INDUSTRIAL ARTS PROGRAMS IN THE ELEMENTARY SCHOOLS OF KANSAS

A Thesis

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by

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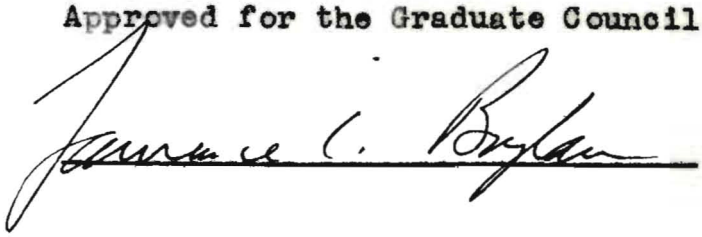

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CHAPTER I

INTRODUCTION

Educational methods and facilities have expanded during the past century in American public education. Some phases of education have surpassed others because of their acceptability in the curriculums. The industrial arts program in the elementary school is one phase of education that has not developed as extensively as have the other learning areas.

There is a need in industrial education for a comprehensive outlook on the fundamental purposes and the meaning of what is being done, and what should be undertaken in this area of education. Progress will be made in proportion to the clarity and usefulness of the goals and outcomes toward which one strives.[1]

A school is sometimes visualized as something between teacher and pupil, or between teacher and parent. That which interests one most is the progress made by the child with whom one is acquainted, his normal physical development, his advance in ability to read, write, and figure, improvement in manners, habits of promptness, order, and

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[1]Frederick T. Struck, Creative Teaching; Industrial Arts and Vocational Education (New York: J. Wiley and Sons, Inc., 1938), p. 1.

industry--from such standards one judges the work of the school.[2]

The general philosophy of industrial arts is stated by Bonser and Mossman: "Industrial Arts is a study of the changes made by man in the forms of materials to increase their values, and of the problems of life related to these changes."[3]

One must conceive of industrial arts as types of processes by which society keeps itself going, as agencies for informing the child of the absolute necessities of community life, and as ways in which needs have been met by the growing insight of man; in short, as a means through which the school itself shall be made a genuine form of active community life.[4]

> Industrial education is a pathway that helps to reduce the remoteness of school work from life by bringing into the curriculum, content that is true to life and problems that develop the attitudes, knowledges, and skills that are needed for a better social order.[5]

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[2]John Dewey, The School and Society (Illinois: The University of Chicago Press, 1900), p. 3.

[3]Frederick Gordon Bonser and Lois Coffey Mossman, Industrial Arts for Elementary Schools (New York: The Macmillan Company, 1939), p. 5.

[4]Dewey, op. cit., pp. 10-11.

[5]Struck, op. cit., p. 3.

I. THE PROBLEM

Statement of the problem. The purposes of this study were (1) to obtain information concerning industrial arts facilities, equipment, and curriculum schedule in the elementary schools of Kansas; (2) to arrive at some measure of the effectiveness of the industrial arts programs currently offered; and (3) to make recommendations for future industrial arts programs in the elementary curriculum.

Importance of the study. Industrial arts has frequently been stressed as being an essential part of the elementary curriculum. From the beginning of civilization, man has used his hands to create. Man first used his hands to form articles to meet his immediate needs for existence. As time progressed, man began to use his hands to create things of beauty, some of which also had practical value.

Early day educators were aware of the possibilities of industrial arts. Today some educators and lay-men recognize the value of industrial arts in the development of well rounded citizens. Industrial arts is used in schools for the mentally and physically handicapped, and many nation wide organizations include such work in their activity programs.

The traditional elementary school curriculum has been restricted to academic subject matter. What the

elementary school needs is such a reconstruction of its curriculum that the curricular and extra curricular activities blend. Every part of the curriculum must contribute to the child's perspective and his all-around development.[6]

It follows, then, that more attention must be given to useful experiences and to the varied abilities of the individual pupils. Pupils must be given opportunities to plan, to organize, to investigate, and to construct. Children must be encouraged to learn through purposeful experiences which they can enjoy and pursue with a high degree of educational success, while at the same time they are acquiring useful skills and a better understanding of society and their place in it.

Children are inquisitive about their environment, they have the desire to do things with their hands, and they like to express mental and emotional feelings in drawing, painting, modeling, construction, and decorating; and they find great satisfaction in working and sharing such activities with others.

Therefore, it is the duty of everyone to guide these native desires and impulses toward the acquiring of valuable experiences and the promoting of desirable social habits.

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[6]W. A. Saucier, Theory and Practice in the Elementary School (New York: The Macmillan Company, 1951), pp. 38-39.

This can be accomplished by developing a good industrial arts program in the elementary schools.

Delimitation of the study. The study has been limited to approximately 5 per cent of the elementary teachers in the state of Kansas.

II. DEFINITIONS OF TERMS USED

Industrial Arts. For the purposes of this study, the term industrial arts will be used to mean one of the practical crafts taught in elementary schools.

Practical Crafts. The term will refer to the area which includes activities involving the use of wood, metal, plastics, and materials of this nature.

Tool Subjects. This includes subjects, such as reading, spelling, arithmetic, and science, that are taught in the elementary curriculum.

Elementary School. For the purposes of this study, the term includes grades kindergarten through the sixth.

Core Curriculum. A curriculum design in which a required subject or group of required subjects becomes a center or unit for the purpose of instruction.

III. PROCEDURE FOLLOWED

A review of literature concerning the place of industrial arts in the elementary curriculum was made.

A letter was then sent to the 105 county superintendents of public instruction in the state of Kansas to secure county directories containing the names of elementary teachers in the state of Kansas. Since some of the directories did not contain the names of the teachers in the first and second class cities, a letter was sent to school officials of these cities asking for a listing of the elementary teachers in the respective city.

The county directories were alphabetized, and then every twentieth teacher's name was chosen to receive a questionnaire (see Appendix). Excluded from the random sampling were names of teachers who were exclusively principals, music instructors, or physical education personnel. Also the teachers in one first class city, which involved approximately 590 teachers, did not take part in the study because of a policy of not submitting teachers' names for research problems. A total of 559 questionnaires were mailed. A follow-up, in the form of a post-card (see Appendix), was later mailed to teachers who had not returned the questionnaire. Of the 559 questionnaires sent, 359, or 64.2 per cent, were returned.

Ten counties were not represented in the study because the sixteen teachers from those counties failed to return the questionnaire that had been sent them.

The data collected were tabulated and organized into tables. An analysis of the data was made and evaluated as a means of supplying answers to the problems involved in the study.

CHAPTER II

REVIEW OF THE LITERATURE

Much has been written in regard to the role of industrial arts in the elementary school curriculum. The material presented here will have as its purpose that of encouraging the use of constructive activities in elementary schools and will therefore be only a summary of the writings related to the subject under discussion.

I. INDUSTRIAL ARTS IN THE ELEMENTARY CURRICULUM

In a nation progressing as rapidly as is ours today, all phases of life are influenced by industry. Children must learn to understand their environment if they are to become effective citizens in a democratic society.

Early civilization was much easier for a child to understand than the world in which he lives today. He was able to comprehend and appreciate the problems of people with whom he worked. As civilization developed, industry moved from the home to urban centers, and as a result today's children rarely have the experience of observing the industrial processes in use. This is why it has become the

function of the school curriculum to organize school life around areas of human experiences.[1]

The introduction of industrial arts in the elementary curriculum has not been done with a full consciousness that the school must now supply the factor of training formerly taken care of in the home. Experimentation and the discovery that such work creates interest and gives students an opportunity for exploring knowledge and creativity, was the basis for the introduction of industrial arts into the general education curriculum.

Many teachers are now accepting the view that interest is important to the learning process, and that children's interests should be considered in curriculum planning and in general school learning.

Teachers know that certain learning experiences motivate children because of their lively interest in the topic or subject matter. If boys and girls are to be interested, they must be able to recognize something of value in what they are learning.[2]

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[1]Roy E. Simpson and others (eds.), "Industrial Arts for the Elementary School," California Journal of Elementary Education, 26:132, February, 1958.

[2]Harold G. Shane, "Children's Interests, How Do They Affect the Elementary Curriculum," National Education Association Journal, 46:237, April, 1957.

Industrial arts at the elementary level may be viewed as either a method of learning or as subject matter material. The source of subject matter comes from the knowledge and skills that are associated with the home, community, farm, and industry. Industrial arts also includes elements of the past and present culture. Industrial arts is the place in the curriculum where opportunities are provided for observation, study, and experience with tools, machines, and processes which man has used to adapt his physical world to serve his needs. Such experiences not only help children understand simple principles of industrial change, but also makes learning more meaningful through the use of the "doing" process.[3]

There are at least four forms of impulse to expression or action which find satisfaction in the study of industrial arts:

1. The impulse to manipulative activity, resulting in the handling of materials and tools, and, in time, the using of these in constructive and investigative activities.
2. The impulse to investigate, expressing itself in inquiries about constructive methods, kinds and sources of materials, uses of materials and products, the operation and explanation of devices and principles of machines and constructions, and the relationships of practical activities to human purposes.

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[3]Mary Margaret Scobey, "Industrial Arts in the Elementary School," National Education Association Journal, 42:372, September, 1953.

3. The art or aesthetic impulse, which finds satisfaction in the enjoyment of beauty in form and color observed in materials and products, and in creative production by the designing and constructing of new products.
4. The social impulse, leading one to observe what others are doing, to attempt to share with others their activities, and to secure from others their approval and cooperation in furthering one's own activities.[4]

Objection to the inclusion of industrial arts in schools is often times heard. Some educators feel that such activities are out of place in the school because they are materialistic, utilitarian, or even lowering in their tendency.

Dewey has written:

> It sometimes seems to me that those who make these objections must live in quite another world. The world in which most of us live is a world in which everyone has a calling and occupation, something to do. Some are managers and others are subordinates. But the great thing for one as for the other is that each shall have had the education which enables him to see within his daily work all there is in it of large and human significance.[5]

As an occupation, industrial arts is active or motor; it finds expression through the physical organs. Industrial

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[4]Frederick Gordon Bonser and Lois Coffey Mossman, Industrial Arts for Elementary Schools (New York: The Macmillan Company, 1939), p. 33.

[5]John Dewey, The Child and the Curriculum and The School and Society (Chicago: The University of Chicago Press, 1956), pp. 23-24.

arts also involves continual planning and reflection, in order that the program may remain practical.[6]

Other educators have also put special stress upon the training of the hand as an organ for apprehending, handling, and modifying material by its aggressive power over the substances to be worked, altering surrounding bodies into likenesses of some idea preexisting in the mind.

Dr. Edward Sequin, who had spent thirty years of work in physiological education, considered hand work applicable not only to defectives, but to all normal children as well. He said:

> The hand is the best servant of man; the best instrument of work; the best translator of thoughts; the most skillful hand is yet, in respect to certain realizations, as it were idiotic; our own hand shrivels before we suspect the thousand ideas it might realize.[7]

Children think concretely. Meanings are clarified when a child can produce a solid image of the idea in his mind. The expression, through construction, satisfies the child's impulses to experiment and try new ideas.

Handicraft is a natural means of expression for most children. Just as children need opportunities for dramatic or civic expression, so do they need opportunities for

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[6] Ibid., p. 133.

[7] Dr. Edward Sequin, Idiocy and Its Treatment by the Physiological Method (New York: Press of Brandow Printing Company, 1907), p. 82.

manual expression in crafts. Handicraft is an important part of the learning program of all children.[8]

One of the objectives of industrial arts is to satisfy a creative desire, and this is one of the primary reasons boys and girls like craft or shop classes.

The educational function of industrial arts in the elementary school is in no sense limited to the production of sailboats, birdhouses, or whatnots. The industrial arts class is the place to teach students many skills by capitalizing on individual interests. A project may be used as a vehicle of learning through the teaching of reading, writing, and arithmetic, and many opportunities occur for instruction in a social environment.[9]

Industrial arts approaches learning actively through activity and self-expression. It is valuable as an agent of learning, because children see the need for reading, writing, and talking about things that can be constructed.

Handwork activities create a need for reading to gather information to solve a problem of construction. Such activities also create the need of writing, in making

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[8]Frank C. Moore, Carl H. Hamburger, and Anna-Laura Kingzett, Handicrafts for the Elementary Schools (Boston: D. C. Heath and Company, 1953), p. 3.

[9]B. G. Funk, "Teaching the Three R's in the Industrial Arts Program," California Journal of Secondary Education, 29:159, March, 1954.

written reports on the child's adventures in construction. A child will have something to talk about when it is time to develop a speech. When there is felt a need, learning is stimulated; and when learning can be applied to a life-like situation, the retention of that experience is increased.[10]

To the child the most important outcome of the industrial arts class will be the project. The anticipation of making something will be the stimulating factor for him. Questions often arise as to the length of time an elementary school student would work on a given project. The ideal length of time on a project would be one that the child could start today, make today, and take home tonight.[11] This is not often possible, but it does match the interest span of the child. The project would be the child's work and the child would know it. Then for the child the project would be an end, while for the teacher it would be only a means to an end.

Defining Industrial Arts. There are many definitions or ideas in relation to what the elementary school should

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[10]Walter Klehm, "Handwork in the Elementary School," Industrial Arts and Vocational Education Magazine, 45:211, September, 1956.

[11]Ibid., p. 212.

offer in the industrial arts or crafts area. They are all similar or related but are defined in different ways.

Mary Scobey, in an article discussing industrial arts in social studies, had this to say:

> At the elementary school level, this study is concerned with the ways and means by which materials and products used in daily life are obtained and prepared.[12]

This definition applies to the study of social studies. Activities which explore simple industrial processes with authentic materials will help children understand the problems that man, in all parts of the world and during his whole history, has faced in changing raw materials for his own use. This is one area of general education that contributes to the development of elementary school children.[13]

Simpson, in discussing industrial arts for elementary schools, has commented:

> Industrial arts is that phase of general education which deals with industry--its organization, materials, processes, occupations, and products--and with the problems resulting from our industrial-technological society.[14]

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[12]Mary Margaret Scobey, "Role of Industrial Arts in the Elementary School Program in Social Studies," Elementary School Journal, 55:288, January, 1955.

[13]Ibid.

[14]Simpson and others (eds.), op. cit., p. 133.

Arts and crafts in the elementary area of instruction very definitely contribute to the ongoing elementary program through subject content, methods, and techniques. Concepts of other elementary classes, such as social studies, language, arts, and sciences, are clarified. The interest that the activity provides also creates additional motivation for the acquisition of knowledge and skills in other instructional areas.[15]

The concept which defines the area of industrial arts for the elementary school as "the technique of changing raw materials for man's use" and relates the study closely with human relations is a new and developing concept. This concept has been hastened by the dynamics of the changing culture, the present world crisis, new knowledge in the area of psychology and learning, and the increased need to develop effective and well informed citizens. This concept is a part of the changing techniques of teaching and the development of the new idea of a "core" curriculum.[16]

Some educators place emphasis on the ways in which man has changed the materials of his geographic environment to satisfy his physical needs. As a study of the work of mankind, industrial arts has a sound justification as a

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[15] Ibid.

[16] Scobey, op. cit., p. 289.

major part of the integrated elementary curriculum. Children will realize that from man's efforts to satisfy his physical needs came the additional skills in the use of numbers, the sciences, methods of research, in fact, most of the subject matter found in the schools today.[17]

There is general agreement among educators that industrial arts experiences will contribute to the child's understanding of his own world. Educators are in further agreement that industrial arts experiences should grow out of and be a part of the daily life experiences rather than be isolated and have little relation to the children's personal lives and problems.[18]

Two philosophies have been developed in regard to the management of handwork in the elementary school: (1) handwork is a subject in itself and should be presented so as to achieve its own objective; (2) handwork in the elementary school is a method for teaching more effectively the regular subjects.

In America, Dr. Ira S. Griffith was a strong advocate of the first-mentioned point of view and argued that handwork

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[17]Simpson, loc. cit.

[18]R. W. Haws, "Role of Industrial Arts in the Experience Centered Curriculum of the Elementary School," Educational Administration and Supervision, 43:480, December, 1957.

was important enough to have a place among the regular school subjects and should not be absorbed by them. Elementary education handwork in Europe two hundred years ago supported Dr. Griffith's point of view; however, public education in America is not expected to simulate elementary education in Europe two hundred years ago. In any event, there seems to be some support for making handwork an additional subject in the elementary school curriculum.[19]

Teaching industrial arts as a special subject stems from the earlier tradition of teaching all subjects separately. Such a course was considered acceptable when children were taught only facts and skills.

In the past too much emphasis has been placed upon the project and not enough upon what the project does for the pupil. Elementary school children desire to create, and express themselves freely in all the various media.[20]

John Dewey, in his book, Education Today, pointed out that:

> Manual training can never take its proper place in the elementary curriculum as long as the chief aim is measured either by the actual result produced or by the gain in technical skill that comes to the producer. These have their place, but this place is not large

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[19]Walter Klehm, op. cit., p. 212.

[20]Arthur W. Earl, "Industrial Arts for Every Child in the Elementary School," Nations School, 47:65, May, 1951.

> enough to cover the territory to be rightfully assigned. The first consideration must be to give play to the deep-lying motor instincts and demands of the child; to enable him to become conscious of his powers through the variety of uses to which he can put them; and then to become aware of their social values.[21]

Increasingly, handwork is being recognized as a teaching device in the elementary school. The elementary school teacher has as her chief responsibility the development of the pupils in the use of the tool subjects common to all in a democratic society. Any skill developed by the children in manipulating tools and materials is merely a by-product of the chief efforts of the teacher. This being true, the teacher should not offer handwork as a subject by itself, but instead would use it as an aid in developing the teaching units that have been prepared.[22]

Industrial arts may be the core around which the academic subjects may be wound in the elementary school. Student activities can then be the center of the learning situation, and the material will become more meaningful because of the practical and related experience. Industrial arts should be a part of the whole elementary school system

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[21]John Dewey, Education Today (New York: G. P. Putnam's Sons, 1940), pp. 58-59.

[22]Klehm, loc. cit.

and not just of the upper grades as it has been in the past.[23]

Dewey favored the introduction of industrial arts in the elementary school to such a degree that he commented:

> I believe that they are not special studies which are to be introduced over and above a lot of others in the way of relaxation or relief, or as additional accomplishments. I believe rather that they represent, as types, fundamental forms of social activity, and that it is possible and desirable that the child's introduction into the more formal subjects of the curriculum be through the medium of these activities.[24]

Industrial arts is more than developing a "knack" or the efficient use of hand tools. Industrial arts helps the child understand the intellectual and social significance of a product or process as well as its physical and manipulative aspects.

Industrial arts thus contributes to the study of man's work activities in the cultural environment which has been created through inventions, tools, and processes. Industrial arts can not be a separate subject because the techniques and processes with which it is concerned are a part of man's life and way of living.[25]

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[23]Earl, loc. cit.

[24]Dewey, op. cit., pp. 10-11.

[25]Scobey, loc. cit.

Elementary Industrial Arts Program. From kindergarten through the sixth grade, the main emphasis in industrial arts will probably be in the making of those items and performing those processes which will give the children the understanding necessary to live in a rapidly changing world.

The first three grades should be taught by the regular teacher and should require no specialized equipment; handwork should involve rather simple construction with available materials, and the main objective at this level would be to develop the concept of size and proportion.

Grades four through six should have a special room and should be provided with equipment that does not duplicate junior high school facilities. The work would consist of simple experiences and tool processes, and the teacher, usually a woman, should be trained in industrial arts work.[26]

Ideas to be used by the children in the industrial arts work would be obtained primarily from their reading and from reference work dealing with the units under study. Here is where correlations and applications in reading, spelling, writing, geography, arithmetic, and other activities can be made.

The offerings of elementary industrial arts craft work help the child develop confidence in his ability to

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[26]Haws, op. cit., pp. 478-79.

make useful objects with his hands. Craft work not only teaches the functions, limitations, and care of tools, materials, and the value of safety measures, but it also offers the opportunity for the release of tension and improvement of muscular coordination.

Children will have the ability to express their ideas intelligently and will create within themselves a consciousness that it is possible to accomplish something. One of the most important benefits of all is the development of an appreciation of leisure time. In the present machine age, a program of crafts is justified from the standpoint of leisure time alone. A child will put into practice every bit of knowledge that he has, and will be happy while doing so. When a child's hands are busy, the whole child is occupied.[27]

As previously stated, an important objective of education is to serve the individual's needs and interests. A certain amount of school time to work on projects is justifiable, especially when new facts, knowledge, and tool skills are being acquired. Success in academic courses sometimes stems from the fact that the student had earlier interests in some phase of industrial arts. The average

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[27]M. J. Ruley, "Elementary Industrial Arts in the Schools of Tulsa, Oklahoma," Industrial Arts and Vocational Education Magazine, 40:277, September, 1951.

boy or girl working on a personal-interest project will do reading for information, planning, problem solving, and measuring, which calls for practical application of the academic skills.[28]

Industrial arts experiences are planned to contribute to the all-around development of all normal children. Within these experiences there is concern not only with the development of manipulative skills, but also with the ability to identify and solve problems, with the attitudes and appreciations emerging from individual and group activity and research, with the mental health and well-being of the learner, and with the creativity of expression.

A well conceived industrial arts program is not designed, primarily, for those children who fail to achieve in the academic subjects and are automatically identified as "hand-minded." The program is a normal phase of normal living for all children, regardless of aptitude or sex.[29]

The concept of industrial arts as an integral part of the experiences of a child is supported by Louisa H. Lawton who observed that in the "community life experience" type of education, the industrial arts underlie the activity

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[28]C. E. Nihart, "Industrial Arts in the Elementary School," Industrial Arts and Vocational Education Magazine, 40:304, October, 1951.

[29]Haws, op. cit., p. 481.

curriculum as they do the activities of life.[30] Children have the opportunity to develop naturally, and with satisfaction to themselves, because they share in the planning of the work to be done. They help to plan and organize the environment in which they work.

The aims, methods, and content of industrial arts on the level of the elementary school should be very different from those of industrial arts on the upper grade levels. The elementary industrial arts teacher should seek and plan objectives which will coordinate with each class level of instruction.

A list of industrial arts objectives that could be adapted to industrial arts in elementary schools follows.

1. To develop an active interest in industry and in industrial life of production and distribution.
   a. How things are made.
   b. The sources, transportation, and uses of raw materials.
   c. Methods of distribution.
   d. The durability and adaptability of materials.
   e. The sizes, grades, and classification of articles.

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[30] Ibid., p. 478.

2. To develop the ability to select, care for, and use properly the things he buys or uses.
   a. Qualities necessary for satisfaction, artistic and utilitarian.
   b. Cost as related to art and utility.
   c. Proper use.
   d. Protection from wear and damage.
   e. Prompt repairs and adjustments.
3. To develop the appreciation of good workmanship.
   a. Principles of design.
   b. Durability.
   c. Accuracy.
   d. Finish.
   e. Types of construction.
4. To develop in each pupil an attitude of pride or interest in his ability to do useful things.
   a. Services performed in the home.
   b. Services performed for the school.
   c. Services performed for himself.
   d. Services performed for other individuals.
   e. Any services which suggest superiority of accomplishment.
5. To develop in each pupil a feeling of self-reliance, confidence in his ability to deal

with people, and to care for himself in an unusual or unfamiliar situation.

a. The ability to use the more common tools and materials sufficiently well to meet emergencies.

b. Establishing the habit of examining a problem to see what is required before beginning it.

c. Learning to plan and execute problems on one's own responsibility.

d. Directing the work of others.

6. To develop in each pupil an orderly method of procedure in the performance of any task.

a. Requiring a careful examination of all jobs, tasks, or assignments before beginning on them in order to find out just what is required.

b. Requiring a definite, step-by-step plan for doing the job.

7. To develop in each pupil the habit of self-discipline which requires one to do a thing when it should be done, whether it is a pleasant task or not.

8. To develop in each pupil the habit of careful, thoughtful work without loitering or wasting time.

a. A definite objective or purpose, clearly visualized and much desired.

b. A definite, step-by-step plan for performing the task.

c. Emphasis on time as an element in doing the job.

d. An accurate method of measuring results which should give consideration to the time element.

9. To develop in each pupil an attitude of readiness to assist others when they need help and to join in group undertaking.

10. To develop in each pupil a thoughtful attitude in the matter of making things easy and pleasant for others.

11. To develop in each pupil elementary skills in the use of the more common tools, and a knowledge of the methods of procedure in tasks frequently encountered by the average man, together with a knowledge of the working qualities and characteristics of some of our most used materials.[31]

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[31]William T. Bawden and others, Manual Arts Conference (Peoria, Illinois: Manual Arts Press, 1934), pp. 36-46.

While the objective of the industrial arts experience curriculum at the elementary level is not concerned with the development of permanent skills, often there emerges a permanent and abiding interest which may lead to a vocational choice or to an enjoyable leisure time program.[32]

Industrial arts activities are on-going; they arise from previous experiences and contribute to further experiences. In the elementary curriculum, these activities should be thought of as a whole experience, with as many integrations and correlations with subject matter as possible.

Handicrafts are an essential part of the elementary curriculum, because the best way to change abstract ideas into real, lifelike, and understood situations is by use of the hands to form and shape raw materials.[33]

A good industrial arts program can accomplish the following ends for the pupil:

1. Deepen the pupil's understanding of the content in any instructional field.
2. Provide activities and experiences which clarify thinking, extend knowledge, and supply meanings which build desired concepts.
3. Motivate to further study and create new interests.

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[32]Haws, op. cit., p. 485.

[33]Moore, Hamburger, and Kingzett, loc. cit.

4. Create opportunity for functional use of science, language, and arithmetic skills.

5. Give children opportunities to develop physical coordination.

6. Provide opportunity for children to work together cooperatively and grow socially.

7. Provide for creative outlets for children.

8. Provide for emotional growth through satisfaction found in planning and creating.

9. Develop appreciation for the worthiness of labor, for the skill of craftsman, and the problems of an industrial society.[34]

Traditional education has placed so much stress upon the presentation to the child of ready-made materials (books, object-lessons, and teacher's talks), and the child has been held so exclusively responsible for reciting upon ready made material, that there has been only an accidental occasion for developing reflective attention. Next to no consideration has been given to the necessity of getting the child to realize a problem as his own, so that he would be self-induced to find the answer to the problem.[35]

Belfield commented:

> Education is not simply the acquisition of knowledge; nor, if it were, are books the only means of education. Education is the acquisition of knowledge and of power

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[34]Simpson and others (eds.), op. cit., p. 135.

[35]John Dewey, The Child and the Curriculum and The School and Society (Chicago: The University of Chicago Press, 1956), p. 149.

> to use knowledge. It is the complete, systematic, and harmonious development of every faculty of the child, mental, moral, and physical.[36]

If the handwork activity is to be used as a device for teaching, it appears that the classroom teacher would be the most logical to conduct the activity. She would be better able to correlate the work in respect to both time and content. She would not place an undesirable emphasis on the manipulative work which might occur if a special teacher was used.[37]

Tools and materials that are used in the elementary school must be suitable for the maturity levels of the boys and girls if handwork is going to be the teaching device for the tool subjects. The tools and materials chosen must be of a type and size corresponding to the physical development of the children.

Tools are sometimes acquired from the high-school industrial arts department or from parents. The outcome of such a procedure is usually the acquisition of tools of adult size and poor quality. Many would be impossible to use even by a craftsman. As a result, the children have experiences of failure, of frustration, or certainly very

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[36]H. H. Belfield, Manual Training and the Public School (New York: Industrial Education Association, 1888), p. 18.

[37]Klehm, loc. cit.

limited success. The elementary teacher should be aware that more harm than good would be done under such circumstances. Under such conditions, it would be better if handwork activities involving the use of tools were not conducted at all.[38]

The success of handwork in the elementary school is largely dependent upon the teacher's possessing an understanding of the purpose and nature of the work. She must be conscious that the greatest benefits would occur from using handwork as a teaching device for the tool subjects. Industrial arts work on the elementary level loses much of its value if it is allowed to become an end in itself.[39]

Most children have the desire to make things, but this desire usually does not materialize because of the lack of information necessary to carry out the task. Many classroom teachers are hampered by this same deficiency. In most cases, such a deficiency is not the fault of the teacher, but the fault of his or her educational experience.[40]

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[38] Ibid.

[39] Ibid., p. 212.

[40] R. C. Cramlet, Junior Handicrafts (New York: The McCormick Mathers Company, 1937), p. v.

The greater proportion of teacher training has been aimed at the education of teachers for the junior-senior high school level.[41] Graduates are usually unsuccessful in their efforts to adapt secondary skill techniques to the style that would be required in the elementary school.

A number of teacher education colleges now offer courses in handwork to those pursuing the curriculum for the preparation of elementary school teachers. The teacher's need for instruction and skill in the use of tools is moderate because the variety of hand tools to be used is not great.[42] However, instruction in the use of tools will produce more satisfactory projects, will make for greater safety, and will establish better tool techniques.

Today industrial arts in the elementary school is taught under three general plans. In small communities and in small elementary schools, industrial arts is taught by the elementary teacher who teaches all parts of the curriculum. The extent to which industrial arts is taught in such a situation depends on how well the teacher is prepared to teach such work.[43]

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[41]Damon K. Kroh, "The Four E's in Elementary School Industrial Arts," Industrial Arts and Vocational Education Magazine, 45:320, December, 1956.

[42]Klehm, op. cit., p. 212.

[43]Barich, op. cit., p. 256.

Small city and country schools sometimes use an itinerant industrial arts teacher, who has had adequate training and experience in industrial arts, for the elementary schools. This teacher assists the regular elementary teachers with the industrial arts phase of work. Meetings may be held where methods, projects, and other problems concerning the elementary industrial arts program would be discussed.

A third plan is employed by larger city school systems. Such a plan calls for a full-time supervisor, a teacher with specialized training, and a special room and equipment.[44]

Major ideas advanced by speakers at the American Industrial Arts Association[45] in 1954 were that elementary teachers should recognize and utilize the values contributed by the characteristics of industrial arts; that industrial arts is exploratory and supplementary to all areas of the elementary curriculum; that industrial arts activities involve problems of selection and evaluation as well as time and materials which educational leaders must help teachers cope with; and that industrial arts cannot be

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[44] Ibid., p. 257.

[45] Walter E. Ditzler, "The American Industrial Arts Association Considers Industrial Arts in the Elementary School," Industrial Arts Teacher, 14:9, October, 1954.

effectively included in the elementary curriculum without effective teacher education at the pre-service and in-service levels.

The speakers also indicated that the classroom teacher needs the help of the special industrial arts teacher, the supervisor, and the teacher educator if a really dynamic industrial arts program is to develop. The elementary teacher must develop an awareness of appropriate industrial arts activities relative to specific curricular areas.

Discussion also indicated that the industrial arts supervisor could do much in regard to the development of an industrial arts program. The supervisor's clear understanding of the broad concept of industrial arts in elementary education would be a great influence on the programs in the region. The supervisor must have a clear understanding of the purposes of such an area so that the concept would be carried beyond the traditional idea that industrial arts activities involve only construction of woodwork projects.[46]

Analysis will show that if handwork is contributing to undesirable results in the education of children, several factors are likely to be in error and to need correction. They may include: (1) the use of improper

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[46] Ibid., p. 10.

tools and materials; (2) the failure of the teacher to provide the necessary instruction in the use of tools and materials; (3) failure of the teacher to have the pupils restore order when finished with work; (4) and permitting pupils to spend too much time on the crafts area to the nelgect of the regular school subjects.

When the industrial arts program is under the complete direction of the classroom teacher, the amount of time devoted to handicrafts is dependent upon the educational objectives for the particular grade. Generally, younger children will be given more time because their span of attention to reading materials is less than that of older children. It is impossible to say how much time should be given to any phase of the elementary school program.[47] Care must be taken by the teacher to see that the time spent on handicrafts is in balance with the remainder of the school program. In schools offering crafts, it is very easy to spend too much time on the handwork activity. This sometimes occurs because children will tend to influence the teacher to allow more time in crafts.

It is generally not advisable to permit part of a class in the same room to work at crafts while the rest of the class engages in other study because the former

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[47] Moore, Hamburger, and Kingzett, op. cit., p. 37.

activities would cause distractions to those engaged in the study of the latter subjects. It is better to have all the children enjoy this handwork at the same time.[48]

Industrial arts facilities, like other educational facilities, should be furnished by the school. The cost of introducing crafts into the elementary program is one factor that has withheld the craft activity from getting its rightful start in many elementary school programs. This has occurred because of the misconceptions in regard to such a program. The elementary crafts program is not to be built around expensive and elaborate tools. It must be remembered that elementary children are small and therefore the equipment and tools need not match those of the senior-high-school level.

Differences of opinion have arisen concerning the responsibility for the cost of supplies which are consumed by children in making articles which they themselves may keep when completed. Actually the cost of supplies consumed by individual pupils is relatively small.

Teachers who urge that the school pay all costs feel that more than the cost is saved in avoiding record keeping. Those who feel that the child should pay for his own materials suggest that the child's interest and

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[48] Ibid.

appreciation is increased because of the small investment in the material.[49]

Perhaps both are right. Certainly the school should take responsibility for the cost involved in a school or class project. For the more elaborate articles that children make, the cost might be properly charged to the child. In order to avoid difficulties in this regard, it is well to establish rather specific regulations concerning the payment for handicraft supplies.

Before such a program is rejected, attention should be given to the fact that industrial arts activities are psychologically desirable and contribute materially to educational goals. Therefore, such activities should be provided in some form, even if no budget allowance is made for them.[50]

It is evident that industrial arts at the elementary level is an inevitable and indispensable introduction to the tool subjects of the elementary curriculums. Industrial arts supports and makes more meaningful the entire program. It only remains for the teacher to be alert to these connections and take advantage of them. Interest in the

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[49] Ibid., pp. 40-41.

[50] Carl Gerbracht and Robert J. Babcock, Industrial Arts for Grades K-6 (Milwaukee: The Bruce Publishing Company, 1959), p. 17.

tool subjects will then be strengthened because craft activities will cause children to do reading to obtain more information about the project under construction.

Industrial arts will not make good teachers out of poor ones; it will not transform all bad boys into good ones; nor will it convert every lazy, shiftless boy into an industrious, thrifty man. But some things it will do. Industrial arts will generally make the school work more attractive. The child will enjoy school and will see a need for education.

It should be noted that industrial arts is not another subject to be squeezed into the already bulging curriculum. There is no standard content which must be covered. Industrial arts justifies its existence on the basis of the help it gives the school. It helps the school do better the things the school is already trying to do.

CHAPTER III

THE STUDY

The data for the study were obtained through the use of a questionnaire. The questionnaire was sent to 559 elementary teachers throughout the state of Kansas. The number of teachers returning the questionnaire was 359, which gave a return of 64.2 per cent. This seemed to be sufficient to examine the industrial arts programs that are being used in the elementary schools of Kansas, because the random sampling included schools from all parts of the state.

The study revealed that only sixty-eight, or 19 per cent, (see Table I), of the teachers responding were teaching some industrial arts.

TABLE I

NUMBER AND PERCENTAGE OF TEACHERS REPORTING THE TEACHING OF INDUSTRIAL ARTS

Number reporting	Number reporting yes	Number reporting no	Per cent reporting yes
359	68	291	19

It may be of interest to note that of the sixty-eight teachers reporting that they taught industrial arts, thirty-two stated that industrial arts was also taught by another teacher in the school. Of the 291 teachers reporting that they did not teach industrial arts, forty-eight noted that industrial arts work was being carried on in the school by some other teacher. This indicated that some industrial arts work was being offered by approximately 116 teachers who came into contact with the questionnaire directly or indirectly.

The grouping of the returned questionnaires according to the different types of school districts showed that sixteen of the thirty-one one-teacher schools offered industrial arts (see Table II, page 41). Two-teacher schools were second, with six of nineteen offering industrial arts. The first class cities had fifteen of fifty-nine; the three-teacher schools had three of sixteen; consolidated, twenty-two of one hundred and forty-seven; second class city, six of sixty-nine; and the parochial schools reported no industrial arts.

Table II also indicates that the percentage of return from the one-teacher schools was the lowest. This may account for the fact that one-teacher schools have the highest percentage of schools offering industrial arts.

There are eleven different areas of handwork activity being offered by the teachers responding to the study. These areas were: metalwork, woodwork, plastics, leather, weaving, model airplane building, ceramics, hand drawing, paper work, electricity, and soap modeling.

TABLE II

THE PER CENT OF ELEMENTARY TEACHERS TEACHING INDUSTRIAL ARTS ACCORDING TO THE TYPE OF SCHOOL DISTRICTS

Districts	Sent	Yes	No	Per cent return	Per cent teaching
Consolidated	251	22	125	58.1	14.9
One Teacher	52	16	15	50.9	51.6
Two Teacher	30	6	13	63.3	31.6
Three Teacher	19	3	13	84.2	18.7
Second Class City	96	6	63	71.8	8.7
First Class City	87	15	44	67.8	25.4
Parochial	24	0	18	75.0	.0
Total	559	68	291	64.2	

Weaving seemed to be the most popular area (see Table III, page 42), as it was offered by forty-two of the responding teachers. Woodwork was second and was offered by thirty-eight teachers. Leathercraft was offered by seventeen, and plastics and clay modeling were offered by thirteen elementary teachers. The remainder of the areas

were offered by a small percentage of the teachers. Hand drawing was reported taught by two teachers, and electricity and soap modeling were reported only once.

A possible reason for the fact that weaving is offered in so many of the schools is that most elementary teachers are women. The training for such an area would probably begin back in the childhood days of the instructor, and the area could be taught in a minimum amount of space with a minimum amount of tools and materials.

TABLE III

THE AREAS OFFERED IN INDUSTRIAL ARTS AND THE NUMBER OF TEACHERS OFFERING THE AREAS

Area	Number of teachers offering the areas
Weaving	42
Woodwork	38
Leather	17
Plastics	13
Metalwork	11
Model Airplane	8
Ceramics	8
Paper Work	6
Hand Drawing	2
Electricity	1
Soap Modeling	1

It is not shown on the table, but examination of the questionnaire showed that twelve of the sixteen one-teacher schools teaching industrial arts were using weaving in their industrial arts program.

Table IV gives the number of different areas offered and the number of schools offering the area. Examination of the table reveals that the number of areas varied from one to six, with only one school offering six areas. Indications were that many of the elementary teachers teaching crafts preferred to teach only one area. This may arise from the fact that many elementary schools have a minimum amount of space. Also, it is easier to teach one area rather than four or five.

TABLE IV

THE NUMBER OF AREAS IN INDUSTRIAL ARTS AND THE NUMBER OF SCHOOLS OFFERING THE AREAS

Number of areas	Number of schools
1	29
2	16
3	10
4	7
5	4
6	1

Examination of Table V indicates the range of grades in which work in industrial arts is offered in the 359 elementary schools responding to the study. The range was from kindergarten through the eighth grade. The two grades where industrial arts was found most frequently were the sixth grade, with seventy-four schools, and the fifth grade, with sixty-six schools. Industrial arts work was found least frequently in kindergarten with only twenty-one schools offering industrial arts at this level. This occurs because many elementary teachers do not know how to adapt such work to the kindergarten level.

TABLE V

GRADE LEVELS AT WHICH INDUSTRIAL ARTS IS OFFERED

Grade level	Number of schools offering
Kindergarten	21
First	46
Second	45
Third	55
Fourth	63
Fifth	66
Sixth	74
Seventh	57
Eighth	58

It is apparent from Table V that there was a gradual tendency to increase industrial arts in higher grades up to the sixth grade and then there was a decrease in the seventh and eighth grade.

Table V was computed from item six of Section A, and items three and eight of Section B on the questionnaire (see Appendix, page 70). Figure 1, page 46, illustrates graphically the distribution of students and grade levels from the teachers contacted and by others in the schools reporting. One will notice that the teachers reporting on their own teaching offered very little industrial arts work in the seventh and eighth grade; yet, in the schools in which industrial arts was taught, but not by the teacher contacted, a greater number offered industrial arts on the seventh and eighth grade levels.

The overall distribution definitely shows the sharp rise from twenty-one teaching industrial arts in kindergarten to forty-six teaching industrial arts in grade one. There was a gradual increase in the number of teachers teaching industrial arts from grade two up to grade six, and then there was a sudden decline. Such a decline may be caused by the fact that some seventh and eighth grade students attend a junior high school.

Inquiry was made in the questionnaire as to what period of the day industrial arts was offered. It was found

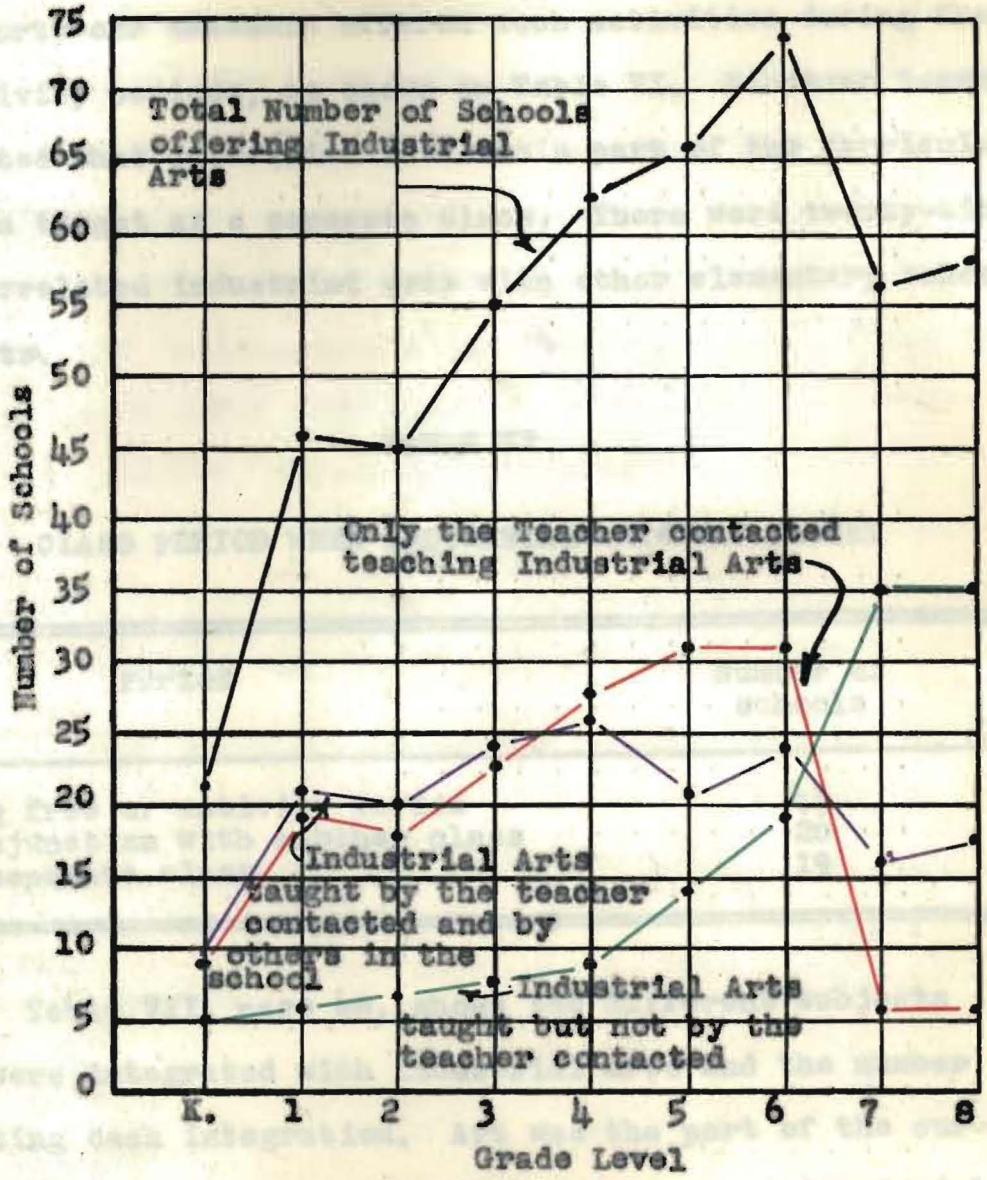

FIGURE 1

FREQUENCY WITH WHICH INDUSTRIAL ARTS WAS TAUGHT AT EACH GRADE LEVEL BY TEACHERS CONTACTED AND BY OTHERS IN SCHOOLS REPORTING

that forty-one teachers offered such activities during free or activity periods, as shown in Table VI. Nineteen teachers indicated that industrial arts was a part of the curriculum and was taught as a separate class. There were twenty-six who correlated industrial arts with other elementary school subjects.

TABLE VI

CLASS PERIOD WHEN INDUSTRIAL ARTS WAS TAUGHT

Period	Number of schools
During free or activity period	41
In conjunction with another class	26
As a separate class	19

Table VII, page 48, shows the different subjects that were integrated with industrial arts and the number reporting each integration. Art was the part of the curriculum where most industrial arts work was used. Social studies and science were each reported by ten teachers as being integrated with industrial arts. Several other subjects were listed as being used, but they were mentioned less than ten times each.

This indicated that the trend was to offer industrial arts at some time when the other subjects were not being

offered. In analyzing such facts, one must conclude that industrial arts very definitely interests children and even to the point where they will sacrifice free time for such an activity. Another point of interest is that many teachers are using industrial arts as a separate subject field and are failing to utilize the many opportunities the other subjects would provide for the enrichment of industrial arts, and the correlated subjects as well.

TABLE VII

SUBJECTS CORRELATED WITH INDUSTRIAL ARTS

Subjects	Number of schools
Art	14
Science	10
Social Studies	10
Reading	7
Health	5
Arithmetic	2
Geography	2
Language	2

One problem that is often associated with the offering of industrial arts is that of space. The trend was very definitely that of using the classroom, Table VIII, page 49. There were fifty-four teachers who taught industrial arts directly in the classroom while only five used a

multiple-purpose room, three an adjoining room, and two used a room set aside for industrial arts activities. This would indicate that the teachers who are teaching industrial arts are content to use an area of the classroom for such activities. Increase in enrollments and shortage of space and teachers would also contribute to the fact that the majority of teachers have industrial arts in the regular classroom. It is suggested that in such instances, however, one part of the room be devoted to construction work and the tools and supplies be given permanent storage space.

TABLE VIII

PHYSICAL FACILITIES USED FOR INDUSTRIAL ARTS TEACHING

Place	Number of teachers
Classroom	54
Multiple purpose room	5
Adjoining room	3
A room for this purpose	2

The teachers who reported teaching industrial arts were asked to indicate the approximate amount of time spent per week in the industrial arts area. Sixteen teachers

reported that they allowed sixty minutes for the area, and nine teachers offered industrial arts for approximately thirty minutes per week, see Table IX. One teacher indicated that five hours were given to industrial arts each week, and one indicated three hours. This table seems to indicate that teachers are not allowing much time for the industrial arts activity. However, attention is called to the fact that only a small sampling of the participants provided information for this question, and the validity of such a limited sampling may be questionable.

TABLE IX

APPROXIMATE AMOUNT OF TIME ALLOWED FOR INDUSTRIAL ARTS ACTIVITIES PER WEEK

Time	Number reporting
5 hours	1
3 hours	1
2 hours	6
1 hour 30 minutes	2
1 hour 15 minutes	7
60 minutes	16
45 minutes	1
30 minutes	9
Only before holidays	5

Teachers and administrators sometimes feel that industrial arts cannot be introduced in the elementary

schools because of the cost of tools and equipment. Industrial arts on the elementary level does not require a large selection of tools. Participants who taught industrial arts related that very few tools are needed to carry on industrial arts. Table X shows the tools most often found in the elementary schools. The hammer, pliers, coping saw, and screw driver were found most often in the schools, with forty-two, forty-one, thirty-nine, and thirty-nine respectively. Leather tools were found least frequently in the elementary schools contacted.

TABLE X

TOOLS USED BY THOSE TEACHING INDUSTRIAL ARTS

Tools	Number reporting
Hammer	42
Pliers	41
Coping saw	39
Screw driver	39
Hand saw	34
Tin snips	30
Drill bits	24
Files	22
Hand drills	21
Nail set	16
Jig saw	15
Scratch awl	12
Try square	11
Block plane	11
Buffer	8
Back saw	7
Leather tools	4

From this, it is apparent that the tools found most often are the common hand tools. This is not undesirable because construction activities on the elementary level are very simple and much can be accomplished with a few tools.

Inquiry was made in the questionnaire as to whether the teachers who did not teach industrial arts had tools available. Examination of Table XI reveals that the tools are found with about the same frequency as in Table X.

TABLE XI

TOOLS FOUND IN SCHOOLS WHERE INDUSTRIAL ARTS WAS NOT TAUGHT

Tools	Number reporting
Hammer	32
Screw driver	32
Hand saw	30
Pliers	29
Coping saw	28
Tin snips	23
Hand drills	20
Files	18
Drill bits	17
Try square	15
Nail set	11
Jig saw	11
Block plane	9
Buffer	7
Back saw	6
Scratch awl	5

The table does not indicate the fact, but the tools listed in Table XI were found in thirty-nine schools. This means that tools were available in thirty-nine of the 291 schools where industrial arts was not taught.

The replies on item two of Section A, which inquired concerning the reasons for failure to offer industrial arts, indicate the main reason to be lack of room in the building. Table XII, page 54 shows not only that it was the main reason, but that it was quite far ahead of the second stated reason. It was interesting to note that the second reason most often given for not teaching industrial arts, lack of training in the area, was checked 122 times. Lack of encouragement by the administration was reported by 116, and 104 indicated that the cost of equipment was too great. Of the first four reasons given for not offering industrial arts, three could be eliminated with a minimum of difficulty.

Lack of training in the area. The study showed that of the teachers who checked lack of training, twenty-two had some training in industrial arts and ninety-eight had no training. The twenty-two teachers who had some training must have found the teacher preparatory course relative to industrial arts very uninspiring or the course may not have demonstrated the part which industrial arts can play in the elementary school. Based on references

cited, a conclusion would be that the ninety-eight who did not have any industrial arts training had received inferior, or at least deficient, teacher training.

TABLE XII

REASONS GIVEN BY 291 TEACHERS FOR NOT TEACHING INDUSTRIAL ARTS

Reasons	Number reporting
Lack of room in the building	152
Lack of training in the area	122
Not encouraged by administration	116
Cost of equipment too great	104
Cost of supplies too great	86
Lack of time	43
Did not list any reason	8
Teaching seventh and eighth grade	6
Lack of need on part of pupils	2
Schedule too crowded	1
Lack of facilities	1
Not considered essential in curriculum	1

The training in industrial arts for elementary teachers has as its objective not only that of showing the part which industrial arts can play in the elementary school, but also the aim of stressing that a program should develop essential skills and knowledge related to constructive endeavor with material things. The work should proceed with teacher-pupil planning guiding the choice of activities.

Specific instructions should be given in tool and machine techniques, and also information related to materials, supplies, and industrial production of goods and services.

Laboratory work in such an area should not only teach certain skills, but it should also give the individual confidence in the area, because classroom teachers who have confidence in their ability to perform industrial arts activities are more likely to utilize those activities in their teaching. Once such a program has been established in a teacher training institution, teachers should not have to list the lack of training in the area as one of the main reasons for not offering some industrial arts work in the elementary school.

Not encouraged by administration. The lack of encouragement by the administration was third in order of the reasons given for not offering industrial arts. This appears to be a reason that should not exist. Either teachers checked the reason as an alibi or school administrators should be trained to realize the advantages of such an activity in the elementary schools.

Cost of equipment too great. The response to the fourth item in Table XII, page 54, indicates that teachers have the wrong idea about what the industrial arts program on the elementary level includes. Obviously the cost

depends upon the nature of the program. Some activities involve very little or no cost. On the other hand, an elaborate layout of tools and equipment could be expensive. But even if budget limitations exist, industrial arts activities should be provided in some form. Other things being equal, of course, a better program will result when funds are available to implement the program with at least basic equipment and materials. Schools provide money for plays, recreation, and many other types of student activities. Industrial arts activities are psychologically desirable and contribute materially to educational goals and should therefore be provided in some form or other. Even if the amount of supplies and equipment is limited, some type of an industrial arts program should be present in the elementary schools.

Reference to Table X, page 51, will again show the small list of tools that were available to teachers who are presently teaching industrial arts activities. Many of the programs were very small, and Table IX, page 50, demonstrates this very clearly. Even though small, an effort has been made to provide some time for the child in the elementary school to be creative.

Lack of room in the building. This was the reason most often given for not offering industrial arts, and of

the four main reasons for not teaching industrial arts, it is the only one that could be accepted as a legitimate reason for not teaching industrial arts. Kansas has a great number of small schools which are faced with crowded conditions. In many instances neither principals nor teachers can help this situation. However, it is hoped that those who lack room will acquire more physical facilities or at least will utilize what they have to the best advantage of the students.

A space was provided at the end of the questionnaire for the recording of any other information the recipient thought might be of help to this study. Some interesting and informative suggestions were given. Among the statements made by these teachers were the following:

1. "We need workshops on grade levels in which the instructor teaches. Often times so much of the work does not fit the group we work with after we get the training."
2. "I find with class load, shortage of time, and classroom limitations hedging me in and therefore I give only as much time to arts and crafts as absolutely necessary--no more."
3. "More experience with simple crafts and few tools."

4. "Personal satisfaction and the idea that anyone can do it. Too many teachers are afraid to try these skills because they think it involves a high degree of artistic talent."
5. "A wide variety of medium and how to handle the tools."
6. "I am sure that the teacher training program should include the "know how" of any crafts that would be taught. Besides this, reading assignments should be given to give the student the back ground for creativity in all art work and teaching."
7. "There are so few suggestions in crafts in the lower grades is the reason I turn more to art."
8. "The teacher training programs need to place more emphasis on crafts as correlated to other subjects."
9. "The teacher training needs more simple, practical things which do not cost so much. The instructors insist on too much. The training is not practical at all as the college teachers think only for adults, but we teach children."
10. "Give teachers an abundance of ideas and information where materials can be obtained."

Many of the remarks made by the responding teachers had direct relationship to the industrial arts teacher preparatory course for elementary teachers. Some of the comments indicated that colleges and universities are failing to establish an attitude showing the need and the usefulness of construction activities in the elementary school. Teacher training institutions must become aware of the needs of the elementary teacher and strive to establish a program which would be thorough and complete in all the necessary media for training elementary teachers.

This chapter has presented an investigation of the industrial arts programs in the elementary schools of Kansas. The next chapter will be concerned with summarizing the findings of the study, and an attempt will be made to draw some conclusions from these findings.

CHAPTER IV

SUMMARY AND CONCLUSIONS

This study has been designed to investigate industrial arts activities in the elementary schools of Kansas. An extensive search of literature was conducted to help determine the perspective of the problem and the implications for present-day industrial arts programs in elementary schools.

A survey was made by means of a questionnaire which involved 359 elementary teachers throughout Kansas. Following is a summary of the findings:

1. There were only sixty-eight, or 19 per cent of the responding teachers, teaching industrial arts.

2. Construction activities were found more frequently in the one and two teacher schools.

3. There were eleven different areas being taught, with weaving and woodwork being the most popular.

4. The highest number of areas offered by one school was six, but the greatest number of schools offered only one area.

5. Industrial arts was offered most frequently in the sixth grade. The tendency was to increase industrial arts in higher grades up to the sixth grade, and less frequently in the seventh and eighth grade. The cause of

the decline could be attributed to the fact that the study was directly concerned with the kindergarten through the sixth grade. The presence of junior high schools in a community would also have direct effect upon the study showing a decline on the seventh and eighth grade levels.

6. The majority of the schools studied were not integrating industrial arts with the other subjects. Industrial arts was taught most frequently during free or activity periods.

7. Art was the part of the curriculum where most industrial arts work was used.

8. Industrial arts was usually taught in the regular classroom.

9. Very little time was being given industrial arts activities.

10. Most of the tools needed in the elementary program are the small common hand tools.

11. Lack of room was the main reason for not teaching industrial arts.

12. Many teachers lacked understanding of the need of industrial arts on the elementary level.

13. Many elementary teachers felt that the teacher preparatory course for industrial arts is inadequate.

In view of the findings of the survey and material reviewed some needs and suggestions for improvement were

formulated. A summary of these needs and suggestions follows:

1. More elementary schools need to offer some construction activities along with the tool subjects. As the school administration and community become aware of the value of such activities, more areas and tools could be added.

2. A wide variety of areas should be provided so that individual students can work with tools and materials of their choosing.

3. Industrial arts should be included in all the grades of the elementary school for all boys and girls, and should be taught by the regular classroom teacher.

4. Special attention should be given to the tools and equipment of industrial arts in elementary schools. The tools need to be of a size suitable for children as well as be of a quality which will make them easy to manipulate.

5. When a shortage of funds exist, the teacher should use salvage material and other community resources.

6. There is a need for integration of industrial arts with other subjects. There is no standard content to use; the teacher must simply recognize the place and time when such an activity would be helpful.

7. The teacher preparatory program should include a class which will give specific instruction concerning tool and machine techniques, and information related to materials, supplies, and industrial production of goods and services. Such a program should also include information and hints about the procedure in conducting industrial arts in the elementary school.

8. An area supervisor could do much for the development of industrial arts on the elementary level. Elementary schools have area supervisors for physical education programs; such a program for industrial arts should also be adopted. The supervisor should be someone experienced in industrial arts who would be able to correlate such skills and knowledge with the elementary curriculum.

9. One of the state requirements for the teaching degree for elementary teachers should be one or more classes in practical arts and crafts.

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APPENDIX

February 24, 1959

I am conducting a study in the area "Practical Arts in the Elementary Schools of Kansas" as partial fulfillment for the degree, Master of Science, here at Kansas State Teachers College, Emporia. The study involves contacting elementary teachers throughout the state; therefore, I desire a list of the elementary teachers and their assignments in your county.

I appreciate your cooperation in supplying this material; if you desire a summary of the findings I will be glad to supply you with a copy upon the completion of the study.

Thank you very much for your time and consideration.

Yours sincerely,

James Weinmann
918 Market
Emporia, Kansas

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KANSAS STATE TEACHERS COLLEGE

EMPORIA, KANSAS

March 30, 1959

Literature dealing with education relates the fact that construction activities are an essential part of elementary education. Some of our larger cities in the United States have progressed and expanded to such a degree that much equipment and time is provided for the crafts area. There is no known information available which shows the position of the Kansas elementary schools in relation to this problem.

The purpose of the questionnaire which accompanies this letter is to gather facts and information from which an attempt will be made to determine what is being offered in crafts in the elementary schools of Kansas, kindergarten through the sixth grade. The information obtained may be a help in revising the teacher training curriculum in this area at Kansas State Teachers College, Emporia. For the enclosed questionnaire, the term "crafts" will be referred to as the area which includes activities involving the use of wood, metal, leather, plastics, and materials of this nature.

Your cooperation in making this study a success by filling out as completely as possible the questionnaire and promptly returning it in the enclosed self addressed envelope will be appreciated. Please complete the questionnaire with reference to yourself and not that of the total school situation. All information is for study purposes; you need not sign your name or mention the name of the school unless you so desire.

I wish to thank you for your time and cooperation in the study, and if you desire a summary of the findings I will be glad to send it to you upon your request.

Yours sincerely,

James Weinmann
Industrial Arts Department

Your type of school district is: one teacher_____, two teacher_____, three teacher_____, four teacher_____, consolidated_____, 2nd class city_____, 1st class city_____, parochial_____.

Questionnaire

1. Do you, personally, teach craft work in one or more grades, kindergarten through the sixth grade? Yes_____. No_____.

   If your answer is "no", complete Section A of the questionnaire; if it is "yes", complete Section B.

Section A

2. Please indicate the reasons you do not offer crafts at these levels:

   Cost of equipment too great_____
   Cost of supplies too great_____
   Not encouraged by administrator_____
   Lack of training in the area_____
   Lack of room in the building_____
   Others_____

3. Do you have equipment at your disposal? Yes_____ No_____

   If answer is "yes" check those available:

   Jig saw_____
   Buffer_____
   Hammer_____
   Try square_____
   Hand saw_____
   Coping saw_____
   Back saw_____
   Tin snips_____
   Other_____

   Pliers_____
   Hand drills_____
   Files_____
   Block plane _____
   Screw driver_____
   Drill bits_____
   Nail set_____
   Scratch awl_____

4. Did you have teacher training in the teaching of crafts? Yes_____. No_____.

5. In what school did you receive this training?_____

6. Are crafts offered in your school? Yes_____. No_____.

   If so, at what levels are they offered?

   Kindergarten_____
   First grade _____
   Second grade_____
   Third grade_____
   Fourth grade_____

   Fifth grade_____
   Sixth grade_____
   Seventh grade_____
   Eighth grade_____

7. If you have had teacher training in craft work, would you make some suggestions as to what should be included in the training of teachers in the crafts area?

Section B

2. If the answer to question 1 is "yes", do you teach craft work:

   As a seperate class_____?
   During free time or activity periods_____?
   In conjunction with other classes_____? If so, what class_____?

3. Check the grade levels at which you teach crafts?

   Kindergarten_____
   First grade_____
   Second grade_____
   Third grade_____
   Fourth grade_____
   Fifth grade_____
   Sixth grade_____

4. The class is taught in:

   An area of the classroom_____
   An adjoining room_____
   A room exclusively for this purpose_____
   A multiple purpose room_____
   A junior-senior high school shop_____

5. What do you teach in the crafts area?

   Metalwork_____
   Woodwork_____
   Plastics_____
   Leather_____
   Model airplane_____
   Weaving_____
   Other_____

6. Check the equipment that is available:

   Jig saw_____
   Buffer_____
   Hammer_____
   Try square_____
   Hand saw_____
   Coping saw_____
   Back saw_____
   Tin snips_____
   Other_____
   Pliers_____
   Hand drills_____
   Files_____
   Block plane_____
   Screw driver_____
   Drill bits_____
   Nail set_____
   Scratch awl_____

7. Approximately how much time per week do you give to the crafts area?_____

8. At what other levels are crafts taught in your school?

   Kindergarten_____
   First grade_____
   Second grade_____
   Third grade_____
   Fourth grade_____
   Fifth grade_____
   Sixth grade_____
   Seventh grade_____
   Eighth grade_____

9. Did you have teacher training in the teaching of crafts? Yes____. No____.

10. In what school did you receive the training?_____

11. Would you make some suggestions as to what should be included in the training of teachers in the crafts area?

May 25, 1959

During the first part of April, you received a request for information concerning "Crafts in the Elementary Schools of Kansas." I realize that you are busy closing the school year, but I would greatly appreciate your cooperation by returning the form which you received.

Yours sincerely,

James Weinmann
Industrial Arts Dept.