7.6	:	6,300	:	3,900	:	4,738.
9	:	19	:	6.0	:	5,500	:	3,900	:	4,563.
10	:	7	:	2.2	:	5,500	:	4,200	:	4,829.
11	:	5	:	1.6	:	5,200	:	3,600	:	4,360.
12	:	4	:	1.3	:	5,700	:	4,200	:	5,025.
13	:	6	:	1.9	:	5,300	:	4,000	:	4,600.
14	:	2	:	.6	:	5,600	:	4,300	:	4,950.
15	:	5	:	1.6	:	5,000	:	4,000	:	4,620.
16	:	5	:	1.6	:	5,800	:	3,700	:	4,900.
17	:	4	:	1.3	:	5,100	:	4,300	:	4,575.
18	:	3	:	.9	:	5,300	:	3,500	:	4,367.
19	:	2	:	.6	:	4,400	:	4,000	:	4,200.
20	:	5	:	1.6	:	5,600	:	4,100	:	4,780.
21	:	5	:	1.6	:	5,300	:	4,000	:	4,620.
22	:	7	:	2.2	:	7,500	:	3,300	:	5,014.
23	:	3	:	.9	:	4,200	:	3,900	:	4,100.
24	:	2	:	.6	:	4,300	:	3,900	:	4,100.
25	:	2	:	.6	:	7,900	:	4,600	:	6,250.
26	:	2	:	.6	:	6,000	:	5,400	:	5,700.
27	:	3	:	.9	:	5,200	:	4,300	:	4,867.
28	:	4	:	1.3	:	5,200	:	3,600	:	4,300.
29	:	2	:	.6	:	5,700	:	4,500	:	5,100.
30	:	2	:	.6	:	5,100	:	4,500	:	4,800.
31	:	1	:	.3	:	4,300	:	4,300	:	4,300.
32	:	1	:	.3	:	5,700	:	5,700	:	5,700.
33	:	5	:	1.6	:	5,800	:	4,000	:	4,700.
34	:	3	:	.9	:	5,900	:	4,900	:	5,267.
35	:	1	:	.3	:	5,400	:	5,400	:	5,400.
36	:	3	:	.9	:	4,700	:	4,100	:	4,433.
37	:	2	:	.6	:	5,200	:	4,700	:	4,950.
38	:	0	:		:		:		:	
39	:	1	:	.3	:	5,600	:	5,600	:	5,600.
40	:	0	:		:		:		:	
41	:	1	:	.3	:	6,400	:	6,400	:	6,400.
42	:	0	:		:		:		:	
43	:	0	:		:		:		:	
44	:	1	:	.3	:	5,000	:	5,000	:	5,000.

offering. For an average teacher who would give average instruction the same mean salary as shown here could be paid; but if the school desires above average instruction, they should be prepared to pay above average wages. It is not always true, however, that high salaries must be paid to get better teachers, but it is usually true in the majority of situations.

Table 3 evinces some facts about industrial arts teachers with neither coaching nor administrative duties who had master degrees. It shows that there were no beginning teachers with master degrees teaching this year. The number of teachers with more experience slowly rose until eight years experience was attained. From eight to twelve years experience the number remained quite constant; after that it dropped once more.

Salaries according to experience did not indicate any trend, although salaries for teachers who had master degrees, as a whole, were almost \$800.00 higher than for those who had bachelor degrees.

Table 4 shows teachers with bachelor degrees who had coaching duties. Like those who were not coaches there were more teachers with only two years experience, after that the number diminished. There were fewer teachers with coaching duties who had several years experience than there were those who taught industrial arts only. Some quit teaching, some received master degrees, also many specialized in coaching only, so they were removed from this table completely.

The beginning salary for these teachers was \$50.00 higher than for those with bachelor degrees who taught industrial arts

Table 3. Teachers of industrial arts with neither coaching nor administrative duties who hold master degrees.

Years Experience	Number	Percentage	High Salary	Low Salary	Mean Salary
1	0				
2	1	.8	5,000	5,000	5,000.
3	1	.8	5,100	5,100	5,100.
4	5	3.8	5,800	3,700	4,400.
5	8	6.1	5,400	4,400	4,775.
6	6	4.5	6,100	4,300	5,050.
7	5	3.8	5,500	4,400	4,880.
8	11	8.3	6,600	3,000	4,800.
9	7	5.3	5,000	4,200	4,586.
10	7	5.3	5,900	4,500	5,243.
11	7	5.3	6,600	5,200	5,800.
12	12	9.1	6,400	2,900	5,317.
13	0				
14	5	3.8	6,100	4,100	5,200.
15	2	1.5	5,600	4,700	5,150.
16	3	2.3	6,500	4,900	5,767.
17	4	3.0	7,100	4,600	5,625.
18	2	1.5	5,400	5,300	5,600.
19	2	1.5	5,600	4,600	5,100.
20	2	1.5	4,700	4,500	4,600.
21	1	.8	6,900	6,900	6,900.
22	1	.8	4,700	4,700	4,700.
23	2	1.5	7,500	5,400	6,450.
24	2	1.5	5,400	5,400	5,400.
25	2	1.5	6,900	5,100	6,000.
26	1	.8	3,400	3,400	3,400.
27	1	.8	5,100	5,100	5,100.
28	1	.8	5,000	5,000	5,000.
29	5	3.8	7,700	5,000	6,440.
30	1	.8	4,900	4,900	4,900.
31	3	2.3	6,900	5,000	6,100.
32	4	3.0	6,300	4,600	5,325.
33	3	2.3	5,700	4,900	5,267.
34	1	.8	5,300	5,300	5,300.
35	2	1.5	7,000	5,300	6,150.
36	2	1.5	5,200	4,500	4,850.
37	2	1.5	5,800	5,200	5,500.
38	2	1.5	6,400	5,400	5,900.
39	0				
40	3	2.3	6,400	4,600	5,700.
41	0				
42	1	.8	5,900	5,900	5,900.
43	0				
44	1	.8	5,000	5,000	5,000.
45	1	.8	4,300	4,300	4,300.

Table 4. Teachers of industrial arts with coaching duties who held bachelor degrees.

Years Experience	:	Number	:	Percentage	:	High Salary	:	Low Salary	:	Mean Salary
1	:	32	:	18.8	:	4,900	:	3,500	:	4,088.
2	:	33	:	19.4	:	4,700	:	3,000	:	4,091.
3	:	21	:	12.4	:	4,900	:	3,700	:	4,295.
4	:	16	:	9.4	:	5,000	:	2,500	:	4,319.
5	:	9	:	5.3	:	5,000	:	4,100	:	4,411.
6	:	7	:	4.1	:	4,800	:	3,800	:	4,414.
7	:	7	:	4.1	:	4,500	:	4,000	:	4,286.
8	:	11	:	6.5	:	4,700	:	3,900	:	4,464.
9	:	9	:	5.3	:	4,800	:	4,000	:	4,444.
10	:	8	:	4.7	:	5,200	:	4,000	:	4,763.
11	:	3	:	1.8	:	5,300	:	3,800	:	4,600.
12	:	0	:		:		:		:	
13	:	1	:	.6	:	4,000	:	4,000	:	4,000.
14	:	1	:	.6	:	5,000	:	5,000	:	5,000.
15	:	0	:		:		:		:	
16	:	0	:		:		:		:	
17	:	2	:	1.2	:	4,900	:	4,500	:	4,700.
18	:	1	:	.6	:	4,000	:	4,000	:	4,000.
19	:	0	:		:		:		:	
20	:	2	:	1.2	:	4,800	:	4,400	:	4,600.
21	:	0	:		:		:		:	
22	:	1	:	.6	:	5,300	:	5,300	:	5,300.
23	:	1	:	.6	:	4,000	:	4,000	:	4,000.
24	:	3	:	1.8	:	5,900	:	4,500	:	5,000.
25	:	0	:		:		:		:	
26	:	1	:	.6	:	5,500	:	5,500	:	5,500.
27	:	0	:		:		:		:	
28	:	0	:		:		:		:	
29	:	0	:		:		:		:	
30	:	0	:		:		:		:	
31	:	1	:	.6	:	6,200	:	6,200	:	6,200.

only. In comparing the salaries between these two groups there was little difference, although the salary for teachers with bachelor degrees who had coaching duties averaged slightly less than for those without coaching duties.

Table 5 illustrates the mean salary and the mean years of experience for each group of industrial arts teachers. It was interesting to note that the highest mean salary was paid to



Table 5. Comparison of the salary and teaching experience of industrial arts teachers.

Type of Teacher	Mean Salary	Mean Years Experience
Bachelor degree teachers of industrial arts who were neither coaches nor administrators	\$4,541.	9.52
Master degree teachers of industrial arts who were neither coaches nor administrators	\$5,255.	17.03
No degree teachers of industrial arts who were neither coaches nor administrators	\$5,289.	11.00
Bachelor degree teachers of industrial arts who were also coaches	\$4,318.	5.50
Master degree teachers of industrial arts who were also coaches	\$5,123.	5.76
Bachelor degree teachers of industrial arts who were also administrators	\$4,733.	25.00
Master degree teachers of industrial arts who were also administrators.	\$5,148.	19.43

those without any degree. Reasons for this were that most of these teachers had trade experience in a special line of work, and they taught in large schools where higher salaries were paid. Those who were not teaching on a Trade and Industrial Certificate had many years experience.

The mean salary of industrial arts teachers with bachelor degrees who had coaching duties was lower than for those who were neither coaches nor administrators. Their mean years experience

was also lower, therefore the salary in relation to experience was relatively equal for these two groups of teachers.

There were only three teachers with administrative duties who had bachelor degrees. They had the highest number of years experience but less salary than other teachers in their position. These teachers were working in small schools as administrators with provisional certificates.

### Conclusions

1. There were 316 teachers of industrial arts (44.4%) with neither coaching nor administrators duties who had bachelor degrees; their mean salary was \$4,541.
2. There were 132 teachers (18.9%) with neither coaching nor administrative duties who had master degrees; their mean salary was \$5,255.
3. There were 28 teachers (4.0%) who were neither coaches nor administrators who had no degree; their mean salary was \$5,289.
4. There were 170 teachers (24.3%) with coaching duties who had bachelor degrees; their mean salary was \$4,318.
5. There were 17 teachers (2.5%) with coaching duties who had master degrees; their mean salary was \$5,123.
6. There were 3 teachers (.5%) with administrative duties who had bachelor degrees; their mean salary was \$4,733.
7. There were 37 teachers (5.4%) with administrative duties who had master degrees; their mean salary was \$5,148.
8. Teachers with no degrees received the highest mean salary of any industrial arts teachers.

9. After two years experience many teachers having bachelor degrees withdrew from teaching.
10. The mean starting salary for teachers with bachelor degrees who had neither coaching nor administrative duties was \$4,037.
11. Mean salaries for teachers who had bachelor degrees rose less than \$100. per year for the first ten years.
12. Mean salaries for teachers who had master degrees averaged \$800. more than for those who had bachelor degrees.
13. The salary of bachelor degree teachers with coaching duties averaged less than that of bachelor degree teachers with neither coaching nor administrative duties.
14. Teachers with coaching duties who had master degrees received the highest salary in relation to their experience.
15. Only three teachers with administrative duties had bachelor degrees.

#### SUBJECTS AND SUBJECT FIELDS TAUGHT BY INDUSTRIAL ARTS TEACHERS

Table 6. Subjects offered by schools having industrial arts programs.

Subject	Number	Percent
Woodworking	417	80.6
Drafting	318	61.5
General shop	137	26.4
Auto mechanics	68	13.1
Printing	27	5.2
Metals	14	2.7
Welding	9	1.7
Mechanics	7	1.3
Electricity	6	1.1
Machine Shop	4	.8
Trades	1	.2

The information utilized in this table was procured from

the high school principals' organization reports. All subjects which were taught in each high school in Kansas, except one school whose report was not available, were listed in these reports.

It is quickly noted from this table that more woodworking was offered in the industrial arts field than any other subject. Since woodworking was the most popular subject in the industrial arts field, it is natural that there was a greater demand for teachers to teach woodworking than any other subject in the field. To meet this present demand colleges must teach a good variety of subjects in woodworking and related subjects to prepare a large number of good woodworking teachers. One of the reasons woodworking was taught in so many high schools was that when manual training was first introduced into the high schools, it was introduced as woodworking, and many schools and communities were reluctant to change or to add other subjects. Also, the necessary equipment for woodworking was relatively inexpensive compared to the equipment necessary for some of the other subjects taught in the industrial arts fields.

Teaching woodworking only, as was done in many of these schools, was not the recommended industrial arts program, however. A more general shop type of arrangement was recommended in the Kansas Secondary School Handbook. (15 p.17)

Industrial arts should include a variety of experiences, such as welding, woodwork, metalwork, electricity, plumbing, etc. In some areas the emphasis should be on farm shop; in others home mechanics.

To fit the needs of our present secondary schools, colleges should educate many woodworking teachers, but to achieve the

recommended industrial arts program these teachers should be trained so that they may teach in other areas.

Drafting ranked second in the subjects taught in the industrial arts field in Kansas. It was possible that many of the schools reporting did not list drafting as a separate subject since in some schools it was included with woodworking and general shop. Even if this were true, the percentage of the schools offering drafting was low. It is very important that students have some knowledge of drawing while doing shop work. Without drawing, students can not plan projects as they should, nor can they read plans prepared by someone else. If a school does not offer drafting, it can not really educate a student in industrial arts.

General shop was offered in 26 per cent of the schools. It was reported by the State Department of Public Instruction that the trend was toward programs of general laboratory organization which were described as follows: (13 p.6)

The more modern and progressive schools now refer to the class as "laboratory" and not "shop". The general type of organization provides experiences in a variety of tool and machine processes and with a variety of materials. This has caused a change which adapts subject matter to the activity requiring it, and drops specialization in industrial arts courses. The activities in the general organization are designed as means of learning, and these activities are now grouped about the making of larger projects which involve many units of activity for completion.

Although general shop was reported by only a small percentage of the schools throughout the state, it seems there will be a need for more teachers in this area. In order for a teacher to prepare for teaching general shop he must prepare himself in many different phases of industrial arts such as wood, metal, drafting, plastics, electricity, etc. The need has become apparent. It



should now be the concern of colleges to give students preparing to teach industrial arts more work in different phases of the curriculum to qualify them for this type of shop.

Other subjects were offered as shown in table 6. The schools offering these subjects were, for the most part, large schools located in Kansas City, Topeka, Wichita, and Leavenworth where they were near industrial plants.

Table 7. Combinations of subject fields taught by industrial arts teachers.

Subject fields	:	Number	: Per cent
Industrial arts only		339	47.2
Industrial arts, and driver education		52	7.2
Industrial arts, and physical education		50	6.9
Industrial arts, and science		49	6.8
Industrial arts, and mathematics		34	4.7
Industrial arts, and agriculture		24	3.3
Industrial arts, and social studies		22	3.0
Industrial arts, physical education, and science		22	3.0
Industrial arts, driver education, and physical education		20	2.7
Industrial arts, mathematics and science		15	2.0
Industrial arts, physical education, and social studies		10	1.3
Industrial arts, social studies, and science		8	1.1
Industrial arts, driver education, and science		7	1.
Industrial arts, and business		5	.7
Industrial arts, driver education, physical education, and science		5	.7
Industrial arts, mathematics, physical education, and science		4	.6
Industrial arts, driver education, and mathematics		4	.6
Industrial arts, physical education, science, and social studies		4	.6
Industrial arts, and language		3	.4
Industrial arts, mathematics, and physical education		3	.4
Industrial arts, mathematics, and social studies		3	.4
Industrial arts, business, and driver education		2	.3
Industrial arts, business, and mathematics		2	.3
Industrial arts, business, and physical education		2	.3

Table 7. (cont.)

Subject fields	:	Number	: Percent
Industrial arts, driver education, physical education, and social studies		2	.3
Industrial arts, driver education, and social studies		2	.3
Industrial arts, language, and science		2	.3
Industrial arts, business, physical education, and science		2	.3
Industrial arts, and guidance		1	.1
Industrial arts, and library		1	.1
Industrial arts, and religion		1	.1
Industrial arts, agriculture, and science		1	.1
Industrial arts, business, and social studies		1	.1
Industrial arts, language, and mathematics		1	.1
Industrial arts, language, and religion		1	.1
Industrial arts, social studies, and language		1	.1
Industrial arts, mathematics, religion		1	.1
Industrial arts, music, and science		1	.1
Industrial arts, business, physical education, and social studies		1	.1
Industrial arts, driver education, language, and library		1	.1
Industrial arts, driver education, science, and social studies		1	.1
Industrial arts, language, library, and social studies		1	.1
Industrial arts, language, religion and science		1	.1
Industrial arts, mathematics, music, and physical education		1	.1
Industrial arts, physical education, science, and social studies		1	.1
Industrial arts, driver education, mathematics, science and social studies		1	.1
Industrial arts, driver education, physical education, science, and social studies		1	.1
Industrial arts, language, mathematics, physical education and science		1	.1

Table 7 shows one of the different subjects being taught in combination with industrial arts, and the number of teachers teaching these different aggregations. Of the total number of industrial arts teachers in Kansas, 339 teachers (47 per cent) taught industrial arts only. Driver education, physical education, and science were other subjects most frequently taught in combination with industrial arts.

Table 8. The number of teaching fields in which industrial arts teachers were teaching.

Number fields	:	Number teachers	:	Per cent
1 field		339		47.2
2 fields		242		33.7
3 fields		109		15.2
4 fields		24		3.3
5 fields		3		.4

It was difficult to see how some teachers could be doing an adequate job of instruction when teaching in three or more subject fields. With the high qualifications and background needed to teach in each particular teaching field, it is almost impossible for a teacher to be fully qualified to teach in more than two. Besides the knowledge and training a teacher needs, consideration must be given to daily preparation. It takes time to prepare for a class each day, but to prepare for classes in different fields takes even more time. A teacher could not possibly give adequate instruction when teaching in many different teaching fields.

### Conclusions

1. Woodworking was the most frequently taught subject in the industrial arts teaching field; it was taught in 80 per cent of the schools offering industrial arts.
2. Drafting was not offered in as many schools as is advisable.
3. Colleges need to train more teachers to teach general shop.
4. Of the total number of industrial arts teachers, 339 (47 per cent) taught industrial arts only.
5. Driver education, physical education, and science were most frequently taught in combination with industrial arts.



6. Some teachers taught in too many different subject fields to give adequate instruction in all of the subjects which they taught.

### TEACHER TRAINING

Information concerning the states and colleges in which teachers were trained was obtained from principals' organization reports. The college or state in which each teacher began his training was used when compiling this information. This was used because this college or state, in most cases, was the one in which the teacher received the major portion of his training. Colleges attended later were usually those to which the teacher had gone to renew his certificate or to acquire more hours so he could teach some subject outside of his major teaching field.

Table 9. States in which teachers were trained.

State	: Number	: Per cent
Kansas	569	80.3
Oklahoma	57	8.0
Colorado	17	2.4
Missouri	16	2.2
Nebraska	14	1.9
Indiana	4	.6
Iowa	4	.6
Minnesota	4	.6
Arkansas	3	.4
California	3	.4
Illinois	3	.4
Wisconsin	2	.3
Arizona	1	.1
Georgia	1	.1
Michigan	1	.1
Mississippi	1	.1
North Carolina	1	.1
North Dakota	1	.1
Ohio	1	.1
Pennsylvania	1	.1
South Dakota	1	.1
Texas	1	.1
Virginia	1	.1
Washington	1	.1

Most industrial arts teachers in Kansas began their training in colleges located in the state. Oklahoma lead all other states in supplying industrial arts teachers to Kansas; furnishing more than three times as many as any other state. The other three neighboring states were next in providing Kansas with industrial arts teachers.

Table 10. Colleges attended by teachers of industrial arts.

College	: Number	: Per cent
Pittsburg State College	194	34.1
Fort Hays State College	105	18.5
Emporia State College	75	13.2
Kansas State University	56	9.8
McPherson College	31	5.4
Bethel College	21	3.7
Southwestern College	19	3.3
Wichita University	12	2.1
Kansas University	9	1.5
Sterling College	9	1.5
Kansas Wesleyan University	8	1.4
College of Emporia	7	1.2
Topeka Trade School	4	.7
Saint Benedicts College	3	.5
Friends University	3	.5
Bethany College	2	.4
Chanute Junior College	2	.4
Ottawa University	2	.4
Arkansas City Junior College	2	.4
Baker University	1	.2
Coffeyville Junior College	1	.2
Dodge City Junior College	1	.2
Iola Junior College	1	.2
Washburn Municipal University	1	.2

Pittsburg State College trained more industrial arts teachers than any other college in the state. Fort Hays ranked second and Emporia State third. Kansas State University ranked fourth. Many of the teachers trained at Kansas State University were trained for vocational agriculture teaching, but because of the need for general shop in their schools, they were teaching this in combination with vocational agriculture.

Table 11. Semester hours of preparation.

Hours	: Number	: Per cent
115-120	1	.1
110-114	0	
105-109	0	
100-104	1	.1
95-99	1	.1
90-94	3	.4
85-89	7	1.0
80-84	11	1.5
75-79	14	2.0
70-74	23	3.2
65-69	9	1.3
60-64	25	3.5
55-59	29	4.0
50-54	40	5.6
45-49	51	7.1
40-44	73	10.2
35-39	87	12.1
30-34	78	10.9
25-29	67	9.3
20-24	52	7.3
15-19	71	9.9
12-14	15	2.1
8-11	14	2.0
0-7	28	3.9
not reported	17	2.4

The preparation of the teachers was measured in terms of semester hours of college work in the field of industrial arts. Since most of these teachers held degrees, it was likely that most of them had received at least 18 hours in professional courses. The following subject and field requirements were made for teaching industrial arts for the school year 1958-59. (2 p.43)

Class A: Fifteen semester hours in the industrial arts field with five or more semester hours in the subject taught.

Class B: Twelve semester hours in the industrial arts field with five or more semester hours in the subject taught.

Class C: Eight semester hours in the industrial arts field with three semester hours in the subject taught. Two semester hours may be deducted from the field for one or more units in high school work.

Of the 717 industrial arts teachers in Kansas only 74 did not have sufficient semester hours to teach in class A high schools. Twenty-eight of this number were teaching with no degree, and they had little or no college training. They were either teaching with a Trade and Industrial Certificate or had special permission to teach without a degree. Teachers with less than 15 semester hours had sufficient hours to teach in either a class B or C school. There were 17 teachers teaching whose semester hours were not listed. It may have been that some of these teachers didn't have sufficient semester hours, so they were not listed in the principals' organization reports, although there was no way of knowing for certain. Teachers, as a whole, were well prepared for teaching the year this study was made.

In the year 1959-60 the teaching requirements for industrial arts teachers will be: (3 p.48)

Standard: Twenty-four semester hours in the industrial arts field with six or more semester hours in each subject taught.

Minimum: Fifteen semester hours in the industrial arts field with five or more semester hours in each subject taught.

All teachers will be required to have at least 15 semester hours in the industrial arts field. Of the 78 teachers in this study who had less than 15 semester hours, only the 28 who had no degree will not have to return to college for more work. The remaining 50 teachers will have to increase their hours in the industrial arts field in order to continue to teach in an accredited school. Colleges can expect an increase in the enrollment in industrial arts as a result of these higher requirements.

The questionnaire asked, "What would you suggest as an

improvement in college training for industrial arts teachers?" It was a general question that brought out many ideas from the teachers. Since the teachers answering this questionnaire came from many different colleges, the answers given would not mean that all colleges should change in the ways which are suggested here, but they should determine whether or not they are falling short in any of these areas.

Table 12. Teaching problems for which teachers wanted more college instruction.

Problems	:	Number
Buying and selling supplies		17
Grading students		7
Course planning		5
Handling shop discipline		4
Class organization		3
Ways of fitting projects to students		2
How to demonstrate		2
Ways of presenting more classroom material and using fewer projects		2
Amount of time to spend in the classroom		2
Shop safety		1
Ways to improve the shop program		1
Shop layout		1
Ways of working in related information with the shop program		1
Total		49

Forty-nine teachers want more instruction to help solve shop problems. The instruction they suggested could probably be incorporated in courses now being taught in many colleges rather than by adding new courses. They felt more college training would have helped them to handle these problems more easily.

Seventeen teachers indicated that buying and selling supplies was one of their main concerns. They expressed a desire for colleges to offer more information on ordering supplies, on



companies where these supplies could be obtained, and on the handling of finances in their shops. Grading students, course planning, and shop discipline were also of concern to many teachers.

Table 13. Courses in which teachers would like to have had more training.

Course	:	Number
Drawing design		19
Maintenance		12
General shop		10
Finishing		9
Metal work		2
Radio and electricity		1
Crafts		1
Total		54

Nineteen teachers felt college students who are preparing to teach industrial arts should have more training in drawing design. Teachers discovered that they must either plan projects themselves or help pupils plan them. To be able to do this, it was thought that more courses should be offered in drawing design. Seven of these teachers indicated that they were having trouble planning projects, and they expressed the thought that colleges should supply their graduates with plans.

Twelve teachers indicated more training should be given in shop maintenance. Teachers were accountable for their equipment. They found when they began teaching, that they must know more than how to instruct to be good in their work. A shop teacher must be able to keep his equipment in working condition.

Ten teachers indicated that they wanted more instruction in the general shop area. It was assumed that these teachers wanted more variety of courses such as metal, wood, plastics, etc. The

trend towards general shop was indicated in this paper in the section dealing with the subjects which were being taught by industrial arts teachers. Other courses listed in the table, radio and electricity, metal work, and crafts, would be along this same line indicating that teachers desired a large variety of shop work so that they might teach in more areas.

Classes in finishing were desired by nine teachers. With the many different types of finishes now available, it is a problem to decide upon the best type to use. Teachers wanted more information concerning the finishing of projects than they had ascertained in college.

Table 14. Changes in college instruction.

Change	:	Number
More practice teaching		15
More industrial arts courses and fewer education courses		8
More stress on how to get along with the equipment found in the small high school shop.		5
	Total	28

Fifteen teachers indicated that they thought teacher training should include more practice teaching. It was impossible to determine how much they would recommend, since it was not known how much they had received. It is important, however, that teachers indicated practice teaching was useful to them. Several teachers pointed out that practice teaching would have been more beneficial if they had worked in more than one area in their teaching field. Other teachers believed it should have been done in both a large and a small school since they may go to either,

and they will need experience for the school in which they teach.

Some teachers indicated that they desired more industrial arts courses and fewer general education courses. It was assumed that they would want information they learned in the general education courses to be included in more industrial arts courses which would deal with the specific problems found in the industrial arts shop rather than with problems concerning other teachers in the school.

Five teachers pointed out that college students should have training enabling them to manage poorly equipped high school shops. Most colleges are well equipped with modern machines. Often when teachers leave the well-equipped college shop and go into the small high school, they discover that machines they had become acquainted with are not available, and often do not know how to use the hand tools which must replace them.

### Conclusions

1. Most industrial arts teachers teaching in Kansas were trained in the state.
2. Kansas received 8% of its industrial arts teachers from Oklahoma.
3. Pittsburg State College trained more of Kansas' industrial arts teachers than any other college.
4. Most teachers had more semester hours preparation than the minimum required for class A schools.
5. Teaching requirements for industrial arts teachers were to be raised for the 1959-60 school year.



6. College students who plan to teach industrial arts should have more training in industrial arts methods courses. The most desired methods course was buying and selling supplies.
7. Prospective industrial arts teachers need more training in drawing design.
8. College students who plan to teach industrial arts need training in shop maintenance.
9. Prospective teachers need more variety of shop courses.
10. College students who plan to teach industrial arts need more training in finishing courses.
11. Teachers indicated that practice teaching was helpful and useful to them.
12. Colleges should place more stress on management in poorly equipped high school shops.

#### SHOP FINANCE

The handling of shop finance is an integral part of teaching high school industrial arts courses. Wilber says the following about the teachers financial dealings: (17 p.246)

Teachers should be particularly careful in keeping accurate records of all financial matters related to the school shop. Frequently a teacher's reputation and standing in the school and community may depend on his ability to demonstrate clearly the disposition of funds which he has collected for projects, materials, etc. Whatever else a teacher may do or leave undone, his record of financial dealings should be clear and accurate. The major records in this category are: money received, money turned over to the school, and money paid out.

There were many different methods of handling money used by Kansas high school teachers. The information given here was obtained by the questionnaire included on page 36 of the appendix.

Table 15. Time at which students paid for projects.

The time	: Number	: Per cent
Student paid full amount when project was completed	148	69.5
Students paid a part of the estimated project cost before beginning the project.	18	8.5
A deposit was made when the project was begun, then the student paid the full amount upon completion of it.	13	6.1
Student was charged as he used material.	11	5.1
Student paid the full estimated project cost before beginning the project.	7	3.3
Student paid at his convenience.	6	2.8
A deposit was made at the beginning of the year; then students paid the difference at the end of the year.	5	2.3
Project cost was paid at fixed intervals.	3	1.4
No charge was made for materials used.	1	.5
No answer	1	.5
Total		213

The most prevalent time of payment for a project was upon completion. This was probably the easiest way of collecting the money, since by using this method only one payment was received, simplifying bookkeeping considerable for the instructor.

In other schools the project cost was estimated, and money was collected before the project was begun. Two different variations of this method were used. The values of using this plan were (1) it gave the school money in the shop fund with which to buy material before the project was begun, (2) the student had to plan his project thoroughly before beginning, (3) the student realized what the project would cost and could get his parents consent before beginning, and (4) in estimating the project cost the materials were also estimated, thus giving the instructor a chance to see that all desired materials could be obtained before they were needed.

Although all of these advantages were not evident when the student paid the full amount upon completion of the project, the thorough planning of a project before beginning would insure the instructor of the same advantages except that no money would be forthcoming in the shop fund before the project was completed.

Another method used in 13 schools evinced a system of making a fixed deposit at the beginning of the year and paying for the project upon completion. In this way the shop had money to use during the year, and only two payments were made, the deposit and the balance.

The system used in which students were charged for material as they used it was favored by some instructors because each student was charged for what he actually used rather than for the estimated amount when beginning or completing a project. The disadvantage of this method was that the instructor and the student must take time to figure the cost of each material before it was used. This method was used in only 11 schools.

Fourteen other techniques were used. Some of these may work well for one teacher but wouldn't work for another. When deciding upon a payment plan, it must be remembered that: (11 p.126) "when money is paid, the teacher should be very careful to use a method of collecting money that will free him from all criticism and suspicion." The teacher must decide upon an effective method for his own situation.

In 111 schools the teacher handled the money, and in 95 schools the administrator or his office handled it. Some feel strongly that money should be handled in the administrator's

Table 16. The person responsible for collecting project money.

The person	: Number	: Per cent
Teacher	111	52.1
Administrator	95	44.6
Both the teacher and administrator	4	1.8
Student book store	1	.5
No money was collected	1	.5
No answer	1	.5
Total		213

office by someone who is bonded and hired for handling finances. The shop instructor is hired to teach industrial arts and should not have his time consumed with matters which someone else in the high school is paid to do. In Jones' book he states (11 p.128)

Do not pay the teacher. "There is danger of adverse criticism of the teacher if he collects money from the pupils. The office of the school may collect all of the project money, thereby saving the instructor much time in keeping records and freeing him from the job of collecting the money himself."

Table 17. How the administrator collected money.

Method used	: Number	: Per cent
The bill was given to the administrator, and the student paid at the administrator's office	55	55.5
Shop cards were used.	39	39.3
Used shop cards and sent bill to office	5	5.0
Total		99

Table 17 shows how the administrator collected money. In 55 cases the teacher sent the bill to the office, and the student paid the amount shown on it. This method was the easiest for the teacher to use, although it was sometimes hard for the student to pay a large amount at one time. Another disadvantage was that the



schools using this method did not take any money into the shop fund before the project was completed, as was desired because of the need for working capital.

In 39 cases the students bought shop cards from the administrator's office, and the shop instructor punched the amount that the student owed from the shop card. The advantages of the shop card method were: (1) the student took in money before the project was completed, (2) the student could make small payments at intervals as he was working on the project and (3) the shop card was a receipt for the students payment. Two disadvantages of this method were: (1) that the teacher had to punch the card each time some material was used, and (2) the card had to be available whenever material was purchased.

Table 18. Schools in which cost of materials needed to balance with departmental receipts.

Must they balance?	: Number	: Per cent
Yes	128	60.0
No	80	37.5
Try to come out ahead	2	.93
No answer	3	1.4
Total		213

The majority of teachers reporting were required to balance the amount of money spent for materials with departmental receipts. It is not possible to balance these unless students pay for all materials used. If all students are to receive equal educational opportunities some materials should be supplied without cost.

Jones' book gives the following suggestions for supplying free materials: (11 p.126)

One (teacher) suggests that each pupil be allowed a certain amount of material free: "No money should be collected from the pupils for supplies used in shop courses unless it is for something special that they want to make and not included in the regular course of study."

Another teacher agrees: "Set a fixed amount of material as a semester allowance for each pupil. The pupils and their parents must understand that if this amount is exceeded, the extra amount must be paid for by the pupil."

Schools should provide educational opportunities in the industrial arts field that are equal for all students. When payment is necessary for something special, it should be handled by someone other than the industrial arts teacher.

#### Conclusions

1. Most schools collected money from students when projects were completed.
2. When deciding upon a payment plan, the teacher should be careful to use a method that will free him from all criticism and suspicion.
3. Money collected from students should not be collected by the teacher.
4. The favored method when the administrator collected money was for the student to pay the bill in the office. The next most favored method was for the administrator to sell shop cards to the students.
5. In most shops the money spent for materials must balance with departmental receipts.
6. Shops should not be required to balance the money spent for materials with departmental receipts.

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## APPENDIX

Dear (name of teacher):

Have you ever wondered how your shop program compares with others in the State? In return for your filling out this brief data sheet I will be glad to send you a summary of the data for Kansas. Most of the items need merely to be checked. You can return the material by refolding so that my address and the return postage is on the outside. This study has been approved for my thesis and I would very much appreciate your returning it before February 12, 1959.

Please check the statement that fits your particular school.

How do students pay for projects?

- ☐ a. Students pay full amount when project is completed.
- ☐ b. Students pay full estimated project cost before beginning the project.
- ☐ c. Students pay a percentage of the estimated project cost before beginning the project.
- ☐ d. Another method is used. (please explain)

Who takes in money for projects?

- ☐ a. Teacher
- ☐ b. Administrator or his office

If the administrator handles money what method is used?

- ☐ a. Bill for project is given to administrator and students pay in the office.
- ☐ b. Shop cards are used
- ☐ c. Other (please explain)

Financial study of the shop.

yes ☐ Must money spent for material to be used by the students  
no ☐ balance with money taken in from the students at the end of the year.

I would also appreciate your answering as many of these as you would care to.

What would you suggest, if anything as an improvement in college training for industrial arts teachers?

Do you have any favorite teaching techniques that you feel would help others?

What kind of shop did you report on?

- ☐ wood
- ☐ Ge. shop
- ☐ Sheet metal
- ☐ Machine shop
- ☐ other (please list) \_\_\_\_\_

Thank you,

Alvin Ohnmacht

[illegible]

1st.	2nd.
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

Boys enrolled \_\_\_\_\_ Total enrolled \_\_\_\_\_

7th grade M.T.

8th grade M.T.

Woodwork I

Woodwork II

Mechanical Dr.

General Shop

## Auto Mechanics

## Printing

Teacher.	1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.
----------	------	------	------	------	------	------	------	------	------

Teacher Salary	This	Other	school	College	& year	ject	in	Subj.	in	field
	Years exp.	Last	Degree	Sub-	Sem.	Hrs.	Sem.	Hr.		

[illegible]



February 18, 1959

Dear Sir:

Two weeks ago you were sent a questionnaire which is the basis of a study I am making for my thesis. To date I have not heard from you.

Since I am anxious to make this study represent Kansas high schools, it is very important that you reply. I hope to receive your reply very soon.

Thank you,

Alvin Ohnmacht

A STUDY OF INDUSTRIAL ARTS TEACHERS TEACHING  
IN KANSAS DURING THE SCHOOL YEAR 1958-59

by

ALVIN EUGENE OHNMACHT

B. S., Fort Hays State Teachers College, 1954

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AN ABSTRACT OF A THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Industrial Engineering and Industrial Arts

KANSAS STATE UNIVERSITY  
OF AGRICULTURE AND APPLIED SCIENCE

1959

PURPOSE: This study was designed to find information concerning Kansas teachers of industrial arts. The information given relates of the salaries these teachers were receiving, the training of these teachers, the subjects which they were teaching, and how they handled shop finances.

The information given is useful to the instructor, superintendent, and school board, who are planning new or different industrial arts programs and in determining salary schedules, to teacher training colleges in setting up their curriculums to meet the needs of Kansas secondary schools, in advising prospective teachers concerning the opportunities of teaching industrial arts, and to the author in finding how other teachers handled some common problems found in high school shops to help him determine the best ways of handling these problems himself.

PROCEDURE: Information was obtained by two different methods. Questionnaires were sent to different schools throughout the state to obtain information regarding the handling of money in industrial arts shops and to determine in what manner teachers on the job thought college preparation for industrial arts teachers could be improved.

Information concerning teachers' salaries, teachers' training and subjects taught was obtained from high school principals' organization reports at the State Department of Accreditation, Topeka, Kansas.

DOCUMENTARY INFORMATION: A directory of industrial arts and vocational personnel in Kansas was prepared. This documentary information is filed at the office of Industrial Engineering and

Industrial Arts at Kansas State University. In this can be found the name of the school, its classification, the name of the teacher, the salary, the years experience, the degree held, the college attended, extra duties of the teacher, and the classes taught.

SUMMARY OF FINDINGS: The study of salaries takes into consideration the degree held, the extra duties, and the years of experience of each teacher. These considerations were made to give proper perspective to this study since each has a bearing on the salary received.

In the study of subjects and subject fields taught particular attention was given to the different industrial arts subjects taught in each high school in the state as well as to what each teacher taught. The subjects teachers were teaching in other fields was also noted. Some were teaching in several different teaching fields, some were coaches, and some were administrators. This had a definite effect on the amount of time the teacher was devoting to industrial arts.

In studying the teachers' training attention was given to the semester hours of industrial arts of each teacher, the Kansas colleges in which teachers were trained, and the different states in which others were trained. This section also includes a study of the courses in which industrial arts teachers felt they should have had more training while in college.

The handling of shop finance is an integral part of teaching high school industrial arts courses. In this thesis information collected by questionnaires from 213 different Kansas high schools

concerning shop finance was presented. The information includes the time students paid for projects, who collected the money, what methods were used to collect it, and the balancing of shop funds.