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Industrial arts libraries in Kansas high schools

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INDUSTRIAL ARTS LIBRARIES IN KANSAS HIGH SCHOOLS

A Problem Submitted to the Graduate Division in Partial
Fulfillment of the Requirements for the
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ABSTRACT

The problem, "Industrial Arts Libraries in Kansas High Schools," is the result of the writer's interest in a study of this kind resulting from his past teaching experience. Additional incentive was due to discussions with fellow students since entering Kansas State Teachers College, Pittsburg, relative to the kinds of instruction materials they had used for effective teaching.

It is an effort to show a "picture" of the industrial arts library facilities for the school year of 1950-51. The data gathered show class room enrollments together with instruction materials, book collections for use by industrial arts classes, expenditures for materials for the general library and for industrial arts materials, the extent to which projection materials are available in the school, and a list of industrial arts library books.

Criteria for the evaluation of the library were secured from various library sources. Industrial arts library information was secured from 140 completed questionnaires returned from Principals, Superintendents, or Industrial Arts teachers in the State of Kansas.

The average number of books available for each student enrolled in high school was 10.5 books, which is a good average according to set standards. Industrial arts books constituted only 3.4% of this average. Expenditures for books in general amounted to $1.31 per pupil as compared to $1.50

minimum annual appropriation per pupil set up by the state for a school of 178 enrollment. The amount spent per pupil for industrial arts books was 7.4 cents or only 5.5% of the total expenditures. Libraries containing projection materials were few and scattered.

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CHAPTER I

INTRODUCTION

Statement of the Problem

This study is a survey of the Kansas high school libraries in the field of industrial arts. Taken into consideration are the number of volumes pertaining to industrial arts, the amount of money spent for industrial arts library books, magazines subscribed to, and a comparison made of these to standards set up by various agencies giving library standards.

Need for the Study

Changes are occurring in the field of industrial education. Several studies relating to libraries and textbook standards have been made which should be helpful to the industrial arts teacher going out into the field. Bridges[1] suggested that his study may point out the importance of books in the industrial arts field and has compiled a list of industrial arts books to aid instructors in the selection of books. Coltharp[2] in his study suggests criteria for eval-

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[1]P. W. Bridges, "A Proposed List of Books for an Industrial Arts Library with Suggested Criteria for Evaluation" (unpublished master's thesis, Kansas State Teachers College, Pittsburg, Kansas, May, 1950).

[2]R. J. Coltharp, "Textbooks in Industrial Arts Education" (unpublished master's thesis, Kansas State Teachers College, Pittsburg, Kansas, August, 1939).

uating books such that proper selection can be made.

It would seem that the industrial arts instructor should know what to expect in the teaching field as to the type and number of books that he will have available. The experience of the writer, in teaching industrial arts in several of the smaller Kansas high schools, has led him to believe that industrial arts libraries are somewhat inadequate to the teaching of the necessary related information.

Purpose of the Study

The purpose of this study is to find out the industrial arts library conditions in Kansas high schools. The study is also designed to determine the location of the industrial arts books. Are the books in the general library of the school, the departmental library, or in the instructor's personal library?

It is hoped that the recipients, of the questionnaire used in the study, were made aware of the large number of new industrial arts books available which would be valuable for instruction purposes.

This study may also call to the attention of the instructors who read it the need for proper book selection. A large share of the responsibility for book selection should be left to the instructor. Knowing the general library conditions, the instructor will be able to properly prepare himself for making the proper selections when called upon.

Method used in the Study

The survey method was used in this study. A questionnaire was prepared and sent to the principals or superintendents of the high schools in the State of Kansas. A copy of the questionnaire is to be found in the appendix, pp. 59 - 61.

Included in the questionnaire was a check list of industrial arts books of recent publication. The check list was drawn from the list of reference material found in the Kansas Tentative Guide to Teaching Industrial Arts[3]. Space was also provided for respondents to list any additional references they felt had definite worth in the field of industrial arts. A section of magazines was also included.

The value of the library is not determined by the number of books alone. Other standards have to be used to actually find the full value. One section of the questionnaire dealt with the amount of money spent for books in the school and the money spent for industrial arts books during the last three years. Various organizations stipulate the amount of money which should be spent to maintain a good library.

Questions pertaining to the visual aids used in the school were included in the questionnaire. The object was to determine the frequency with which schools are setting up this valuable aid in the teaching of industrial arts.

Data on sizes of industrial arts classes were asked for

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[3]Kansas. State Department of Education, Kansas Tentative Guide to Teaching Industrial Arts, Topeka, Kansas, 1949.

so that some relationship between industrial arts libraries and general libraries could be made.

A total of 564 questionnaires were sent to the senior high schools of Kansas with enrollments of 25 and over. Two hundred and two questionnaires, 35.8% of the total sent, were returned in time to be used in the tabulations. Of the 202, 62 were not completed for various reasons. The fact that industrial arts was not being taught was the most prevalent reason. The study is based on the 140, 24.8% of the number of questionnaires sent, completed returns which are quite representative of the state as a whole.

Similar and Related Studies

Two studies were examined by the writer bearing upon industrial arts library conditions. The titles of these studies are: "Industrial Arts Libraries in the Public Senior High Schools of Central Illinois", by Willis O. Harms, Iowa State College, 1937, and "A Survey of the Industrial Arts Libraries in the Junior and Senior High Schools with an Enrollment of 200 or Over, Located in the Western Half of Iowa", by Frank M. Everhart, Iowa State College, 1933. These studies helped in formulating the problem under consideration.

At Kansas State Teachers College, Pittsburg, "A Proposed List of Books for an Industrial Arts Library with Suggested Criteria for Evaluation", by Paul W. Bridges was of material use. This study was particularly valuable in verifying titles of books listed, by the respondents, in the ques-

tionnaire. "Textbooks in Industrial Arts", by Raymond J. Coltharp, and "A Study of the Libraries of Industrial Arts Teachers and More Particularly those doing Graduate Work at Pittsburg During the Summer of 1937", by J. Thompson Kerr, were valuable in suggesting criteria for the evaluation of industrial arts books.

CHAPTER II

PURPOSES OF AND STANDARDS FOR THE EVALUATION OF LIBRARIES

Fairly rapid changes have been taking place in the educational program in the United States. There is no question that the library is beginning to play a more important role in meeting this situation. "The growing recognition of the potentialities of school library service as an instrument of education is giving the library a new significance in our modern educational program and elevating it to a position of major importance."[1]

It is necessary at this point to consider some of the recent trends in industrial education which would tend to affect the library service needed. The Kansas Tentative Guide to Teaching Industrial Arts[2] lists a number of the more important trends. Those which relate to this study are:

> (1) Trend toward integration of industrial arts with other school subjects to meet the objectives of general education.
> (2) Trend toward the development of the individual rather than teaching of subject matter.
> (3) Trend toward changing the nature of the industrial arts program toward general laboratory organization.
> (4) Trend toward better instruction.
> (5) Trend toward broader use of visual aids in instruction.
> (6) Trend toward industrial arts changes to coincide with school developments.

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[1] H. L. Cecil and W. A. Heaps, School Library Service in the United States (New York: H. W. Wilson Company, 1940), p. 11.

[2] Kansas. State Department of Education, Kansas Tentative Guide to Teaching Industrial Arts, Topeka, Kansas, 1949, pp. 6-8.

(7) Trend toward pupil guidance.
(8) Trend toward teaching industrial arts in five great areas -- power, transportation, communication, construction, and manufacturing.

These trends would further indicate the need for adequate library materials properly arranged and readily available for student and teacher use.

Considerable data are available to indicate the vast increase in the number of students in the secondary school. The percentage of youth of secondary school age enrolled in school in the United States is as follows: "In 1890 the proportion was only one-fifteenth approximately, in 1900 it was one-ninth, in 1910 one-sixth, in 1920 slightly over one-third, in 1930 close to one-half, and....1939, it is just over two-thirds."[3] This is an increase of from approximately 200,000 to over 6,000,000 students.

Formerly a select few were being educated in the secondary school and more specifically those interested in higher education. The secondary school long has been college preparatory in nature. It is a commonly accepted fact that physical and mental characteristics of individuals differ, so also the needs and interests of students will vary. Increased secondary school enrollments would intensify the problem of meeting the needs of larger numbers of students. Adequate libraries, containing well selected materials, would tend to increase the number of students whose needs are being met.

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[3] C. W. Odell, The Secondary School (Champaign, Illinois: The Garrard Press, 1939), p. 97.

What are the objectives of the library? In summarizing the chapter on "Backgrounds and Objectives", Fargo[4] lists the following seven objectives:

(1) To acquire suitable library materials and organize them for the use of pupils and teachers.
(2) To provide through organization and intelligent service for:
    (a) curriculum enrichment
    (b) pupil exploration
    (c) a growing realization of the library as the tool of intellectual achievement.
(3) To teach the skilful use of books and libraries in the interests of research.
(4) To create an atmosphere favorable to the growth of the reading habit.
(5) To stimulate appreciations.
(6) To demonstrate the desirability of books and libraries as the companions of leisure.
(7) To provide fruitful social experience.

To further supplement this list of objectives Edmonson[5] lists the following:

(1) To promote their use, through stimulation and guidance.
(2) To provide children, youth, and adults an opportunity and encouragement to educate themselves continuously.
(3) To aid in the advancement of knowledge.
(4) To preserve the precious heritage of freedom of expression.
(5) To promote a constructively critical attitude toward all public issues.

How can we after the consideration of the above factors neglect, or fail to realize, the importance of the library in the school?

Two types or kinds of standards should be considered in the evaluation of the school library. These standards are

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[4]Lucile F. Fargo, The Library in the School (Chicago, Illinois: American Library Association, 1933), p. 21.

[5]J. B. Edmonson and others, The Administration of the Modern Secondary School (New York: The Macmillan Company, 1950), p. 439.

of a quantitative and of a qualitative nature. In the consideration of the quantitative standards the following minimum amounts for the support of the library, Table I, are suggested by the Kansas State Department of Education.[6]

TABLE I

MINIMUM STANDARDS RECOMMENDED
FOR THE SUPPORT OF THE LIBRARY

Number of Students	Initial Appropriation	Annual Appropriation per pupil
50 or less	$200.00	$2.00
51 - 150	300.00	1.75
151 - 250	400.00	1.50
251 or more	500.00	1.50

The North Central Association of Colleges and Secondary Schools, The Southern Association of Colleges and Secondary Schools, and The New England Association of Colleges and Secondary Schools suggest similar amounts.

Table II, p. 10, is an adaptation of a table in which Douglas[7] summarizes quantitative standards for school libraries, and is used for further indicating library requirements.

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[6]Kansas. State Department of Public Instruction, Kansas Secondary School Handbook, Topeka, Kansas, p. 43.

[7]Mary P. Douglas, The Teacher-Librarians Handbook (Chicago, Illinois: American Library Association, 1949), p. 8.

TABLE II

SUMMARY OF QUANTITATIVE STANDARDS
SUGGESTED FOR SCHOOL LIBRARIES

General
Personnel: 1 full-time librarian with college year of library training to serve up to 500 pupils and 1 for each additional 500 pupils. 1 clerical assistant to serve up to 1,000 pupils and 1 for each additional 1,000 pupils. Collection: Books, periodicals, information file, and audio-visual materials organized for service. Library Quarters: Reading room, workroom, and storage as minimum, with conference room recommended.

School Enrollment	Minimum Number Titles	Minimum Number Volumes
200	1,700	2,000
500	3,500	5,000
1,000	5,000	7,000
2,000	6,000	10,000

Southern Association High School library requirements are as follows:

1. Enrollment of 100 or fewer pupils. Basic collection of 500 well-selected books, exclusive of duplicates, government documents, and textbooks, to meet curricular needs and needs for recreational and inspirational reading. In addition, one set of encyclopedia copyrighted within a ten-year period and one unabridged dictionary, both of which are listed in the "Standard Catalog for High School Libraries", should be provided. One good general newspaper in addition to a local one and 5 to 10 well-selected periodicals for pupils' use should be provided.
2. Enrollment of 101 to 300 pupils. Basic collection of

500 to 1,500 well-selected books as specified in (1), averaging 5 per pupil, approved encyclopedia and unabridged dictionary, a good general newspaper in addition to a local one, and 10 to 20 well-selected periodicals for pupils' use.

3. Enrollment of 301 to 500 pupils. Basic collection of 1,500 to 2,500 well-selected books of the types specified in (1), averaging 5 per pupil, encyclodedia, unabridged dictionaries, newspapers, and 20 to 30 periodicals suitable for pupils' use.

4. Enrollment of 501 to 1,000 pupils. Basic collection of 2,500 to 5,000 well-selected books of the types specified in (1), averaging 5 per pupil, encyclopedias, unabridged dictionaries, newspapers, and 30 to 50 periodicals suitable for pupils' use.[8]

This study is primarily concerned with industrial arts library facilities, but it is necessary to consider total library facilities to arrive at some basis of comparison. Previous studies have been made to aid in the evaluation of book collections for the field of industrial arts. Coltharp[9] in his evaluation of the industrial arts textbook would consider the following factors:

1. The physical make-up of the textbook.
2. The publisher.
3. The author.
4. The preface.
5. The table of contents.
6. The content.
7. The index.
8. The price.

These factors should be quite applicable to the library books which are to be used to supplement the students' reading.

Additional aid can be secured in the selection of li-

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[8] Ibid., p. 11.

[9] R. J. Coltharp, "Textbooks in Industrial Arts Education" (unpublished master's thesis, Kansas State Teachers College, Pittsburg, Kansas, 1939), p. 47.

brary books by examining Bridges'[10] thesis entitled, "A Proposed List of Books for an Industrial Arts Library with Suggested Criteria for Evaluation". In this thesis 5,000 industrial arts books are listed which have been published since 1935 including 1949. Books of earlier publication dates would not have as much value for present day reference material. This thesis indicates that a large number of books have been published recently. New fields in industrial arts have been opened, and many of the books should be found in the school library to supplement the students' reading.

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[10] P. W. Bridges, "A Proposed List of Books for an Industrial Arts Library with Suggested Criteria for Evaluation" (unpublished master's thesis, Kansas State Teachers College, Pittsburg, Kansas, 1950).

CHAPTER III

INDUSTRIAL ARTS LIBRARY FACILITIES

Introduction

In this chapter an examination will be made of the data gathered in the questionnaire, and a "picture" of library conditions in Kansas high schools will be given. Tables will be used in the presentation of the data.

The areas examined are:

1. The enrollment data. This includes the total school enrollment, and the industrial arts class enrollments.
2. Book collection data. The number of books in the school's general library, industrial arts books in the general library, books in the departmental library, and books in the instructor's personal library are considered.
3. The money spent on books for the school and the departmental libraries.
4. Film libraries in the school.

Enrollment data

Generally the standards set up for the evaluation of a library are based on the number of students in the school. The total enrollments of the schools participating in the

study were obtained from the Kansas Educational Directory[1]. Table III shows the distribution of school enrollments.

TABLE III

DISTRIBUTION OF SCHOOL ENROLLMENTS

Size of the School	Frequency	Per cent
26-50	46	32.9
51-100	30	21.4
101-200	29	20.7
201-300	14	10.0
301-400	4	2.9
401-500	7	5.0
501-600	2	1.4
601-700	2	1.4
701-800	1	0.7
801-900	0	0.0
901-1,000	1	0.7
1,000 and over	4	2.9
Totals	140	100.0

From Table III it is found that 75% of the schools had enrollments of under 200 students. This would indicate that the majority of the schools in Kansas are relatively small.

[1]Kansas. State Department of Public Instruction, Kansas Educational Directory, 1950-1951 (Topeka: State Department of Public Instruction), pp.12-56.

An enrollment of twenty-six was the smallest school reporting, and 1801 was the largest school. Including all of the schools reporting, the total enrollment was 24,961, giving an average of 178.3 pupils per school. The small number of large schools raised the average school enrollment considerably.

Total industrial arts enrollment per school ranged from 4 to 320 students. Table IV gives the total industrial arts enrollment on a school basis.

TABLE IV

TOTAL INDUSTRIAL ARTS ENROLLMENT PER SCHOOL

School's Industrial Arts Enrollment	Number of Schools Reporting this Size	Per cent
1-20	46	34.6
21-40	30	22.5
41-60	19	14.3
61-80	15	11.3
81-100	6	4.5
101-120	5	3.8
121-140	2	1.5
141-160	1	0.7
161-180	4	3.0
181 and over	5	3.8
Totals	133	100.0

Ninety-five per cent of the schools reported their industrial arts enrollment. Totaling the enrollments of all the schools gave a figure of 6737 students. This figure is in error because there is no question that some of the students are duplicates in some other industrial arts class. If there were no students in any of the schools enrolled for more than one industrial arts class this would give an average industrial arts enrollment of 50.7 students per school. Under these conditions, 27.3% of the total school enrollment was enrolled in industrial arts subjects.

TABLE V

CLASS SIZE OF INDUSTRIAL ARTS SUBJECTS TAUGHT

Subject	No. of Times Subj. Reported	Total No. Students	Average Class Size
Woodwork I	164	2182	13.0
Woodwork II	109	1283	11.8
Drawing	71	1107	15.6
Woodwork III	26	308	11.8
General Shop I	24	353	14.7
Metal Work	14	268	19.1
Auto Mechanics	12	189	15.8
Crafts	7	75	10.7
Industrial Arts I	6	74	12.3
Printing	6	114	19.0
Trades	6	146	24.3

TABLE V (Con'd)

CLASS SIZE OF INDUSTRIAL ARTS SUBJECTS TAUGHT

Subject	No. of Times Subj. Reported	Total No. Students	Average Class Size
Welding	6	53	8.8
Wood Turning	5	16	3.2
General Shop II	4	47	11.8
Home Mechanics	4	60	15.0
Mill & Cabinet Work	4	59	14.8
Farm Shop I	3	27	9.0
Industrial Arts III	3	24	8.0
Sheet Metal	3	56	18.3
Advanced Drawing	2	14	7.0
Electricity	2	45	22.5
Machine Shop	2	75	37.5
Upholstery & Metal	2	15	7.5
Vocational Carpentry	2	45	22.5
Machine Woodwork	2	32	16.0
Farm Shop II	1	7	7.0
General Shop III	1	30	30.0
Industrial Arts II	1	13	13.0
Industrial Arts IV	1	12	12.0
Woodwork for Girls	1	8	8.0

Ninety-five per cent of the schools reported thirty

industrial arts subjects a total of 494 times. The most frequently taught subject was elementary woodwork, which occurred 164 times, indicating that the enrollment in this subject was sufficiently large in many schools to make it necessary to have more than one section. It was difficult to determine the largest single class in any one subject because in many cases the totals for the sections was given rather than in the one class period. The smallest class was one student enrolled, and it would be indicated by the low class average, 13.6, that many of the classes were of enrollments less than ten. The average number of industrial arts classes per school was 3.5.

Book Collection Data

The extent to which text books are used in the industrial arts subjects is shown in the following table. Thirty industrial arts subjects were reported in the questionnaire. The ten most frequently reported subjects appear in Table VI.

TABLE VI

FREQUENCY OF USE OF TEXTS IN REPORTED INDUSTRIAL ARTS SUBJECTS

Subject	Frequency Reported	Most Used Text	Frequency of Use	No Text Used	Per cent of Classes Using Text
Woodwork I	164	Hand Woodwork (Douglas & Roberts)	105	24	64.0

TABLE VI (Con'd)

FREQUENCY OF USE OF TEXTS IN REPORTED INDUSTRIAL ARTS SUBJECTS

Subject	Frequency Reported	Most Used Text	Frequency of Use	No Text Used	Per cent of Classes Using Text
Woodwork II	109	Hand Woodwork (Douglas & Roberts)	35	32	32.1
Drawing I	71	Mechanical Draw. Prob. (Berg & Kronquist)	14	6	19.7
Woodwork III	26	Hand Woodwork (Douglas & Roberts)	8	10	30.8
General Shop	24	"	3	14	12.5
Metal Work	14	None out-standing		9	
Auto Mechanics	12	Automotive Essentials (Kuns)	5	1	41.7
Crafts	7	Leathercraft (Cherry)	2	5	28.6
Printing	6	Practice of Printing (Polk)	2	4	33.3
Welding	6	None out-standing		4	

The indications are that no particular text predominated in any of the industrial arts subjects except in the case of Woodwork where Units in Hand Woodworking by Douglas and

Roberts definitely stood out. Most authorities on industrial arts would probably agree that the composite shop would be the most suitable for the majority of the schools of the size surveyed in this study. It might be noted that in the case of General Shop, Hand Woodwork by Douglas and Roberts was being used as a text. In all probability this is not the best selection for a text for this course, and greater care should be used in book selection for class and reference work. Only 26.7% of the industrial arts courses were taught without the use of a text, indicating that the majority of the instructors felt the text had value in teaching shop work.

TABLE VII

NUMBER OF BOOKS IN THE GENERAL LIBRARIES

Number of Books	Frequency with which Number Occurred	Per cent
1-500	8	6.5
501-1,000	44	35.8
1,001-1,500	25	20.3
1,501-2,000	9	7.3
2,001-2,500	6	4.9
2,501-3,000	9	7.3
3,001-3,500	3	2.4
3,501-4,000	4	3.3
4,001-4,500	1	0.8
4,501-5,000	5	4.1

TABLE VII (Con'd)

NUMBER OF BOOKS IN THE GENERAL LIBRARIES

Number of Books	Frequency with which Number Occurred	Per cent
5,000 and over	9	7.3
Totals	123	100.0

Not all of the respondents indicated the number of volumes within their libraries. Only 87.9% of the 140 respondents gave data on the question pertaining to the total number of volumes in the school library. The figure was not to include duplicate copies, only the number of titles.

Quite a variation in the number of titles was found with the smallest number of books being 5, and the largest number being 10,500. The average number of titles per school was 1877.5. In this case we find that an exceedingly large number of titles, in a few of the large schools, raises the average considerably. There is a high average and yet we find that approximately 70% of the schools had 2,000 or less titles in their library. The average number of titles per student, on the basis of the returns, was 10.5.

TABLE VIII

INDUSTRIAL ARTS BOOKS IN THE GENERAL LIBRARY

Number of Books	Frequency with which Number Occurred	Per cent
1-10	38	34.5
11-20	29	26.4
21-30	12	10.9
31-40	6	5.5
41-50	7	6.4
51-60	1	0.9
61-70	2	1.8
71-80	5	4.5
81-90	1	0.9
91-100	2	1.8
101 and over	7	6.4
Totals	110	100.0

The number of schools reporting on industrial arts books in the general library was equal to 78.6%. The least number of industrial arts books in the general library was 2, whereas the largest number reported was 600. This gave an average of 36.2 industrial arts books in the general library per school. It is apparent that this average is high, because of several large figures reported. The Table indicates that slightly over 70% of the schools had 30 or less industrial

arts books in the general library. Previously it was determined that the industrial arts enrollment was 50.7 students per school. Under these conditions only 0.7 industrial arts book was available per student enrolled in industrial arts.

Table IX gives the number of books in the departmental libraries.

TABLE IX

NUMBER OF BOOKS IN THE DEPARTMENTAL LIBRARIES

Number of Books	Frequency with which Number Occurred	Per cent
1-10	34	33.0
11-20	35	34.0
21-30	15	14.5
31-40	3	2.9
41-50	5	4.9
51-60	0	0.0
61-70	3	2.9
71-80	5	4.9
81-90	0	0.0
91-100	0	0.0
101 and over	3	2.9
Totals	103	100.0

Departmental libraries were quite common in Kansas high schools as 73.5% of the schools reported the number of books

in the industrial arts departmental library. A range of from 2 books to 240 books was found in the departmental libraries. The average number of books per industrial arts departmental library was 25.8. This is an average of 0.5 book per student enrolled in industrial arts.

TABLE X

NUMBER OF BOOKS IN PERSONAL LIBRARIES

Number of Books	Frequency with which Number Occurred	Per cent
1-5	37	33.3
6-10	48	43.3
11-20	15	13.5
21-30	7	6.3
31-40	1	0.9
41-50	2	1.8
51-60	0	0.0
61-70	1	0.9
71 and over	0	0.0
Totals	111	100.0

A majority of the industrial arts instructors used their own books for reference material in the industrial arts class as is indicated by the 79.3% of the instructors that reported on this question. An average of 10.3 books per school was available in the instructors personal li-

brary. The range in the number of books was from 1 to 69. Making the calculation as on previous tables, it was found that 0.2 book per student was available through this source.

By taking the average number of industrial arts books in the various libraries together, an average of 1.4 books per student enrolled in industrial arts would be available.

In connection with the checking of books available in the school, the question was asked as to what per cent of the books listed in the Kansas Tentative Guide to Teaching Industrial Arts were available in the libraries of the school. The following summarizes the returns: Thirteen schools reported. The range in percent was from 0.05% to 100%, an average of 23.8%. The frequency of reply makes this a very invalid phase of the study. The only value of the question apparently was that it did call to the attention of a number of instructors that such a bulletin was available.

Money Spent for Books

Standards have been set up in regard to amounts of money, on a per pupil basis, should be spent to maintain an adequate library. In order to obtain a representative picture of monies spent for library books, amounts spent over a period of the last three years were requested.

Table XI, p. 26, gives the amounts of money spent for library books in general.

TABLE XI

MONEY SPENT FOR BOOKS FOR THE GENERAL LIBRARY

Amount in Dollars	Frequency with which Amount Reported	Per cent
$ 1-100	10	10.3
101-200	13	13.4
201-300	28	28.9
301-400	4	4.1
401-500	8	8.3
501-600	8	8.3
601-700	2	2.1
701-800	4	4.1
801-900	3	3.1
901-1,000	0	0.0
1,001 and over	17	17.3
Totals	97	100.0

Apparently these data were not as readily available since only 69.3% of the respondents gave responses to the question on the amount of money spent, during the last 3 years, on books for the general library. Considerable variations in amounts spent were reported. The least amount spent over a 3 year period was $25.00, whereas the largest amount was $6,500.00. The average amount spent over the 3 year period was $701.23 for an average of $233.41 per

year. On a per pupil basis this would amount to $1.31. Several of the respondents indicated that money was made available for library books, but that it was nicely channeled to take care of other expenditures.

In addition to expenditures for the general library, data on expenditures for industrial arts books for the past 3 years were requested. Table XII indicates the data received on this question.

TABLE XII

EXPENDITURES FOR INDUSTRIAL ARTS BOOKS

Amount in Dollars	Frequency with which Amount Reported	Per cent
$ 1-10	18	20.5
11-20	19	21.6
21-30	22	25.0
31-40	2	2.3
41-50	8	9.1
51-60	4	4.5
61-70	1	1.1
71-80	7	8.0
81-90	1	1.1
91-100	2	2.3
100 and over	4	4.5
Totals	88	100.0

Reports from 62.9% of the respondents were received on the question of expenditures for industrial arts books the past 3 years. A range of from $3.45 to $350.00 was found to exist. Average expenditures for the period was $38.57 or for a one year average of $12.85. This would amount to 7.4 cents per pupil on the basis of 178.3 students, compared to $1.31 for all library books. Only 5.5% of the expenditures over the past three years was for industrial arts books.

Here we find that some instructors are not carrying full responsibility for book selection as is indicated by the fact that several respondents stated that the industrial arts instructor did not ask for any library books.

Films in the Library

The evidence of this study would indicate that as yet very few schools have a library of films. Eighteen schools reported having film libraries. Seven schools had motion picture films, of which four had films pertaining to industrial arts. Thirteen schools had film strips, all of which had some films of industrial arts. Three schools had slides on industrial arts. Indications were that attempts were being made to increase the number of films available in the school library, but as yet renting the films seemed to prove most satisfactory.

Due to insufficient data this phase of the problem cannot be treated adequately. Indications are that a number of schools are planning to purchase film strips and slides, and

continue to rent the motion picture films.

Summary of Chapter III

To summarize this chapter, Table XIII, gives the library data on schools reporting.

TABLE XIII

LIBRARY DATA

Topic	No. Schools Reporting	Largest Total	Smallest Total	Average per School
Books in the Gen. Library	123	10,500	5	1877.5
Ind. Arts Books in Gen. Library	110	600	2	36.2
Books in the I. A. Library	103	240	2	25.8
Books in the Pers. Library	111	69	1	10.3
Expenditures Gen. Library	97	$6,500	$25.00	$233.41/yr.
Expenditures I. A. Books	88	$ 350	$ 3.45	$ 12.85/yr.

CHAPTER IV

LISTING OF BOOKS

The following is the frequency listing of the books that appeared in the questionnaire. The first group of books (Group A) in each section is the group of books that appeared on the questionnaire, and the second group (Group B) are books that the respondents indicated as being worthwhile books and should be included in the library.

The frequency of appearance in the various types of libraries is indicated by the numbers in the parentheses. The first number indicates the number of times the book appeared in the general library of the school. The second number indicates the number of times the book appeared in the departmental library, while the third indicates the number of times the book appeared in the instructor's personal library.

Auto Mechanics

Group A

1. Crouse, W. H., Everyday Automobile Repairs, 1946. (5) (7) (6)
2. Forst, J. V., Automotive Mechanics. (7) (9) (6)
3. Kuns, R. F., Automotive Essentials. (14) (10) (12)
4. MOTOR -- Motors' Auto Repair Manual (latest edition) (4) (9) (5)

Group B

1. American Technical Society, Automobile Engineering, 1949. (0) (0) (1)

2. Audel's Automobile Repair Manual. (0) (1) (1)

3. Brown, T. G., Elementary Principles of Diesel-Engine Construction, 1948. (1) (0) (0)

4. Crouse, W. H., Automotive Mechanics, 1946. (1) (0) (0)

5. Crouse, W. H., Home Guide to Repair, Upkeep and Remodeling, 1947. (1) (0) (0)

6. Crouse, W. H., Automobile Electrical Equipment, 1942. (not indicated)

7. Crouse, W. H., Automotive Electricity. (1) (0) (1)

8. Cushing, B. L., Fundamentals of Machines. (0) (1) (0)

9. Denham, A. F., 20 Years Progress in Commercial Motor Vehicles, 1943. (0) (1) (0)

10. Dyke, A. L., Automobile and Gasoline Engine Encyclopedia, 1948. (1) (1) (0)

11. Frazee, I. A., and others, Automotive Fundamentals, 1949. (1) (0) (0)

12. Heitner, J., and others, Automotive Mechanics. (0) (1) (0)

13. Johnson, E. J., and Hollenberg, A. H., Servicing and Maintaining Farm Tractors, 1950. (0) (0) (1)

14. Jones, Farm Gas Engines and Repairs. (0) (1) (0)

15. Kuns, R. F., Automotive Trade Training. (1) (0) (0)

16. MOTOR -- Flat Rate Manual, 1950. (1) (0) (0)

17. Page, V. W., Ford V-8 Cars and Trucks, 1947. (0) (1) (0)

18. Steele, J., How to Tune Up Your Automobile, 1947. (0) (1) (0)

19. Wallendorf, C. R., and others, Machines, 1943. (1) (0) (0)

20. Whitney, A. W., The Man and the Motor Car, 1936. (0) (1) (0)

21. Shop Manual of Every Automobile Built. (0) (1) (0)

22. The Modern Diesel Engine. (not indicated)

23. F A B Automobile Instruction. (0) (1) (0)

24. Car Manufacturers Manual - '35 to date. (0) (1) (0)

Crafts

Group A

1. Dragoo, A. W., and Reed, H. O., General Shop Metal Work, 1947. (9) (21) (21)

2. Feirer, J. L., Modern Metal Crafts, 1947. (7) (4) (5)

3. Binns, C. F., The Potter's Craft, 1947. (6) (2) (3)

4. Divine, J. A., and Blanchford, Pottery Craft, 1948. (6) (1) (2)

5. Cherry, R., General Leatherwork, 1946. (6) (12) (19)

6. Dewick, E. S., and Copper, J. H., Plastic Craft, 1946. (4) (5) (4)

7. Mansperger, D. E., and Pepper, C. W., Plastics, Problems, and Processes, 1946. (5) (6) (4)

8. Simonds, H. R., Industrial Plastics, 1948. (4) (2) (6)

Group B

1. American Art Clays, Modeling and Pottery Craft. (not indicated)

2. Baxter, L. H., Toy Craft. (not indicated)

3. Bell, E., Practical Wood Carving Projects, 1940. (1) (0) (0)

4. Binns, Artistic Metal Work. (1) (0) (0)

5. Blackburn, S. A., Boy Activity Projects, 1918. (0) (1) (0)

6. Champion, P. V., Creative Crate Craft, 1942. (2) (1) (0)

7. Cherry, R., General Plastics. (2) (3) (6)

8. Cox, D. E., and Weismann, B. W., Creative Hands, 1945. (1) (0) (0)

9. Craftsman Supply House, Plastics. (0) (1) (0)

10. Dank, M. C., Adventures in Scrap Craft, 1946. (1) (0) (0)

11. Dank, M. C., Creative Crafts In Wood, 1947. (1) (0) (0)

12. DeLemos, Creative Art Crafts, 1944. (1) (0) (0)

13. Dryan Press, Raffia Work. (0) (1) (0)

14. DuBois, J. H., Plastics, 1942. (2) (0) (0)

15. Gandre, Fibre Furniture. (1) (0) (0)

16. Grayshon, A. B., General Metal Work, 1946. (1) (0) (0)

17. Groneman, C. H., Plastics Made Practical, 1948. (0) (1) (1)

18. Groneman, C. H., Leather Tooling and Carving, 1950. (1) (0) (0)

19. Groneman, C. H., Ornamental Tin Craft, 1949. (not indicated)

20. Hunt, W. B., Indian and Camp Handicrafts, 1938. (1) (0) (0)

21. Hunt, W. B., Whittling Book, 1945. (0) (2) (0)

22. Jenkins, R. H., Practical Pottery, 1943. (1) (0) (0)

23. Leeming, Money Making Hobbies. (1) (0) (0)

24. Lemos, P. J., Leathercraft, 1940. (1) (0) (0)

25. Leyson, B. W., Plastics, 1945. (1) (0) (0)

26. Leyson, B. W., Plastics in the World of Tomorrow, 1948. (2) (0) (0)

27. Lockrey, A. J., Plastics in the School and Home Workshop, 1948. (0) (1) (0)

28. Martin and D'Amico, How to Make Modern Jewelry. (1) (0) (1)

29. Mudd, J. S., Leather Finishes. (1) (0) (0)

30. Newkirk and Zutter, Crafts for Everyone. (1) (0) (0)

31. Perry, L. D., Seat Weaving, 1940. (1) (0) (0)

32. Popular Mechanics, The Boy Mechanic. (1) (0) (0)

33. Poole, Leathercraft, 1940. (1) (0) (0)

34. Pynn, LeRoy, Lets Whittle. (1) (0) (0)

35. Randall, R. H., Ceramic Sculpture, 1948. (1) (0) (0)

36. Robinson, C. N., Melt the Plastics, 1949. (1) (0) (0)

37. Rodthe, Keene Cement Craft. (1) (0) (0)

38. Rohm and Haas Co., Working with Plexiglas. (0) (2) (0)

39. Roseman, I. P., Leatherwork. (1) (0) (0)

40. Shields, Principles of Air Craft Engines. (not indicated)

41. Simond, H. R., and Others, The New Plastics. (1) (0) (0)

42. Sowers, J. I., Wood Carving Made Easy, 1936. (1) (0) (0)

43. Sterling Silver Smiths Guild, Story of Sterling, 1937. (1) (0) (0)

44. Tangerman, E. J., Whittling and Wood Carving, 1936. (not indicated)

45. Waddell, J. H., Study Guides in Woodwork. (0) (1) (0)

46. Walsh, H. H., Make it Yourself Book of Handicrafts, 1946. (1) (0) (0)

47. Weaver, Profitable Vocations for Boys. (1) (0) (0)

48. Wolfe, B., Plastics, 1945. (3) (0) (0)

49. Wood Carving and Whittling, 1936. (0) (0) (1)

50. New Tin Can Projects. (0) (1) (0)

Drawing

Group A

1. Bradley, C. B., Design in the Industrial Arts, 1946. (10) (8) (3)

2. Dalzell, J. R., and McKinney, J., Architectural Drawing and Detailing, 1946. (8) (8) (9)

3. French, T. E., Engineering Drawing, 1941. (19) (34) (36)

4. Green, Daniel, Drawing for Life and Industry, 1945. (5) (7) (5)

5. Luzadder, Warren, Fundamentals of Engineering Drawing, 1948. (3) (8) (7)

6. Williams, P. R., The Small Home of Tomorrow, 1945. (9) (4) (5)

Group B

1. Badger and others, Introduction to Applied Drawing. (0) (1) (0)

2. Bennett, C. A., Beginning Problems in Mechanical Drawing, 1934. (0) (1) (0)

3. Berg, E., Mechanical Drawing. (0) (2) (0)

4. Berg, E., and Kronquist, E. F., Mechanical Drawing Problems, 1946. (0) (1) (1)

5. Buss, J. C., Simplified Architectural Drawing, 1946. (0) (1) (0)

6. Carini, L. F. B., Drafting for Electronics, 1948. (1) (0) (0)

7. Cobb, H., Your Dream Home, 1950. (1) (0) (0)

8. Cross, Mechanical Drawing. (1) (0) (0)

9. Dalzell, J. R., Building Trades Blueprint Reading, 1945. (1) (0) (0)

10. Dalzell, J. R., and others, Blueprint Reading for the Building Trades. (1) (0) (0)

11. DeVette, W. A., Short Course in Mechanical Drawing. (1) (0) (0)

12. Downer, M., Discovering Design. (not indicated)

13. Dragoo and Dragoo, General Shop Drawing. (0) (0) (1)

14. Elwood, F. G., Architectural Drawing Plates, 1935. (0) (0) (1)

15. Ericson and Soules, Planning your Home. (1) (1) (0)

16. Ermeling, W. W., and others, Mechanical Drawing. (1) (1) (0)

17. Fields, W. B., An Introduction to Architectural Drawing, 1943. (0) (1) (0)

18. Fischer, F. A. P., Rational Mechanical Drawing, 1937. (1) (0) (0)

19. Fischer, F. A. P., and others, Mechanical Drawing. (0) (1) (1)

20. French, T. E., and Turnbull, W. D., Lessons in Lettering. (not indicated)

21. French, T. E., Mechanical Drawing, 1948. (1) (0) (0)

22. French, T. E., and Svenson, C. L., Mechanical Drawing for High School. (2) (2) (1)

23. Fryklund, V. C., and Kepler, F. R., General Drafting, 1938. (0) (2) (0)

24. Geddes, N. B., Horizons, 1932. (1) (0) (0)

25. Gieseck, F. E., and others, Technical Drawing, 1942. (1) (2) (0)

26. Hoelscher, R. P., and Mays, A. B., Mechanical Drawing. (1) (1) (0)

27. Hunt, Mechanical Drawing. (1) (0) (0)

28. Johnson and Newkirk, Modern Drafting. (1) (2) (0)

29. Kenny, J. E., and McGrain, J. P., Architectural Drawing. (0) (0) (1)

30. Kenny, J. E., and McGrain, J. P., Architectural Drawing for Building Trades, 1949. (0) (2) (0)

31. Klenke, W. W., Advance Mechanical Drawing for High School, 1941. (1) (0) (0)

32. Mattingly, E. H., and Scrogin, E., Applied Drawing and Design, 1942. (2) (7) (6)

33. McGee, R. A., General Mechanical Drawing, 1935. (1) (0) (0)

34. McGee, R. A., and Sturtevant, W. W., General Mechanical Drawing, 1930. (1) (0) (0)

35. Mechanical Drawing Handbook. (1) (0) (0)

36. Owens, A. A., and Slingluff, B. F., How to Read Aircraft Blueprints, 1943. (0) (1) (0)

37. Owens, A. A., and Slingluff, B. F., How to Read Blueprints. (1) (1) (0)

38. Pawelek, S. J., Introduction to Drafting, 1947. (0) (0) (1)

39. Pelikan, Fun With Figure Drawing. (1) (0) (0)

40. Post's Dependable Drawing Materials. (0) (1) (0)

41. Rogers, W. W., and Welton, R. L., Blueprint Reading at Work. (0) (1) (0)

42. Ramsey, Architectural Graphic Standards. (1) (0) (0)

43. Rotsman, Instructional Sheets and Mechanical Drawing. (not indicated)

44. Russel, M., Interior Design. (not indicated)

45. Spencer, H. C., Technical Drawing. (not indicated)

46. Townsend, G., and Dalzell, J. R., How to Plan a House. (0) (1) (0)

47. U. S. Armed Forces Institute, Mechanical Drawing. (0) (1) (0)

48. Varnum, W. H., Industrial Arts Design, 1933. (1) (0) (0)

49. Weick, C. W., Elementary Mechanical Drawing, 1915. (0) (1) (0)

50. Weir, J. J., Blueprint Reading for Machine Trades, 1941. (not indicated)

Electricity

Group A

1. Bedell, E. L., and Gardener, E. G., Household Mechanics, 1945. (20) (15) (5)

2. Jones, E. W., Essentials of Applied Electricity, 1943. (14) (16) (21)

3. Perry, E. C., and Shafebook, H. R., Fundamental Jobs in Electricity, 1943. (8) (5) (8)

Group B

1. American Technical Society, Fundamentals of Electricity. (0) (2) (0)

2. Audel's New Electricity Library. (0) (0) (1)

3. Burling, B. B., Preparatory Electricity, 1928. (1) (0) (0)

4. Burling, B. B., and Lauerman, J. H., Light and Power Wiring, 1923. (0) (1) (0)

5. Burns, E. E., Electricity - A Study of First Principles, 1930. (not indicated)

6. Collings, M. D., Projects in Electricity, 1941. (0) (0) (1)

7. Cook, S. R., Electrical Things Boys Like to Make, 1942. (0) (1) (0)

8. Croft, J. W., Practical Electricity, 1940. (0) (1) (0)

9. Dragoo, A. W., and Dragoo, K. L., General Shop Electricity. (2) (1) (4)

10. Electric Motor Work. (1) (0) (0)

11. Electronics for Boys and Girls. (1) (0) (0)

12. Grosset and Dunlap, General Shop Electricity. (not indicated)

13. Johnson, W. H., Fundamentals of Electricity. (1) (0) (0)

14. Jones, E. W., General Electricity, 1937. (1) (0) (0)

15. Lush, C. K., and Engle, G. E., Industrial Arts Electricity, 1943. (0) (0) (1)

16. Marcus and Levy, Elementary Radio Servicing. (0) (1) (0)

17. Meadow Craft, Scholars ABC of Electricity. (1) (0) (0)

18. Perry, J., Electrical Industry, 1945. (1) (0) (0)

19. Ranson, Fundamentals of Electricity, 1943. (1) (0) (0)

20. Richter, H. P., Wiring Simplified, 1941. (0) (0) (1)

21. Rider, J. F., Perpetual Trouble Shooter's Manual, 1951. (1) (0) (0)

22. Rider, J. F., Television Manual, 1950. (1) (0) (0)

23. Sams, Photofact Manuals, 1950. (1) (0) (0)

24. Trunzelmann, Electricity in Modern Life. (1) (0) (0)

25. Westinghouse, Amber and Amperes. (0) (1) (0)

26. Willard, L. R., Fundamentals of Electricity, 1943. (0) (0) (1)

27. Willowghby, G. A., Practical Electricity for Beginners, 1932. (0) (1) (0)

28. Wyman, Electricity for Everyone, 1943. (1) (0) (0)

Home Mechanics

Group A

1. Bedell, E. L., and Gardener, E. G., Household Mechanics, 1945. (17) (15) (11)

2. Johnson, W. H., and Newkirk, L. V., Home Mechanics, 1947. (7) (6) (4)

3. Roehl, L. M., The Farmer's Shop Book, 1945. (17) (19) (5)

4. Woodin, J. C., Home Mechanics for Girls, 1946. (8) (12) (14)

Group B

1. Allen, E. L., Simplified Mechanics for Girls, 1938. (2) (0) (0)

2. Blackburn, S. A., Problems in Farm Woodwork, 1919. (0) (1) (0)

3. Barnwell, G. W., New Encyclopedia of Machine Shop Practice, 1941. (1) (0) (0)

4. Collins, A. F., Simplified Household Mechanics, 1939. (1) (0) (0)

5. Jones, M. M., Shop Work on the Farm, 1945. (0) (1) (2)

6. Keene, Mechanics of the Household.(0) (0) (1)

7. Popular Mechanics Magazine Farm Manual, 1947. (0) (0) (1)

8. Popular Science, Complete Home Work Shop Cyclopedia. (0) (1) (0)

9. Roehl, L. M., Agricultural Wood Working, 1916. (1) (0) (0)

10. Roehl, L. M., Fitting Farm Tools, 1940. (0) (2) (0)

11. Roehl, L. M., Farmers Shop Book, 1945. (0) (1) (0)

12. Tothman, M., Build It Yourself, 1943. (0) (1) (0)

13. Tuomey, D., Home Mechanic, 1943. (1) (0) (0)

14. Van Nostrand, Home Mechanics Hand Book, 1945. (0) (0) (1)

15. Wakeling, A., Things to Make in Your Home Workshop, 1935. (0) (1) (0)

16. Woodin, J. C., Home Mechanics, 1949. (0) (1) (2)

Metal Work

Group A

1. Barber, W. T., The Engineers Sketch Book, 7th ed. (2) (2) (0)

2. Feirer, J. L., Modern Metalwork, 1946. (9) (7) (8)

3. Giachino, J. W., and Feirer, J. L., Basic Bench Metal Practice, 1946. (5) (6) (6)

4. Graham, F. D., A Good Mechanic Seldom Gets Hurt, 1946. (1) (0) (1)

5. King, L. E., Machine Shop Operation -- No. 2, Milling, 1947. (5) (7) (3)

6. King, L. E., Machine Shop Operation -- No. 3, Shaper, 1947. (3) (6) (7)

7. Ludwig, O. A., Metalwork -- Technology and Practice, 1943. (5) (7) (12)

8. South Bend Lathe Works, How to Run a Lathe (27th ed.) (11) (20) (25)

Group B

1. American Technical Society, Fundamental Shop Training, 1943. (0) (1) (0)

2. American Welding Society, Gas Welding and Cutting, 1929. (1) (0) (0)

3. Barnwell, G., New Encyclopedia of Machine Shop Practice, 1941. (0) (1) (0)

4. Becker, W. J., Metal Work Made Easy, 1942. (1) (1) (0)

5. Becker, W. J., Metal Projects Index, 1939. (1) (0) (0)

6. Berg, W., and Wing, B. E., Essentials of Metalwork, 1934. (0) (1) (0)

7. Bick, A. F., Artistic Metal Work, 1940. (0) (1) (0)

8. Bollinger, J. W., A Course In Sheet Metal Work, 1939. (2) (1) (0)

9. Burghart, H. D., Machine Tool Operation I & II, 1946. (1) (2) (0)

10. Cole, C. B., Tool Making, 1939. (1) (0) (0)

11. Colvin, F. H., Running an Engine Lathe, 1941. (1) (0) (0)

12. Colvin, F. H., and others, American Machinists Handbook. (0) (1) (0)

13. Daughtery, J. S., Sheet Metal Pattern Drafting and Shop Problems, 1936. (1) (1) (0)

14. Feirer, W. T., Elementary Metalurgy, 1942. (0) (1) (0)

15. Giachino, J. W., Bench Metal Work, 1935. (0) (1) (1)

16. Giachino, J. W., Aircraft Sheet Metal Work, 1942. (1) (0) (0)

17. Giachino, J. W., Oxy-Acetylene Welding for Beginners, 1939. (1) (1) (0)

18. Henry Ford Trade School -- Shop Theory. (0) (1) (1)

19. Jennings, R. F., General Shop Gas and A. C. Arc Welding and Cutting, 1942. (0) (1) (0)

20. Johnson, A. V., 32 Metal Spinning Designs, 1941. (0) (1) (0)

21. Jones, M. M., Introductory Shop Work, 1943. (1) (0) (0)

22. Knight, R. E., Machine Shop Projects for Trade, Vocational and High School Shops, 1943. (1) (0) (0)

23. Knight, R. E., Machine Shop Practice. (0) (1) (0)

24. Krom, E. F., Handwrought Iron Work, 1946. (1) (0) (0)

25. Peterson, L. C., 101 Metalworking Projects, 1929. (2) (0) (0)

26. Neubecker, W., Sheet Metal Work, 1938. (0) (1) (0)

27. Plumley, S., Oxy-Acetylene and Arc Welding, 1939. (0) (1) (0)

28. Pratt and Whitney Apprentice Notebook. (0) (0) (1)

29. Schaaf, Standard Mechanics Encyclopedia. (0) (1) (0)

30. Smith, R. E., Units in the Machining of Metal, 1942. (0) (1) (0)

31. Smith, R. E., Units in Pattern Making and Foundry. (0) (0) (2)

32. Smith, R. E., Units in Sheet Metal, 1939. (0) (3) (1)

33. Smith, R. E., Units in Bench Metal Work, 1939. (1) (2) (3)

34. Smith, Metal Work and Welding. (0) (0) (1)

35. Smith, R. E., Units in Etching, Spinning, Raising and Tooling Metal, 1939. (0) (0) (2)

36. Trew, M. S., and Bird, V. A., Sheet Metal Work, 1923. (0) (1) (0)

37. Tustison, F. E., and Kranzusch, R. G., Metal Work Essentials, 1936. (0) (0) (1)

38. Weir, J. J., Blueprint Reading for Machine Trades, 1941. (1) (0) (0)

39. Welch, R. L., Elements of Sheet Metal Work, 1926. (1) (0) (1)

40. Whipple, G. G., and Baudik, A. C., Engine Lathe Operations. (0) (1) (0)

Printing

Group A

1. Cleeton, G. U., and Pitkins, C. W., General Printing, 1941. (2) (6) (10)

2. Laskey, J., Proofreading and Copy-Preparation, 1941. (2) (0) (1)

3. Polk, R. W., The Practice of Printing, 1945. (3) (4) (1)

4. Porte, R. A., Dictionary of Printing Terms, 1941. (2) (2) (1)

Group B

1. Biegeleisen and Busenbark, Silk Screen Printing Process. (1) (0) (0)

2. Bruner, Manual of Approved Practice in Printing, 1935. (1) (0) (0)

3. Frazier, J. L., Modern Type Display, 1929. (1) (0) (0)

Woodwork

Group A

1. Dank, M. C., Creative Crafts in Wood, 1945. (12) (14) (4)

2. Douglas, J. H., and Roberts, R. H., Units in Hand Woodworking, 1946. (40) (83) (50)

3. Fryklund, V. C., and LaBerge, A. J., General Shop Woodworking, 1946. (16) (45) (25)

4. Hjorth, H., Operation of Common Woodworking Machines, 1942. (23) (48) (31)

Group B

1. Bast, H., Essentials of Upholstery, 1928. (1) (2) (0)

2. Broadbent, V. E., Bedroom Furniture, Period and Modern, 1950. (1) (2) (0)

3. Brown, A. G., and Tustison, F. E., Instructional Units in Hand Woodwork, 1930. (0) (2) (0)

4. Cromlet, Woodwork Vizualized. (not indicated)

5. DeVette, W. A., 100 Problems in Woodworking, 1927. (1) (1) (0)

6. Douglas, J. H., and Roberts, R. H., Projects in Woodwork. (1) (3) (3)

7. Ensinger, Problems in Wood Turning, 1947. (1) (1) (0)

8. Feirer, J. E., Industrial Arts Woodworking. (0) (0) (2)

9. Golden, Wood Turning. (1) (0) (0)

10. Gregory, A., The Art of Woodworking and Furniture Making. (0) (1) (0)

11. Griffith, I. S., Essentials of Woodworking. (1) (1) (0)

12. Gottshall, Making Useful Things of Wood. (1) (1) (0)

13. Hayward, C. H., Cabinet Making for Beginners. (1) (0) (0)

14. Hjorth, H., Basic Wood Finishing Processes. (0) (1) (0)

15. Hjorth, H., Basic Woodworking Processes. (0) (1) (0)

16. Hjorth, H., Machine Woodworking. (1) (0) (0)

17. Hjorth, H., Operation of Common Woodworking Machines. (0) (1) (0)

18. Hjorth, H., Principles of Woodwork, 1946. (3) (2) (2)

19. Hjorth, H., 40 Fine Pieces of Furniture. (1) (0) (1)

20. Hunt, D. T., A Manual for Hand Woodworking. (2) (0) (0)

21. Hunt, D., Machine Woodworking, 1925. (1) (0) (0)

22. Jeffrey, H. R., Wood Finishing. (not indicated)

23. Johnson, W. H., and Newkirk, L. V., Fundamentals of Shopwork. (1) (0) (0)

24. Johnson, W. H., and Newkirk, L. V., General Woodworking. (0) (1) (2)

25. Klenke, W. W., Things to Make and How to Make Them, 1938. (0) (1) (0)

26. Klenke, W. W., The Art of Wood Turning. (1) (0) (0)

27. Lukowitz, J. J., 50 Popular Woodwork Projects. (1) (0) (0)

28. Lush, C. K., Its Fun to Build Modern Furniture. (0) (1) (1)

29. Madsen, A. S., and Lukowitz, J. J., Problems in Construction and Design. (0) (1) (0)

30. Money, Its Fun to Make it Yourself (0) (1) (0)

31. Newell, A. C., Coloring, Finishing and Painting Woods. (0) (1) (1)

32. Nichols, T., Woodwork Manual for Students, 1930. (0) (1) (0)

33. Noble, L. H., and Averill, R. B., From Forrest to Wood Worker. (0) (1) (1)

34. Noyes, W., Wood and Forrest, 1912. (1) (1) (0)

35. Noyes, W., Hand Work in Wood. (0) (1) (0)

36. Park, J. C., Educational Woodwork in School and Home, 1919. (1) (0) (0)

37. Pattou, A. B., and Vaughn, C. L., Furniture Finishing. (0) (1) (0)

38. Pelton, G. W., Furniture Making and Cabinet Work, 1949. (0) (0) (3)

39. Pope, B. R., Upholstering Home Furniture. (1) (0) (0)

40. Shaver, R., Furniture Boys Like to Build, 1931. (0) (1) (0)

41. Shea, J. G., and Wenger, R. N., Woodworking for Everybody. (1) (4) (0)

42. Sowers, Woodworking Made Easy. (0) (1) (0)

43. Smith, R. E., Machine Woodworking. (1) (8) (9)

44. Van Deusen, Beginning Woodwork, 1915. (0) (1) (0)

45. Waring, R. G., Wood Finishing and Painting Made Easy. (1) (1) (2)

46. Williams, Woodwork in the Jr. High School. (1) (0) (0)

47. Woehler, M., Course in Wood Turning. (0) (1) (0)

48. Wood and Smith, Prevocational and Industrial Arts. (1) (0) (0)

49. Practical Delta Projects. (0) (1) (1)

50. Industrial Units in Wood Finishing (1) (0) (0)

Professional

Group A

1. Erickson, E. E., Teaching the Industrial Arts, 1946. (8) (4) (51)

2. Friese, J. F., Course Making in Industrial Education, 1947. (2) (4) (24)

3. Leighbody, G. B., Methods of Teaching Industrial Subjects, 1946. (5) (6) (16)

4. Newkirk, L. V., Organizing and Teaching the General Shop, 1946. (3) (4) (40)

5. Selvidge, R. W., Individual Instruction Sheets, 1946. (2) (4) (25)

Group B

1. Bass, M. R., Fifty Hints for Teachers of Vocational Subjects, 1950. (1) (0) (0)

2. Bennett, C. A., History of Manual and Industrial Education. (not indicated)

3. The Curriculum Consists of Woodwork. (not indicated)

4. Griffith, I. S., Teaching the Manual and Industrial Arts, 1921. (0) (1) (0)

5. Griffith, I. S., Correlated Courses in Woodwork and Mechanical Drawing, 1914. (not indicated)

6. Mays, A. B., School Shop Administration. (not indicated)

7. Morgan, H. K., Industrial Training and Testing, 1947. (1) (0) (0)

8. National Forums Inc., Planning My Future. (0) (1) (0)

9. Newkirk, L. V., and Johnson, W. H., The Industrial Arts Program, 1948. (0) (0) (1)

10. Selvidge, R. W., Principles of Trade and Industrial Teaching, 1946. (0) (0) (2)

11. Struck, F. T., Creative Teaching, 1938. (0) (0) (2)

12. Wilber, G. O., Industrial Arts in General Education, 1948. (0) (0) (1)

Magazines

Group A

1. American Home, The (26) (5) (7)

2. Craft Horizons. (2) (5) (0)

3. Industrial Arts and Vocational Education.	(33)	(44)	(31)
4. Inland Printer, The	(2)	(2)	(0)
5. Mechanics Illustrated.	(23)	(10)	(8)
6. Photography.	(14)	(1)	(4)
7. Popular Homecraft..	(31)	(20)	(9)
8. Popular Mechanics.	(90)	(34)	(6)
9. Popular Science.	(77)	(28)	(8)
10. School Arts Magazine.	(18)	(9)	(3)

Group B

1. American Artist, The	(1)	(0)	(0)
2. American Printer.	(0)	(1)	(0)
3. Autobody and Reconditioned Catalogue.	(0)	(1)	(1)
4. Automotive Digest.	(0)	(1)	(0)
5. Better Homes and Gardens.	(2)	(0)	(0)
6. Builder, The	(2)	(1)	(0)
7. Deltagram, The	(1)	(5)	(2)
8. Design.	(1)	(0)	(0)
9. Home Craftsman, The	(9)	(7)	(2)
10. Model Airplane News.	(0)	(1)	(1)
11. Progressive Architecture.	(1)	(0)	(0)
12. Radio Electronics.	(1)	(0)	(0)
13. School Shop.	(2)	(8)	(2)
14. Science and Mechanics.	(1)	(0)	(0)
15. Science News Letter.	(1)	(0)	(0)
16. U. S. Camera.	(0)	(0)	(1)

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The objective of this study was an attempt to indicate what existed relative to industrial arts library facilities during the school year 1950-51. A total of 564 questionnaires were sent to the Superintendent or Principal of all the senior high schools in the State of Kansas with enrollments of over 25 students. Of this number, 140 or 24.8% were completed and returned in time to be considered in the study. An additional 62 were returned, but not completed for various reasons, the most prevalent being: "industrial arts not taught" and "no time". Including the 62 questionnaires not completed a percentage of 35.8% returns was accomplished. The data presented is based on the 140 completed returns. Eighty-three or 59.3% of the 140 respondents desired a summary of the results.

Instruction data: The schools reporting were quite representative of the state as a whole. The average size of the 140 schools was 178.3 students. Average industrial arts enrollment per school was 50.7 students for an average of 13.6 students per class. The average number of industrial arts classes per school was 3.5. The two most frequently reported subjects were: Drawing I, reported 71 times; the most frequently used text was Berg & Kronquist, reported 14 times.

Woodworking I, reported 164 times; the most frequently used text was Douglas & Roberts, reported 105 times. Other subjects were much less frequently reported.

Library sizes: The general libraries ranged from 5 to 10,500 books for an average of 1877.5 titles per school and 10.5 books per student. Industrial arts books in the general library ranged from 2 to 600; an average of 36.2 books per school. Departmental libraries ranged in size from 2 to 240 books for an average of 25.8 books per library. Personal libraries ranged from 1 to 69 for an average of 10.3 books per school. Industrial arts books constituted 3.4% of the total library.

What per cent of books listed in the Kansas Tentative Guide to Teaching Industrial Arts do you have in the library? The results: Thirteen schools reported with a range of from 0.05% to 100% for an average of 23.8%.

Money spent for library books the past three years: For the general library a range of from $25.00 to $6,500.00 was reported. This was an average of $233.41 per year and on a per pupil basis of $1.31. For industrial arts books a range of money spent was from $3.45 to $350.00. This was an average of $12.85 per year and on a per pupil basis of $0.074. This amounted to 5.5% of the total spent. For schools of a size of the average reported in this study a minimum of $1.50 should be spent for library materials, and this should range up to $2.00 for the smaller schools.

Films: Eighteen schools reported having film libraries.

Seven schools had motion picture films, of which four had films pertaining to industrial arts. Thirteen schools had film strips, all of which had some films on industrial arts. Three schools had slides on industrial arts. Indications were that attempts were being made to increase the number of films available in the school library.

Conclusions

In the occupations by which men make a living approximately 55% of all employed individuals work in industry. Industrial arts is a field of education in which students should become acquainted with industry to some degree, and may even to the extent of choosing an occupation. Industrial arts classes should give considerable background material. To do this effectively the library comes to play an important part.

1. There are about 10 major areas of work in the secondary school, industrial arts being one of them. This study did not, to any extent, reveal the qualitative aspects of the library, but the quantitative factor of the general library seemed to come up quite well to standards set by accrediting agencies. Only 3.4% of the total number of library books pertained to industrial arts. This would leave 96.6% of the total number to be divided among the other nine areas of work. Hence, it appears as if the industrial arts phase of the library is not adequate.

2. Expenditures for industrial arts books did not meet the

present day need. On the per pupil basis, $1.31 was spent for the general library. This in itself is not adequate. Only $0.074 or 5.5% of the total expenditures go for industrial arts books. This would leave 94.5% of the money to be spent for books for the other nine areas of school work. In some cases there was a woeful neglect of the industrial arts phase of general education. From the standpoint of the amount of money spent for industrial arts books it would appear as if the libraries are inadequate in this important phase of general education.

3. Recency of publication was a factor in determining the value of a book. Only to the extent that some of the books listed were published as much as 40 years ago would there be any indication that the full value of the books are not being maintained. Several participants in the study indicated that a book on the shelf is of no value, and it should be pointed out that to be of any worth a book must be used.

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Government Documents

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APPENDIX

KANSAS STATE TEACHERS COLLEGE
Industrial Education and Art Department

Pittsburg, Kansas
March 20, 1951

The information secured from the enclosed questionnaire is to be used by the writer to complete a problem for the partial fulfillment of requirements for a Master's Degree. Any assistance you may give by completing the enclosed questionnaire will be greatly appreciated.

Some of the information desired can best be answered by the Industrial Arts instructor or by the Librarian. Their cooperation is solicited and will be greatly appreciated. A stamped envelope is enclosed.

Thank you for your cooperation.

Yours truly,

Paul D. Quiring
Graduate Student
KSTC, Pittsburg, Kansas

Approved by: O. A. Hankammer
Dr. O. A. Hankammer
Head, Dept. of Ind. Educ.

KANSAS STATE TEACHERS COLLEGE
Industrial Education and Art Department
Pittsburg, Kansas

INDUSTRIAL ARTS LIBRARIES IN KANSAS HIGH SCHOOLS

I. Instruction Data on Industrial Arts Classes:

Period	Subject	Text Used (Title & Author)	No. of Students
I			
II			
III			
IV			
V			
VI			

II. Books:

1. What is the total number of books in your school library? (Do not count duplicate copies). _____
2. What is the total number of Industrial Arts books in the school library? (Do not count duplicate copies). _____
3. What is the total number of books in the Industrial Arts departmental library? (Do not count duplicate copies). _____
4. What is the number of personal books the Industrial Arts Instructor uses in his class instruction. _____
5. What is the amount of money spent for books for the total library during the past 3 years? $ _____
6. What is the amount of money spent for Industrial Arts books during the past 3 years? $ _____

Check (x) which of the following books are contained in each of the libraries that exist in your school. (General, Departmental, & Personal). Space is provided for you to list any other books that you feel should be in this list.

Title of book, author & copyright date:	Library: Gen.	Dept.	Pers.
Auto Mechanics			
1. Everyday Automobile Repairs (Crouse - 1946)			
2. Automotive Mechanics (Forst)			
3. Automotive Essentials (Kuns)			
4. Motors' Auto Repair Manual (MOTOR - latest edition)			
5.			
6.			
7.			
Crafts			
1. General Shop Metal Work (Dragoo & Reed - 1947)			
2. Modern Metal Crafts (Feirer - 1947)			
3. The Potter's Craft (Binns - 1947)			
4. Pottery Craft (Divine - 1948)			

Title of book, author & copyright date:	Library Gen.	Dept.	Pers.
Crafts, continued			
5. General Leatherwork (Cherry - 1946)			
6. Plastic Craft (Dewick, Copper - 1946)			
7. Plastics, Problems,&Processes (Mansperger & Pepper - '46)			
8. Industrial Plastics (Simonds - 1948)			
9.			
10.			
11.			
12.			
Drawing			
1. Design in the Industrial Arts (Bradley - 1946)			
2. Architectural Drawing & Detailing (Dalzell&McKinney-'46)			
3. Engineering Drawing (French - 1941)			
4. Fundamentals of Engineering Drawing (Luzadder - 1948)			
5. Drawing for Life and Industry (Green - 1945)			
6. The Small Home of Tomorrow (Williams - 1945)			
7.			
8.			
9.			
10.			
Electricity			
1. Household Mechanics (Bedell & Gardener - 1945)			
2. Essentials of Applied Electricity (Jones - 1943)			
3. Fundamental Jobs in Electricity (Perry&shafebook-'43)			
4.			
5.			
6.			
Home Mechanics			
1. Household Mechanics (Bedell & Gardner - 1945)			
2. Home Mechanics (Johnson & Newkirk - 1947)			
3. The Farmer's Shop Book (Roehl - 1945)			
4. Home Mechanics for Girls (Woodin - 1946)			
5.			
6.			
Metal Work			
1. The Engineers Sketch Book (Barber - 7th edition)			
2. Modern Metalwork (Feirer - 1946)			
3. Basic Bench Metal Practice (Giachino & Feirer - 1946)			
4. A Good Mechanic Seldom Gets Hurt (Graham - 1946)			
5. How to Run a Lathe (South Bend Lathe Works - Ed. 27)			
6. Machine Shop Operation -- No. 2 Milling (King - 1947)			
7. Machine Shop Operation -- No. 3 Shaper (King - 1947)			
8. Metalwork--Technology & Practice (Ludwig - 1943)			
9.			
10.			
11.			
Printing			
1. General Printing (Cleeton & Pitkins - 1941)			
2. Proofreading and Copy-Preparation (Lasky - 1941)			
3. The Practice of Printing (Polk - 1945)			
4. Dictionary of Printing Terms (Porte - 1941)			
5.			
6.			

Title of book, author & copyright date:	Library: Gen.	Dept.	pers.
Woodwork			
1. Creative Crafts in Wood (Dank - 1945)			
2. Units in Hand Woodworking (Douglass & Roberts - 1946)			
3. General Shop Woodworking (Fryklund & Laberge - 1946)			
4. Operation of Common Woodworking Machines (Hjorth - 1942)			
5.			
6.			
Professional			
1. Teaching the Industrial Arts (Erickson - 1946)			
2. Course Making in Ind. Education (Friese - 1947)			
3. Methods of Teaching Industrial Subjects (Leighbody-'46)			
4. Organizing and Teaching the Gen. Shop (Newkirk - 1946)			
5. Individual Instruction Sheets (Selvidge - 1946)			
6.			
7.			
8.			

What per cent of the books listed in the Kansas Industrial Arts Bulletin of 1949 do you have in your libraries? _____

III. Magazines:

Check the magazines found in your libraries.

	Library: Gen.	Dept.	pers.
1. Industrial Arts and Vocational Education			
2. Popular Homecraft			
3. Popular Mechanics			
4. Popular Science			
5. School Arts Magazine			
6. Craft Horizons			
7. Mechanics Illustrated			
8. Photography			
9. The American Home			
10. The Inland Printer			
11.			
12.			

IV. Film Library:

1. Does your school have a library of films? Yes _____ No _____
2. Total number of sound and silent films in the library. _____
3. Total number of sound and silent films pertaining to Industrial Arts. _____
4. Total number of film strips in the library. _____
5. Total number of film strips pertaining to Industrial Arts. _____
6. Total number of slides in the library. _____
7. Total number of slides pertaining to Industrial Arts. _____

V. Comments:

In the space below, make any comments you think would be of value to the study.

Do you desire a summary of this study? Yes _____ No _____
If yes, give name and address below.

Name _____

Address _____