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A Study To Determine The Need For Industrial Arts Activities For Enriching The Elementary Curriculum In The Dallas Public Schools

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A STUDY TO DETERMINE THE NEED FOR INDUSTRIAL ARTS ACTIVITIES FOR ENRICHING THE ELEMENTARY CURRICULUMM IN THE DALLAS PUBLIC SCHOOLS

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A Thesis
Presented to
the Faculty of the Graduate Division
Prairie View Agricultural and Mechanical College

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

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by
Fredie Morris Cohen
August 1970

PRAIRIE VIEW AGRICULTURAL AND MECHANICAL COLLEGE
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The purpose of this study was (1) to study research concerning industrial arts activities at the elementary level; (2) to gather and study information and data concerning industrial arts activities in the elementary schools of Texas and other states; (3) to study the present curriculum of the elementary schools of Dallas; (4) to determine to what extent industrial arts activities are currently included in the elementary schools and to determine the opinions of the elementary teachers and principals toward this type of activity; and (5) to offer suggestions and recommendations for including industrial arts activities in the curriculum of the Dallas Public Schools.

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DEDICATION

This study is dedicated to my wife, Mrs. Emma Sue Cohen; my mother, Mrs. Edwnia Cohen, and my children Cheryl, Fredie, and Patrick, for their loyal support and sympathetic understanding during the preparation of this paper.

ACKNOWLEDGMENTS

The writer expresses his indebtedness to Mr. W. J. Hall for his constructive critisms and helpful suggestions given in connection with the writing of this thesis and to one hundred forty-four elementary teachers and thirty principals of the Dallas Independent School District, for supplying the information that made the study possible.

CHAPTER I

THE PROBLEM AND METHOD OF PROCEDURE

Industrial arts has been taught in varying degrees in the elementary schools of Texas for a number of years. In some cases, industrial arts activities have been integrated with other subject areas, and in some cases they have been taught as a separate subject. There have been several studies made concerning what the nature and extent of industrial arts activities should be at the elementary level. Research indicates, however, that there has been no study made to determine if industrial arts activities could be used to enrich the elementary curriculum in the Dallas Independent School District.

The elementary curriculum can be enriched by including some industrial arts activities according to some people who have done research in this area. Bonser and Mossman[1] did extensive research and writing on this phase of the elementary curriculum. Louis V. Newkirk[2] has long advocated including activities at the elementary level, which includes tools, materials, and processes. Ericson, in his book entitled Teaching the Industrial Arts,[3] devotes a section to industrial arts activities at the elementary level.

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[1]Frederick G. Bonser and Lois Coffey Mossman, Industrial Arts For Elementary Schools (New York, 1928).

[2]Louis V. Newkirk, Integrated Handwork for Elementary Schools (Boston, Mass., 1940).

[3]Emanuel E. Ericson, Teaching the Industrial Arts (Peoria, Illinois, 1946), pp. 276-279.

Beginning about 1925, some attention was given to this type of experience for children enrolled in the elementary schools in Texas, and in 1938 the State Department of Education made some recommendations and suggestions in a bulletin entitled Industrial Arts Program.[4] The Texas Education Agency published a bulletin entitled Industrial Arts in Texas Schools.[5] This bulletin was prepared by twenty-three of the leading industrial arts teachers and teacher educators throughout the state. This group of teachers made both general and specific suggestions and recommendations as to the nature and scope of industrial arts activities in the public schools of Texas. This bulletin places more emphasis on industrial arts activities at the elementary level than do prior bulletins published at the state level in Texas.

There is a number of school systems in the State of Texas which include industrial arts activities in the curriculum of their elementary schools. Some of these school systems are Houston, Snyder, San Antonio, and Andrews, Texas. The Houston Public Schools published a curriculum bulletin, entitled "Industrial Arts Handbook,"[6] in 1954, which gives attention to industrial arts activities at the elementary level. The industrial arts program in the Houston school system starts at the fourth-grade level and continues through the sixth grade. In

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[4]State Department of Education, Industrial Arts Program, Bulletin 389 (Austin, Texas, 1938).

[5]Texas Education Agency, Industrial Arts in Texas Schools, Bulletin 656 (Austin, Texas, 1955).

[6]Houston Public Schools, "Industrial Arts Handbook" (Houston, Texas, 1954).

1955, the Snyder, Texas, Consolidated Independent School District, Snyder, Texas, published a bulletin, entitled "Industrial Education,"[7] which makes provisions for an industrial arts program at the elementary level starting with grade one and continuing through grade six. The curriculum in the school systems of San Antonio and Andrews, Texas, includes industrial arts activities at the elementary level; however, published material on this phase of the curriculum of the above mentioned schools was not available for use in this study.

Statement of the Problem

The problem of this study is to determine if there is a need for industrial arts activities to enrich the elementary curriculum in the Dallas Independent School District, Dallas, Texas.

Limitations of the Problem

This study is limited to the elementary industrial arts programs presently in operation in Texas and other states and the curriculum of the elementary schools of the Dallas Independent School District. This study is further limited to a study of the opinions, attitudes, and interests of the administrators and elementary classroom teachers of Dallas concerning the use of industrial arts activities at the elementary level. This study is further questionnaires which were completed and returned by 140 elementary classroom teachers and 33 principals of the Dallas Independent School District.

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[7]Snyder Public Schools, "Industrial Education" (Snyder, Texas, 1955).

Purpose of Study

The purpose of this study is fivefold. They are as follows: First, to study the research that has been completed concerning industrial arts activities and learning experiences at the elementary level to ascertain if and how the elementary curriculum can be enriched by including this type of activity. Second, to gather and study information concerning industrial arts activities and/or programs at the elementary level in schools in Texas and other states. Third, to study the present curriculum of elementary schools of Dallas to ascertain if the various curriculum bulletins include suggested subject matter and activities which, research indicates, can be enriched through integration with industrial arts activities. Fourth, to obtain data concerning to what extent industrial arts activities are currently included in the elementary schools of Dallas, Texas, and to determine the opinions of the elementary classroom teachers and principals toward including industrial arts activities in the elementary curriculum. Fifth, to offer suggestions and recommendations for including industrial arts activities in the elementary curriculum, if it is found that this type of activity is needed and desired by the elementary classroom teachers and principals.

Definition of Terms

Some of the terms used in this study are defined as follows:

The term "industrial arts or handicraft activities" at the elementary level refers to information and manipulative handicraft work which involves some of the tools, materials, processes, and products of

industry that are related to home and community life of the elementary school age child.

The term "elementary classroom teacher" means a teacher who is employed full time to teach all the elementary subject matter areas with the possible exception of music and art.

The term "elementary school" as used in this study refers to a public school which includes grades one through six.

The terms "Dallas Public Schools" and "Dallas Independent School District" are used interchangeably throughout this study, and are defined as an independent school district incorporated for free school purposes under the law of Texas.

Lee and Lee defined the elementary curriculum as follows: "The (elementary) curriculum for each child is the sum total of all his experiences which are in any way affected by the school."[8]

The Dictionary of Education defines an elementary principal as "...an executive officer in charge of the administrative and sometimes, the supervisory work of an elementary school; usually limited to a single school..."[9]

Sources of Data

The data used in this study were obtained from four sources as follows:

1. Some information was secured from available literature in the field of industrial arts concerning

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[8]J. Murray Lee and Doris May Lee, The Child and His Curriculum (New York, 1950), p. 166.

[9]Carter V. Good, editor, Dictionary of Education (New York, 1945), p. 308.

industrial arts at the elementary school level.

2. Some information was obtained from printed materials prepared by schools in Texas and other states which include industrial arts activities and/or programs at the elementary level.

3. Information concerning the curriculum of the elementary schools of Dallas, Texas, was obtained from curriculum guides prepared and distributed by the administrative offices of the Dallas Independent School District.

4. Part of the data was secured by using questionnaires concerning the industrial arts activities currently used in the elementary schools of Dallas and the attitudes of elementary classroom teachers and principals toward including industrial arts activities in the elementary curriculum of Dallas.

Method of Procedure

Chapter I of this study presents the statement of the problem, purpose of the study, limitations of problem, definitions of terms, sources of data, method of procedure, and recent and related studies.

Research and current data available concerning industrial arts activities and learning experiences at the elementary level were studied to ascertain if the elementary curriculum can be enriched by including these activities. Some of the research and data are presented in Chapter II.

Information concerning industrial arts activities and/or programs presently in operation in the elementary schools of Texas and other states was gathered and studied. This information is treated in Chapter III.

Using the research and data presented in Chapter II,

the present curriculum of the elementary schools of the Dallas Independent School District was studied to determine if it contained suggested subject matter areas and activities which might be enriched by utilizing industrial arts activities. Some of the suggested units of learning and activities are presented in Chapter IV.

A questionnaire was designed to gather information from the classroom teachers. This questionnaire was constructed to obtain an inventory of the industrial arts activities currently included in the elementary schools of Dallas and to obtain the elementary classroom teachers' opinions concerning the more extensive use of industrial arts activities. A second questionnaire was designed and sent to the elementary principals to obtain their opinions in regard to the value of industrial arts activities for enriching the elementary curriculum. The data and information obtained from the elementary classroom teachers and principals are presented in Chapter V.

The summary, findings, conclusions, and recommendations of this study are contained in Chapter VI.

Recent and Related Studies

A number of studies have been made concerning industrial arts activities for enriching the elementary curriculum. Three of them are as follows:

In 1950, McKeever completed a study entitled "Industrial Arts for Elementary Schools of Kansas." McKeever conducted a survey of some of the elementary schools of Kansas. The study revealed that there was a need to include industrial arts activities in the

elementary schools of Kansas.[10]

Gunther conducted an experimental study in 1931, entitled "Manipulative Participation in the Study of Elementary Industrial Arts."[11] Gunther used controlled groups to study industrial arts by the book method and by the activity method. The findings of the study indicated that the students learned at a faster rate and that they retained the information longer when the activity method of teaching was used.[12] A more extensive treatment of the study by Gunther will be given in Chapter II.

Hornbake conducted an experiment with industrial arts activities in the campus elementary school of the State Teachers College at Oswego, New York. Hornbake developed a series of measuring devices in an attempt to determine if industrial arts activities in the elementary school contributed what they purported to contribute. Hornbake's measuring devices included the following:

1. An "Interest Analysis"
2. An "Interest Inventory"
3. A device known as "Response to Anecdotes I"
4. A device similar to Number 3 known as "Responses to Anecodotes II"
5. An instrument, "Thinking in Industrial Arts"
6. An instrument, "Who Is It or Guess Who"

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[10]Kenneth G. McKeever, "Industrial Arts for Elementary Schools of Kansas," unpublished master's thesis, Department of Industrial Arts, Kansas State Teachers College, Pittsburg, Kansas, 1950.

[11]Theresa Charlotte Gunter, "Manipulative Participation in the Study of Elementary Industrial Arts," unpublished doctoral dissertation, Department of Philosophy, Columbia University, New York, 1931.

[12]Ibid.

7. A "Pupil-Project Appraisal Form"[13]

Through the use of the instruments mentioned above and through a rating sheet submitted by each classroom teacher in the campus elementary school, Hornbake arrived at a series of conclusions in regard to the value of industrial arts at the elementary level. Hornbake's conclusions are as follows:

1. To provide children with the opportunities to express themselves in a variety of tangible or material media.
2. To provide an atmosphere which makes possible the development of wholesome personal-social relationships.
3. To provide many opportunities for children to think in planning and executing their task and in appraising their efforts....
4. To help children formulate understandings of social import.[14]

According to Hornbake, the fourth contribution remained largely unexplored.

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[13]R. Lee Hornbake, "Industrial Arts in the Elementary School," unpublished doctoral dissertation, School of Education, Ohio State University, Columbus, Ohio, 1942, pp. 293-294.

[14]Ibid., pp. 295-296.

CHAPTER II

ENRICHING THE ELEMENTARY CURRICULUM THROUGH INDUSTRIAL ARTS ACTIVITIES

A study of research reveals a recent interest in industrial arts type activities in the elementary school. The idea of including industrial arts activities in the elementary school curriculum is, however, not a new one. Industrial arts activities in the elementary school are founded on precedents which date back to the nineteenth century.[1] Bonser and Mossman did research and writing on including industrial arts for enrichment of the elementary curriculum. They co-authored a book entitled Industrial Arts for Elementary Schools.[2] Although this book was published in 1928, it is still considered by many to be excellent source material for elementary industrial arts activities.

The first section of Industrial Arts for Elementary Schools[3] is devoted to the meaning, purposes, scope and organization of industrial arts. The relationship of industrial arts with fine arts and other subjects is also given careful consideration in the first section of this book. The second section is concerned with the organization and use of industrial arts in various grades. Suggestions are given as to how industrial arts activities may be related to the study of foods, clothing, shelter, utensils, records, tools, and materials. The book is concluded

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[1] C. J. Gerbracht, "Industrial Arts in Elementary Education," Industrial Arts and Vocational Education, XLV (January, 1956), 1.

[2] Bonser and Mossman, op. cit.

[3] Ibid.

with a brief but concise history of the movement to include materials and tool processes as a part of the curriculum of the public schools. Bonser and Mossman through their research and writing pioneered the early thinking with respect to the importance of industrial arts activities for the elementary school. They gave direction to the movement, and through their ideas and suggestions gave industrial arts activities in the elementary school curriculum definite meaning and purpose.

Louis V. Newkirk has long advocated including industrial arts type activities within the elementary curriculum. In his book entitled Integrated Handwork for Elementary School,[4] industrial arts type activities at the elementary level are thought of as handwork and as a teaching procedure belonging to and common to all subject matter areas, whereas industrial arts is thought of as a separate and distant subject matter area. It may be said that Newkirk has made a fine distinction between the terms "industrial arts type activities" and "industrial arts"; however, the important point is that he brought Bonser and Mossman's basic ideas and philosphy up-to-date and provided some additional ideas and suggestions for enriching the elementary curriculum through industrial arts activities. It was noted that Newkirk is a link in a chain of authors who have pointed out that industrial arts activities are not a passing frill but are an important and integral part of the curriculum of the modern elementary school and of general education as a whole.

Emanuel E. Ericson, who is considered an authority

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[4]Newkirk, op. cit.

on industrial arts activities and industrial arts teacher education, in his book entitled Teaching the Industrial Arts[5] devoted some attention to industrial arts activities at the elementary level. According to Ericson,

> The woodworking program that once was common has given way to a large extent to other types of activities, with less demand for skill in the doing and more direct relationship to the study program of the classroom and to the life of the child.[6]

It appears that in as few words as possible Ericson has agreed with the basic philosphy and ideas of Bonser, Mossman, and Newkirk. Ericson stated that industrial arts activities are of value for enriching the elementary curriculum and are a definite part of general education.

Gordon O. Wilbur wrote a book entitled Industrial Arts in General Education[7] in which he sets forth industrial arts as a part of general education more clearly than any prior author mentioned. Wilbur's work is not primarily concerned with industrial arts at any one definite grade level, but with the role that industrial arts is to play as a part of general education as a whole. He emphasizes that the various definitions of general education, when stripped of excess verbal poundage, reveal three basic purposes. These purposes are as follows: "(1) to transmit a way of life, (2) to improve and reconstruct that way of life and (3) to meet the needs of individuals."[8]

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[5]Ericson, op. cit.

[6]Ibid., 276

[7]Gordon O. Wilbur, Industrial Arts in General Education (Scranton, Pennsylvania, 1948).

[8]Ibid., p. 3.

Wilbur's work adds further weight to the concept that the elementary curriculum can be enriched in many ways by including industrial arts activities.

In 1931, Gunter conducted a study in which equated groups were taught industrial arts by two methods. The first method involved the study of industrial arts at the elementary level by the use of conventional classroom teaching procedures with little of no activity involved. The second method involved the study of the same material, but centered around activity type units. As Gunter stated it, the purpose of this experiment was to find an answer to the question,

> . . . does manipulative participation by the children in the study of industrial arts in the elementary grades result in the learning and the retention of a greater number of facts as measured by specific tests devised by the experimenter, than the conventional method of studying facts from books?[9]

Gunter's study showed that the equated groups taught by the activity method learned at a faster rate than did the groups which were taught by the method also had a higher rate of retention of the material learned.

Loats has emphasized the place and need of industrial arts experiences as follows:

> The function of the public schools is to give every elementary-school boy and girl first-hand knowledge, appreciation and understanding about the industrial nature of society. In an industrial nation such as the United States it is increasingly important that the general public becomes more familiar with industrial things and the nature of their changes. Industrial technology is changing so rapidly that it is difficult for a child to keep

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[9]Gunter, op. cit., p. 2

> pace without understanding some of the more elementary processes behind the romance of various industries. The child needs opportunities for first hand experience with manipulative industrial materials such as wood, metal, clay, plastics, etc., if he is to appreciate and understand more fully the finished products of industry. This background of experiences contributed to his understanding of his environment. The industrial arts activities becomes a means of vitalizing the whole elementary school curriculum.[10]

Dewey F. Barich, Director of the Industrial Arts Award Program of Ford Motor, wrote the following concerning industrial arts at the elementary level:

> There is almost universal approval of the point of view that industrial arts on the elementary level contributes to general education, other aims, purposes or objectives often given include:
>
> 1. To develop avocational interests through effective utilization of leisure time.
> 2. To stimulate purposeful planning.
> 3. To develop an appreciation of the value of industry to society.
> 4. To develop habits of investigation, experimentation and creation.
> 5. To provide means by which children may satisfy the urge to create and feel the joy of accomplishment.
> 6. To develop appreciation of good workmanship.[11]

It appears that Gerbract was summarizing the importance of industrial arts activities for enrichment of the elementary curriculum when he stated that,

> At present most elementary programs involve a study of the cultural heritage including many of its industrial aspects. Indeed it is difficult to imagine teaching social studies

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[10]Henry A. Loats, "A Program of Industrial Arts for the Preparation of Elementary Teachers," The Industrial Arts Teacher, XI (June, 1952), 4.

[11]Dewey F. Barich, "Developing an Industrial Arts Program for the Elementary School," Industrial Arts and Vocational Education, XXXVII (September, 1948), 255.

curriculum. Newkirk expanded Bonser and Mossman's list of industrial arts activities and made them more specific. Newkirk included activities such as: books, paper making, handloom and reed weaving, linoleum-block printing, soap carving, and others.

McKeever, in his study "Industrial Arts for Elementary Schools of Kansas,"[13] made some specific suggestions as to the type of industrial arts activities considered suitable for enrichment of the elementary curriculum. While McKeever's suggestions for vitalizing the elementary curriculum apparently are good, his proposed method of integrating this type of experience is not in line with the thinking of the leaders in the field, because McKeever attempted to assign industrial arts activities to a particular grade level.

According to the Texas Vocational Association, enrichment of general education through industrial arts experiences provides opportunities for cultivating the following:

1. Creative thinking
2. Good citizenship
3. Health and safety
4. Character development
5. Basic knowledge
6. Guidance
7. Consumer knowledge
8. Exploration of abilities[14]

The Texas Vocational Association further states that:

> The objectives of industrial arts are the same as the objectives of general education for industrial arts is general education.[15]

Statements such as those above are of note when

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[13]McKeever, op. cit.

[14]Texas Vocational Association, Vocational Education in Texas (Austin, Texas, no date given), p. 18.

[15]Ibid.

the term "general education" is examined, and within this terminology most leading educators would agree are found the objectives, goals, and aims of elementary education.

The California State Department of Education voiced its views on the value of enriching the elementary curriculum with industrial arts experiences in a bulletin entitled Guide for Industrial Arts Education in California. The following are some examples of the philosophy, views, and opinions as stated in this bulletin.

> In the elementary school, industrial arts experiences are an integral part of the social studies program. As children engage in studies that help them to understand the world in which they live, they learn the social functions or human activities men carry on to meet their basic needs. Emphasis is placed on the resources in man's environment and the ways man has changed materials through industrial arts to increase their value to him.
>
> Materials are placed in the environment that permit children to satisfy their natural urge to learn through curiosity, play, manipulation, construction, and creative expression. The objects that are constructed are determined by the needs which develop through these activities. For example, children in the third grade studying community life relive through dramatic play the life in a community as they know it from first-hand and vicarious experiences, they construct in miniature the buildings, their furnishings, and the vehicles of transportation that are found in the community.
>
> As the children use the objects constructed, they develop understanding of organization for community living, workers in the community, relationships between people, relationships of people to their environment, and the activities carried on by people to provide themselves with shelter, food, clothing, tools, and utensils, and records.
>
> Opportunity is provided for boys and girls to work with materials, to change the form of materials through the use of tools, and to produce

> useful objects. As they engage in industrial arts they develop a keener appreciation of the materials in their environment and a more sympathetic understanding of the people who are engaged in the work of the world.
>
> In addition to constructing articles that are suggested in the social studies, children may follow their own interests and hobbies and make articles to meet personal needs. These needs may develop from the desire to make gifts for others, to provide conveniences for their work or play, or to assist others in construction activities. For holidays and special ocassions these personal needs assume added importance.
>
> In the activities growing out of these needs, the emphasis is normally placed on the end product and on the processes in the building of the project rather than on an understanding and appreciation of the place and importance of these processes in our technological society. For example, children might wish to make kites for a kite festival at a time when this experience could not be related to the study of aeronautics or to the social studies activities in which the class was engaged. Such activities are valuable in giving opportunities for self-expression, planning and creative craft experiences, even though they may not be strictly classified as a definite part of the social studies program.[16]

An examination of the material just presented indicates that industrial arts activities are of definite value for enriching the elementary curriculum. A review of research reveals that there is an adequate supply of suggested industrial arts activities suitable for all grade levels of the elementary school. Research further indicates that industrial arts activities can be used in many ways to help vitalize the elementary curriculum and can be integrated with almost all, if not all, other elementary subject matter areas. It appears that industrial arts activities are most

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[16]California State Department of Education, Guide for Industrial Arts Education in California, XVIII, No. 7 (Sacramento, California, 1949), 8-9.

valuable when used in conjunction with the subject matter areas of social studies, arithmetic, science, and language. Some examples of how the various subject matter areas can be enriched by including industrial arts activities are presented in the discussion which follows.

Social studies as taught today is a subject matter area which offers many possibilities for including industrial arts activities for curriculum enrichment. Some of the possible ways of including industrial arts activities as suggested by the United States Office of Education are

Study of food:
- Kinds of food eaten:
  - Sources of the food:
    - Causes and effects of abundance or lack of food.
    - Proximity of home to food supply:
      - Ways of travel to reach distant foods.
      - Methods used in bringing the food home.
  - Advantages of having stores and markets in one's neighborhood.
  - Methods used in securing food:
    - Ways of making them.
    - Reasons for selection ofmaterials.
    - Ways of using them.
  - Work of the men, women and children.

Preparation of foods:
- Processes:
  - How the processes compare with those which the child sees in his own environment.
  - How the method of making fires compare with striking a match or the use of a pilot burner.
  - Tools and containers:
    - Ways of making and using them.
    - Methods of decorating them.
  - Work of the men, women, and children.
  - Manners and customs relative to food:
    - Meal time among the people.
    - Our meal time.

. . . . . .

Study of clothing:
- The dress of the people-men, women, and children:
  - Garments, footwear, head coverings and ornaments:

Similar articles of clothing we wear.
Processes used in making clothes:
Materials used in them:
Sources of materials.
Tools used in obtaining them.
Methods of preparing the materials:
Tools used:
Materials used in making tools.
Work of the tools.
Making the clothing:
Ways of fashioning the garments:
Tools used.
Fasteners used:
Materials of which made.
Preparation of the fasteners.
Conditions under which clothing is made compared with our conditions.

. . . . . .

Study of Shelter:
Kinds of shelter used:
Reasons for each type.
Reason for location
Reasons children's parents had for selecting their house.
Adaptation to environment.
Adherence to mores and custom.
Ways of building:
Materials used, reasons:
Buildings in the neighborhood made of similar materials.
Adaptation of materials to the need.
Tools used:
Kinds.
Materials in them.
Methods of using them.
Work of the men, women and children.
Interior of the home:
Arrangement.
Furnishings.
Provisions for heat, light, and water.
Activities in or near home:
Work of the family.
Feasts.
Dances and games.
Story-Telling.
Care of home:
Sanitation.
Aesthetic factors.

. . . . . .

Preparing and making cloth, clothing, and furnishings:
Preparing fibers for spinning:

Steps (vary with fiber).
Differences between flax fibers and those of wool or cotton.
Tools used.
Uses of waste materials.
Spinning the fibers:
Steps--pulling, twisting, winding.
Flax wheels vs. wool wheels:
Differences in size and use.
Advantages over spindles used by primitive peoples.
Reels for winding the yarn.
Weaving cloth:
Steps--making a shed, picking, beating the filling threads into place, winding cloth.

. . . . . .

Making dyes and coloring materials:
Sources of the dyes.
Methods used in dyeing yarns, cloth, rags:
Home dyeing today.

. . . . . .

Providing Light:
Securing "Candlewood" or pitch pine for torches to be placed near fireplaces.
Making candles:
Difficulties in collecting sufficient materials.
Methods used.
Advantages of molding over dipping:
Itinerant candlemaker.
Candle holders:
Variety.
Material used.
Comparing candles with modern lighting facilities.

. . . . . .

Making soap:
Securing materials:
Collecting fat.
Making lye.
Methods of making soap--then and now.
Comparison with soaps we use--color, perfume, purpose.[17]

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[17]Office of Education, Industrial Arts: Its Interpretation in American Schools, Report of a committee Appointed by the Commissioner of Education (Washington, 1937), pp. 25-30.

Activities such as those listed above can be used in many ways to enrich the subject matter area of social studies.

Industrial Arts in Texas Schools[18] sets forth a list of thirty-six suggested activities suitable for the elementary curriculum. The activities which follow were taken from this list and appear to be suited for use with social studies.

> Discuss production and distribution of industrial commodities such as concrete, electric power, newspapers, and gasoline. Work toward the development of these and similar concepts: the nature of electricity; how the newspaper is written, printed, and distributed; the composition and use of concrete; where and how sulphur is mined. Show industrial films. Ask children to relate how materials seen in these films affect our lives.
>
> Take field trips to local industries. Discuss with garage mechanic, chemist, welder, and others the many interesting changes they make in the form and value of materials. Dramatize in class the operation of a local industry.
>
> Select and mount pictures of industrial products showing effective use of color. Tell or write stories about how color is used in the home and in school. Compare like articles made of similar materials. Point out the effects of function to form: a pencil is long and thin; a spoon has a thin handle and large end; a ball is spherical.
>
> Discuss the importance and dignity of industrial occupations. Use as examples parents of children known in the immediate group: the street maintainer operator, the building custodian, the carpenter, the electrical engineer, and others.
>
> Browse in magazines and books for original or unique industrial designs. Discuss how industrial articles are designed; include idea, sketch, scale model, construction and testing, using toys as examples.
>
> Dramatize sales procedures of industrial products based on individual or group research.

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[18]Texas Education Agency, Industrial Arts in Texas Schools (Austin, Texas, 1955).

> Study ways people work together to produce consumer goods. Dramatize mass production of a simple object such as a small ceramic pin tray constructed by the slab method. Paint a mural depicting industrial production procedures.
>
> Study crafts artifacts of other cultures. Write stories about the influence of crafts on the lives of these people.[19]

Additional activities will be presented from Industrial Arts in Texas Schools[20] in conjunction with other subject matter areas.

McKeever gave some specific suggestions as to how industrial arts experiences can be of value for enriching and making the subject matter area of arithmetic more meaningful and purposeful. Some of the possible ways of including industrial arts experiences are stated by McKeever as follows:

> A typical example of how industrial arts may be integrated with arithmetic . . . would be illustrated by the construction of a sled. Figuring the size and cost of the project must be computed. This would involve the use of arithmetic. Several different sizes and shapes of sleds may be discussed covering the cost and utility of each. After the pupil has planned and figured the cost of a desirable project, work should be continued until the sled is completed. By this integration with arithmetic it would create interest and give greater satisfaction by the completion of the correlated project.[21]

Bonser and Mossman recognized the possibility of including industrial arts experiences to make arithmetic more meaning and purposeful. Some of their suggestions for using industrial arts to help vitalize the subject matter area of arithmetic are as follows:

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[19] Ibid., pp. 26-29

[20] Ibid.

[21] McKeever, op. cit., p. 24.

> Apart from mere counting, recognizing numbers, and arranging objects in a numerical sequence, a very large proportion of all of our daily usage of arithmetic is in the measurement and computation of the quantities and values of the materials included in our uses of industrial products and in the study of the industries. Measurements of length, area, volume or weight are required in practically every constructive problem. In considering the economic aspects of production, the purchase and use of materials and commodities, units of value for respective units of measure are also used almost continuously. In food problems, clothing problems, and the problems of furnishings of all kinds, arise the situations which require the use of the fundamental facts and processes of arithmetic. These problems in measurement and economy not only provide motive for taking up the usable part of arithmetic, but they also provide the opportunities for learning how to use the facts and processes of arithmetic as tools for solving the daily problems of life.[22]

The Texas Education Agency offers suggestions as to how arithmetic can be made more meaningful and purposeful by including industrial arts experiences. They are as follows:

> Encourage children to undertake construction without oral instruction.
> Assemble a toy or building blocks according to the manufacturer's direction.
> . . . . . .
> Build class activities around understanding of picture drawings, charts, posters, displays, etc.
> . . . . . .
> Demonstrate proper use of simple tools and drawing instruments: coping and small hand saws, square, hand drill, hammer, block plane, sandpaper, scissors, tin snips, pliers, screw driver, "dime store" compass, one foot rule, drawing triangle, paint brush, modeler's knife, leather working tools, and hand loom.[23]

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[22]Bonser and Mossman, op. cit., p. 68.

[23]Texas Education Agency, op. cit., pp. 28-29.

Activities such as those cited above indicate the possibilities for including this type of activity within the subject matter area of arithmetic.

There are few who would deny that science is playing a more important role than ever in every child's life. Science is a subject matter area which offers many opportunities for including industrial arts experiences. Some suggestions as to how to include industrial arts experiences within this subject matter area as listed by the Texas Education Agency are as follows:

> Study physical characteristics of common articles such as pencils, paper, class, clothing, plastics, wood, and metal. Encourage children to observe, discuss, and write stories about the sources of supply and the characteristics (texture, weight, shape, etc.,) of materials.
>
> . . . . . .
>
> Make a collection of raw materials found in the home, community, or state. Ask committees of pupils to label and calssify these materials. Write stories based on research about how the materials are used. Make maps, pictures and charts showing the sources and uses of materials.
>
> . . . . . .
>
> Ask children to tell about mechanical things that interest them. Work toward sharing concepts such as how a wheel rolls, what friction is and how it works for and against us; why a gear has teeth; why a shaft is round; how a twisted rubber band turns a propeller; how a fan moves air; what metal makes a good spring; what makes some materials dull in appearance; why a toy electric stove heats; which way to turn a screw or nut.
>
> . . . . . .
>
> Collect a variety of articles made of the same or similar materials. Discuss form, texture, color, surface design, etc., of articles, including things children make of clay, wood, and other easily formed materials.
>
> . . . . . .
>
> Encourage the class or a group of pupils to collect measurable data such as weather information, fuel used in school heating system, etc., over a period of time. Help construct charts and

graphs that give meaning to these data.[24]

Language has, form the very onset of public education, been considered a very necessary part of every child's education. On the surface, it might appear to be unsound to attempt to relate industrial arts experiences to the language arts area; however, research indicates that there are numerous ways of making the language arts more meaningful by including some industrial arts type activities. Bonser and Mossman discuss some possible ways in which industrial arts and language arts courses can be utilized to enrich each other. Their findings are as follows:

> The necessity for finding answers to questions by investigation, experiments, excursions, and readings from numerous sources and reporting findings, gives need for much expression in both oral and written form. Letters of inquiry and of knowledgement are often required. Rapid silent reading is necessary. Digests or summaries in outline form are needed. Clearness of discription and exposition is a factor which must be emphasized for rapid and efficient work. Vocabularies are extensively widened by the investigations, readings, and reports. All ordinary forms of composition are inherently required or stimulated in the study. The courses in language may both utilize much of the content of the industrial studies for their development, and also contribute much in improving the quality of language used in the oral and written expression required by the industrial arts.[25]

Newkirk and Johnson lend support to the concept of including industrial arts within language arts by suggesting that pupils

> Make reports on the progress of the projects; tell about construction procedures. Retell stories read about people and their industrial arts activities which the group study.[26]

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[24]Ibid., pp. 25-29.

[25]Bonser and Mossman, op. cit., pp. 71-72.

[26]Newkirk and Johnson, op. cit., p. 85.

The Texas Education Agency has stated that language arts can be enriched by including activities such as those listed below.

> Practice speaking and writing the words and phrases used in industry. Describe familiar industrial products taken from the immediate environment of the child.[27]

Some consideration was given to the problems of the organization andimplementation of industrial arts experiences for enrichment of the elementary curriculum. Research indicates that there have been changes in the methods of organizing and implementing industrial arts activities at the elementary level. The original concept of industrial arts activities at the elementary level embodied a formal shop program, and industrial arts was thought of a a separate subject matter area. Bonser and Mossman[28] were among the first to visualize and actually use industrial arts activities for enriching other subject matter areas. It appears that the trend in organization and implementation of industrial arts activities in the elementary curriculum is toward developing activvities suitable for both boys and girls. The activities are included in the regular classroom with a laboratory for special ocassions as needed.

Scoby stated in an article concerning industrial arts activities at the elementary level that "less and less are boys and girls separated to go to a shop or cooking room for industrial arts activities."[29]

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[27]Texas Education Agency, op. cit., p. 27.

[28]Bonser and Mossman, op. cit.

[29]M. M. Scobey, "Industrial Arts in the Elementary School," National Education Association Journal, XLII (September, 1953), 372.

A committee appointed by the United States Commissioner of Education summarized as follows concerning the organization of this type of activity:

> Grades 1 to 3.--In these grades industrial arts can readily be taught by the classroom teacher--the content is simple, the skills are few, the necessary equipment is limited. One set of tools for each classroom is desirable but, if necessary, one set may suffice for several classes if the various classes can cooperate in the use of them. Experience will show how many of each tool will be required to meet specific conditions but the set should include compass, coping, and hack saws, hammers, braces and bits, trysquares, and small clamps. The best tools manufactured should be used for this purpose and should always be kept in repair. The upkeep is small and the original cost spread over a period of years is not large.[30]

Information concerning organizing and implementing industrial arts activities for enrichment of the elementary curriculum recommended by the Texas Education Agency is as follows:

> The self-contained classroom provides the most satisfactory setting for industrial arts learning activities. Tools and construction materials may be brought into the classroom from the school, the home and the community, and either stored or passed to other rooms after being used. Work and storage areas should be a permanent part of the self-contained classroom whenever therapeutic needs of one or more children require extensive use of construction materials.[31]

Kroh, in an article entitled "Four E's in Elementary Industrial Arts,"[32] describe the organization used to include industrial arts activities for enrichment of the curriculum of the elementary schools in

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[30]Office of Education, op. cit., pp. 36-37.

[31]Texas Education Agency, op. cit., p. 18.

[32]D. K. Kroh, "Four E's in Elementary Industrial Arts," Industrial Arts and Vocational Education, XLV (December, 1956), 320-323.

Roslyn, New York. In the Roslyn Elementary Schools, industrial arts activities are used in conjunction with other subject matter areas and are taught in the regular classroom. There is one industrial arts consultant for approximately twenty-five classrooms. The industrial arts concultant works in the classroom with the regular classroom teacher. Each consultant's schedule is flexible to allow for special activities as the need arises, and each elementary school in this school system is provided with a laboratory with the necessary complement of tools and materials. The industrial arts consultant works out of the laboratory into the classroom with the laboratory available as individual and group needs arise.

Research indicates the value of industrial arts activities for enriching the elementary curriculum has been substantiated and can be summarized as follows:

1. Industrial arts activities are of definite value for enriching the elementary curriculu.
2. Industrial arts activities are most valuable when used to enrich the subject matter areas of social studies, arithmetic, science, and language.
3. Industrial arts activities should be included in regular classroom work and should not be taught as a separate subject matter area.
4. There should be some provisions made for laboratory space, but this is secondary to classroom activities.
5. There is need for industrial arts consultants to give direction and purpose to industrial arts activities for enrichment of the elementary curriculum.

The following chapter will consider industrial arts activities and/or programs presently in operation in the elementary schools of Texas and other states.

Growth in vocational maturity is closely related to the physical, intellectual, emotional, and social aspects of growth. All are developmental and interested.

As a part of the process of growth, the individual learns how to cultivate interests and acquire skills. At the same time, he learns adult ways of utilizing skills through observing the work roles of important adults in his life. Such accomplishments represent an early stage in career development.

The elementary school counselor is knowledgeable about developmental growth in all of its aspects. He can discern relationships and the affect of one kind of development upon another. This, and ability to identify the characteristics of growth at successive stages of development, make him especially qualified to help pupils develop vocationally. According to Ellis, she, contributes to the process of vocational development in the following ways:

1. Recommends, and upon request, selects occupational materials for the use of teacher, principal, parents, and pupil.
2. Assembles for the guidance office collections of books and pamphlets about workers and industries.
3. Consults with the school librarian on the selection, acquisition and circulation of occupational materials.
4. Provides the principal and teacher with information about the occupational composition of the community.
5. Helps teachers find individuals in the community who can provide first-hand information about occupations and places to work.
6. When appropriate, interprest to a child and his parents the opportunities and requirements

for a field of work.

7. Advises teachers and parents about the interests and abilities of individual pupils, developing with them a plan for activating an individual's vocational development.
8. Counsels pupils about their potentialities, suggesting opportunities for trying out their abilities, encouraging them to explore a variety of activities, and otherwise seeing that the social relations of the pupil contribute to the belief that work in the world is the pupil's resource, not burden.
9. Gives special attention to the identification of abilities, and special talents.
10. Functions as Pupil Personnel Services coordinator in the school or schools that he serves.[33]

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[33]Betty W. Ellis, "The Counselor", Assisting Vocational Development In The Elementary School, (1969), pp. 6-7.

CHAPTER III

INDUSTRIAL ARTS ACTIVITIES IN THE ELEMENTARY SCHOOLS OF TEXAS AND OTHER STATES

Chapter II of this study was concerned with a review and presentation of literature and research on enriching the elementary curriculum through industrial arts activities. It appeared necessary to follow with a chapter treating industrial arts activities as included in some elementary schools of Texas and other states. An attempt was made to contact some of the Public Schools of Texas and other states which include industrial arts activities at the elementary level.

The Texas State Department of Education was contacted, and Rogers L. Barton, the Industrial Arts Consultant, replied by letter. Barton suggested that Sam McCluney, Industrial Arts Consultant for the Houston Public Schools, could supply information in regard to the industrial arts program for the elementary schools of Houston, Texas. Borton also suggested that Ronald Foy, Coordinator of Industrial Arts for the Snyder Public Schools, could provide information in regard to industrial arts activities as used in the elementary schools of Snyder, Texas. Borton commented that formal industrial arts programs have not been widely utilized in the elementary schools of Texas; however, handicraft activities have been used by many elementary schools as an incidental part of instruction. In regard to the status of Industrial arts activities in the elementary schools of Texas, Borton stated that

> . . . few schools in Texas have made progress in industrial arts activities in grades one

through six. Many have incorporated construction activity as an incidental part of instruction.[1]

By using Barton's letter as a starting point, and through conversation with Earle Blanton, Director of the Department of Industrial Arts at North Texas State University, a total of five individual public schools were contacted in Texas. The schools contacted were located at Andrews, Waco, Houston, Snyder, and San Antonio, Texas. An individual connected with the industrial arts department of each of the aforementioned school systems was contacted. Of the five individuals contacted, three replied and sent a letter and/or material.

Five letters were written to individuals connected with industrial arts activities at the elementary level in other states. Four letters were received in reply, furnishing information and/or materials about industrial arts activities at the elementary level.

Information concerning industrial arts activities as used by some of the public schools of Texas for enrichment of the elementary school curriculum will be presented first.

Foy of the Snyder Public Schools sent a packet of materials and information describing the various industrial arts activities used in the elementary schools of Snyder, Texas. The activities designed to be included with a specific subject matter area such as social studies. The industrial arts activities used are designed and used in the regular classroom by the regular classroom teacher, with an industrial arts consultant lending assistance as required.[2]

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[1]Letter from Rogers L. Barton, Industrial Arts Consultant, Texas State Department of Education, Nov.28, 1969.

[2]Snyder Public Schools, "Elementary Industrial Arts" (Snyder, Texas, Nov. 12, 1969).

The following statement reveals the viewpoint of the Snyder Public Schools toward industrial arts activities at the elementary level.

> Industrial arts, as it is taught in the elementary grades, is not a subject within itself; it is a means by which enrichment can be added to the activities being taught in the various grade levels.[3]

Snyder includes a wide range of goals and objectives for the various elementary industrial arts activities. The different mediums or materials as used in Snyder range from paper and cardboard to reed weaving. Hand tools are used to carry out the work.

According to Foy, the industrial arts department furnishes aid to the elementary schools and teachers in three ways. These ways, wrote Foy, are as follows:

> We try to provide the teacher with ideas of activities that he can integrate the regular subject. Our philosophy is that Industrial Arts at the elementary level is not a subject within itself, but a vehicle by which the teacher can use to motivate students. It will help her do a better job of what she is already doing.
>
> The second service we render is helping the teacher secure all materials needed for the activities she has planned.
>
> The third service we render is helping the teacher provide help for students in doing these activities. This is done by the teacher scheduling our help some time during the day we have set up to be in her building.[4]

It appears that the Snyder Public Schools make an effort to integrate industrial arts activities in the elementary program wherever appropriate, and to extend to the regular classroom teacher as much help as is needed to give the program direction and meaning.

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[3] Ibid., p. 5.

[4] Letter from Ronald Foy, Director of Industrial Education, Snyder Public Schools, January 3, 1970.

The Houston Public Schools have included industrial arts activities at the elementary level for a number of years. McCluney, Director of Industrial Arts, was contacted and he sent a packet containing a curriculum guide for industrial arts activities as included in the elementary schools of Houston, Texas. The curriculum guide is entitled "Industrial Arts Handbook"[5] and is divided, for purposes of organization into three sections.

Section one of the curriculum guide contains the outline of material, which consists of the suggested units to be included in the various grades. Section one also includes suggested activities and/or projects to be used with each unit.[6] Section two of the bulletin conveys general information and instructions about the tools, materials, and equipment used to carry out the industrial arts activities. The mediums of wood, metal, clay, ceramics, leather, and braiding are each given individual treatment in this section of the guide.[7] Suggested projects are listed in section three. The projects are first listed for kindergarten and grades one through three, with a pictorial drawing provided for each project. Suggested projects included range from a model Indian village to puppets and a simple loom. There is a total of twenty-three suggested projects for kindergarten through grade three. For grades four through six, there are fifty projects included with pictorial drawings, and, in some cases, a three-view drawing is also included. The projects follow a plan similar to that used with the first grades, with more details, tools, and

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[5]Houston Public Schools, "Industrial Arts Handbook," Industrial Arts Department, Houston, Texas, 1964.

[6]Ibid., pp. 3-15.

[7]Ibid., pp. 19-47.

materials involved in constructing the projects.[8]

The Houston Public Schools advance their philosophy and views concering the role of industrial arts activities in the elementary school in the foreword of the guide to the teacher in which the following is set forth:

> The materials for elementary industrial arts activities have been planned to provide a high degree of correlation with social studies and science. These activities in kindergarten and the first three grades should be carried on in the regular classroom with the help of the industrial arts laboratory teacher who will assist regular classroom teachers upon request. It is expected that the schedule of the industrial arts laboratory teacher will provide time for consultation with the regular classroom teachers.
>
> Boys and girls in grades four, five and six are to be taken by the classroom teacher to to the industrial arts laboratory where the two teachers will work with the classes. In many cases, classes may be divided, part of group being assigned to the industrial arts laboratory and part being assigned to the home economics laboratory. Such assignments should be made in accordance with pupil interests--not on the basis of boys versus girls. In this case, the classroom teacher would be expected to move from one laboratory to another.[9]

The Houston Independent School District is the largest school system in the state of Texas to make an attempt to include industrial arts activities for enrichment of the elementary curriculum. The curriculum bulletin printed to include these activities is 111 pages long and includes a bibliography. The bulletin is well illustrated and plainly written.

M. A. Stevens, Coordinator of Industrial Education for the Public Schools of Waco, Texas, was contacted in regard to industrial arts activities

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[8] Ibid., pp. 52-92.

[9] Ibid., p. 1.

included in the elementary schools of Waco, Texas. He replied by letter, and indicated that there are no industrial arts activities included in the public schools of Waco until the junior high level. The industrial arts activities are started in the eighth grade.[10]

There is a number of public schools in states other than Texas which include industrial arts activities at the elementary level. A review of available literature indicated that the states of California and New York have been the most active in making an attempt to include these activities in the elementary schools throughout the state.

Three letters were written to individuals in the state of New York who are connected with industrial arts activities at the elementary level. D. K. Kroch, Industrial Arts Consultant of the Roslyn Public Schools, Roslyn, New York, was the first to reply.

Kroh indicated in his letter that he had written an article which described the industrial arts activities used in the elementary schools of Roslyn more thoroughly than was possible by letter.[11] A curriculum bulletin for industrial arts in the elementary schools of Roslyn was not available. In his article, he presented the industrial arts program included in the elementary schools of Roslyn, New York. According to Kroh, the elementary schools of Roslyn include one industrial arts consultant for approximately twenty-five classrooms. The schedule of industrial arts consultant was a flexible one which allows approximately two hours per week in each classroom. The

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[10]Letter from M. A. Stevens, Coordinator of Industrial Education, Waco Public Schools, January 3, 1970.

[11]Letter from Damon K. Kroh, Industrial Arts Consultant, Roslyn Public Schools, January 5, 1970.

schedule can be altered to provide for seasonal activities and special programs. The industrial arts consultant works in the regular classroom with the classroom teacher. The industrial arts consultant does not take over from the classroom teacher, but gives guidance and assistance as needed to carry on the industrial arts activities. The consultant works out of a small industrial arts laboratory which is included in each elementary school in Roslyn. The industrial arts laboratory and all tools and supplies are supervised by the industrial arts consultant. The classroom teachers take their classes to the laboratory for special ocassions and for large projects; however, for the most part, the industrial arts activities are included in the regular classroom.[12]

The industrial art activities included in the elementary schools of Snyder and Houston, Texas. The actual projects included vary from school to school, but the tools, materials, and processes are approximately the same.

An examination of the industrial arts activities included in the elementary schools of Roslyn, New York, indicates that the program is in keeping with the views of the leaders in the field concerning industrial arts at the elementary level.

Gardner Boyd, Director of Industrial Arts for the Public Schools of Kansas City, Missouri, was contacted. He sent a copy of the elementary industrial arts course outline used in the schools in Kansas City, Missouri. Boyd also sent a letter in which he outlined the industrial arts program used in the elementary

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[12]D. K. Kroh, "Four E's in Elementary Industrial Arts," Industrial Arts and Vocational Education, XLV (December, 1956), 320-323.

schools.[13]

According to Boyd, the elementary schools of Kansas City are in the process of changing from seven grades to six grades as additional junior high schools are constructed. This affects the type and amount of industrial arts experiences which are included in the curriculum of the various elementary schools. At the present time, according to Boyd, there are sixteen elementary schools which include grades one through six, and eighty-one elementary schools which include grades one through seven. The sixteen schools in which grades one through six are taught include an industrial arts consultant on the teaching staff. Each of these schools has a multiple purpose laboratory which is used for homemaking, industrial arts, and art activities. The industrial arts activities included in the sixteen schools are integrated with other subject matter areas and taught in the regular classroom. The activities are developed by the regular classroom teacher with the industrial arts consultant providing assistance as required. The multiple purpose laboratory is used for special ocassions.

In the eighty-one elementary schools which include grades one through seven, a formal type industrial arts program is used in grades six and seven. Boys in these two grades take industrial arts one-half day each week. In grades one through five, the industrial arts activities are integrated with other subject matter areas, and are taught by the regular classroom teacher with the industrial arts consultant lending some assistance. Most of the eighty-one

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[13]Letter from Gardner Boyd, Director of Industrial Arts, Kansas City Public Schools, January 14, 1970.

schools have an industrial arts laboratory; however, where there are no laboratory facilities available, portable tool benches and saw horses are used in the regular classroom or other available space is used to carry on the industrial arts activities.[14]

The industrial arts course outline for the elementary schools in Kansas City, Missouri, consists of a foreword to the teacher which sets forth the definition of industrial arts activities at the elementary level. The objectives of elementary industrial arts are also set forth in the foreword to the teacher. The remainder of the course outline is devoted to the industrial arts activities which are to be included in the various grades. A portion of the course outline is organized so the industrial arts activities are presented and taught by grades starting with grade one and continuing through grade six. The overview includes the setting for the industrial arts activities and the relationships of these activities to the home, other subject matter areas, and to the community in general. Following the overview, the suggested projects, activities, and subject matter to be covered in the area of industrial arts are also presented. The course outline for each grade also contains suggestions for teaching the industrial arts activities, what skills to be learned, if any, and materials and equipment to be used with each grade.

The industrial arts activities included in the elementary schools in Kansas City involve the use of hand tools. Materials used include wood, paint, clay, paper, metal, rubber, plastics, and others. While the suggested projects are listed by grades,

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[14] Ibid.

there are no patterns or pictorial drawings or other visual aids included in the study guide for the use of the teacher and students.[15]

Kroh, Industrial Arts Consultant for the elementary schools of Roslyn, New York, suggested that George Rentsch, Industrial Arts Consultant for the Public Schools of Rochester, New York, could supply information about industrial arts activities included in the elementary curriculum in the public schools of Rochester, New York.[16]

A letter was written to Rentsch concerning what industrial arts activities were included in the elementary schools of Rochester. He replied by letter[17] furnishing general information about the activities included in the elementary schools of Rochester. A copy of the Rochester Public Schools general statement on integrated handwork was included. Rentsch also included a recent copy of some of the suggested industrial arts activities to be included with the various grades of the elementary schools.[18]

According to Rentsch, the Rochester Public Schools assign one industrial arts consultant to each two elementary schools in the Rochester system. A laboratory is provided in each school with the necessary complement of tools and equipment. Projects are selected through the combined efforts of the principal, the consultant, and the classroom teacher. The consultant

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[15]Kansas City Public Schools, "Elementary Industrial Arts" (place and date of publication not given).

[16]Letter from Damon K. Kroh, Industrial Arts Consultant, Roslyn Public Schools, January 2, 1970.

[17]Letter from George Rentsch, Senior Consultant, Industrial Arts Department, Rochester Public Schools, January 16, 1970.

[18]Rochester Public Schools, "Integrated Handwork" (Rochester, New York, 1970).

establishes a schedule of activities covering a two-week period. The consultant normally works with approximately one-third of a regular class when activities are being carried on in the laboratory. As in most of the other school systems which include handicraft activities, the Rochester elementary schools include as many activities as possible that can be taught in the regular classroom. The consultant works with the classroom teacher when necessary.[19] The industrial arts department of Rochester printed a general statement pertaining to handicraft activities for the elementary schools of Rochester. According to the industrial arts department, the philosophy of integrated handwork is as follows:

> Integrated handwork is an integral part of the teaching procedure of the elementary school. As a method of teaching, it belongs to any subject area where its use will enrich the teaching content.[20]

The above statement appears to agree basically with the philosophy of other schools which include industrial arts activities at the elementary level, whether they are located in the states of New York, Texas, or Missouri.

The information presented in this chapter indicates that some school systems in Texas and other states include industrial arts activities in the elementary curriculum. A review of the information presented shows that, for the most part, the school systems which include industrial arts activities at the elementary level do so in a manner which is compatible with research which has been done in the area of industrial arts activities and/or programs are used in the

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[19]Letter from George Rentsch, Senior Consultant, Industrial Arts Department, Rochester Public Schools, January 16, 1970.

[20]Rochester Public Schools, "Integrated Handwork" (Rochester, New York, 1957).

regular classroom and are integrated, wherever possible, with other subject matter areas. In some cases, an industrial arts laboratory is provided, but most of the schools indicate that industrial arts activities which are included in the regular classroom. A number of schools provide the service of an industrial arts consultant in order to give the elementary classroom teachers assistance and guidance as needed. According to research in the area of industrial arts activities at the elementary level, and to some of the schools which include industrial arts activities as a means of vitalizing the elementary curriculum, it appears to be desirable to include an industrial arts consultant on the staff of the elementary school which includes, or plans to include, industrial arts activities in the elementary curriculum.

CHAPTER IV

DATA AND INFORMATION CONCERNING INDUSTRIAL ARTS ACTIVITIES IN GRADES ONE THROUGH SIX

The data and information presented in this chapter were obtained by the questionnaire method. One questionnaire was designed to gather information from the elementary classroom teachers. This questionnaire was constructed to obtain an inventory of the industrial arts activities currently included in the elementary schools of Dallas and to obtain the elementary classroom teachers' opinions toward industrial arts activities. The questionnaire was mailed to 272 elementary classroom teachers in the Dallas Public Schools; data concerning the number of questionnaires returned by 140 teachers of the various grade levels are shown in Table I.

The elementary classroom teachers who received the questionnaires were selected at random from the Directory Dallas Public Schools.[1] An attempt was made to select approximately the same number of teachers in each grade, one through six. An attempt was further made to send the questionnaire to approximately 25 per cent of the teachers in each of the sixty-two elementary schools.

Table I contains data concerning questionnaires sent to the elementary classroom teachers and shows the number returned by the teachers. The percentage of questionnaires returned is also given; it is presented in Table I by grade level.

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[1]Dallas Classroom Teachers Association, Directory Dallas Public Schools, 1969-70 (Dallas, 1970).

TABLE I

DATA CONCERNING QUESTIONNAIRES SENT TO AND RETURNED BY THE ELEMENTARY CLASSROOM TEACHERS

Grade Level	Sent	Returned	Total Per Cent Returned
Grade One	55	23	46%
Grade Two	51	27	59
Grade Three	55	27	54
Grade Four	54	24	49
Grade Five	44	22	56
Grade Six	43	17	48
Total	302	140	51%

A second questionnaire was sent to fifty-two elementary principals in the Dallas Public Schools, and thirty-three principals completed and returned them. The names and addresses of the fifty-two elementary principals were also secured from the Directory Dallas Public Schools.[2] Forty of the elementary principals were contacted by telephone before the questionnaire was mailed. The remaining twelve principals could not be contacted by telephone. The nature of the questionnaire were explained to the

[2] Ibid.

principals who were contacted by telephone. There was no follow-up questionnaire sent to the principals who did not respond.

The questionnaire mailed to the principals differed from the one mailed to the elementary classroom teachers in that it asked only for the principals' opinions as to the value of industrial arts activities for enriching the elementary curriculum. The elementary principals were not requested to indicate to what extent industrial arts activities were included in the elementary curriculum because this information was obtained from the elementary classroom teachers.

The data and information obtained from the questionnaires returned by 140 elementary teachers are presented in table form. Some of the data and information are presented in separate tables for each grade, one through six. For ease of comparison, Tables VIII and IX were designed to present all of the data collected from the 140 elementary teachers in grades one through six.

Data concerning the elementary principals' opinions with respect to industrial arts activities are presented in Tables XI and XII.

The data and information obtained from the twenty-three questionnaires by first grade teachers are presented in Table II. The activities and mediums listed in the questionnaire are listed in the same sequence in Table II; however, the activities are in abbreviated form. Table II contains data concerning the industrial arts activities currently included in grade one according to twenty-three first grade teachers, and opinions of the same teachers toward including more industrial arts activities in the curriculum of the first grade in the Dallas Public Schools.

Although twenty-three of the first grade teachers returned questionnaires, some of them failed to complete the questionnaire in its entirety. For example, only twenty of the twenty-three responded to the question concerning making and assembling models as shown by the data in Table II. This was found to be true with practically all of the various activities and mediums listed on the questionnaire when the data were tabulated for all of the grades.

TABLE II

INDUSTRIAL ARTS ACTIVITIES AND MEDIUMS USED IN GRADE I BY TWENTY-THREE TEACHERS IN DALLAS PUBLIC SCHOOLS

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
1. Make and assemble model homes	4	16	5	11
2. Construct transportation models	3	16	4	12
3. Secure construction samples	15	5	3	9
4. Use sand table	0	18	9	9
5. Take field trips	12	9	4	5
6. Construct a scrapbook	6	13	3	10
7. Construct simple looms and weave	2	16	8	10
8. Collect candle making materials	1	17	5	12
9. Construct clay objects	11	9	2	7
10. Construct wooden weapons	1	18	2	16
11. Build maps of area studied	2	16	1	15
12. Form plaster of Paris objects	3	17	2	15
13. Weave useful objects	0	18	4	14
14. Carving objects of soap and wood	3	17	2	15
15. Design and construct scenery	10	8	2	6
16. Measure cloth	5	13	5	8
17. Construct simple graphs	1	16	3	13

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
18. Compute building materials	0	18	2	16
19. Collect precision work models	10	9	2	7
20. Collect pictures	10	9	3	6
21. Study characteristics of objects	8	10	3	7
22. Collect raw materials	9	10	2	8
23. Collect measurable data	5	12	1	11
24. Report on project	11	8	2	6
25. Speak and write terms of industry	10	9	1	8
26. Describe familiar industrial objects	12	5	2	3
27. Construct marionettes	1	17	9	8
28. Construct objects of science	3	14	7	7
29. Paper and cardboard	22	1	1	0
30. Clay modeling	23	0	0	0
31. Soap sculpturing	3	17	2	15
32. Leathercraft	0	19	2	17
33. Block printing	1	18	4	14
34. Art metal work	0	19	0	19
35. Plastics	1	19	2	17
36. Wood	2	18	4	14
37. Weaving	4	16	9	7

The data in Table II indicates that the twenty-three first grade teachers were not including any activities which involve the sand table, weaving, simple computations involving building materials or the mediums of leathercraft and block printing. Nine of the same teachers indicated, however, that they believed activities involving the use of the sand table would be desirable if sand tables were provided. Twenty-two of the twenty-three teachers reported they planned learning activities which involved the use of paper and cardboard; twenty of them indicated that objects were made of clay by their students. As shown by the data, nine teachers indicated they believed constructing marionettes would be a desirable activity if facilities were made available for including this type of activity; however, only one of the teachers reported she used this particular activity in her teaching.

Table III contains the data obtained from twenty-seven second grade teachers who completed and returned the questionnaire. The data in Table III indicates that the most widely used industrial arts activities were the construction of objects from clay, collecting models of precision work, learning to describe accurately familiar objects, and constructing different objects for use in units of learning which involve science.

TABLE III

INDUSTRIAL ART ACTIVITIES AND MEDIUMS USED IN GRADE II BY TWENTY-SEVEN TEACHERS IN DALLAS PUBLIC SCHOOLS

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
1. Make and assemble model homes	10	14	4	10
2. Construct transportation models	2	20	6	14
3. Secure construction samples	11	11	2	9
4. Use sand table	5	19	12	7
5. Take field trips	4	16	4	12
6. Construct a scrapbook	4	21	3	18
7. Construct simple looms and weave	5	18	7	11
8. Collect candle making materials	5	20	11	9
9. Construct clay objects	20	3	1	2
10. Construct wooden weapons	12	11	3	8
11. Build maps of area studied	7	16	4	12
12. Form plaster of Paris objects	4	17	5	12
13. Weave useful objects	2	21	11	10
14. Carving objects of soap and wood	6	18	5	13
15. Design and construct scenery	10	14	6	8
16. Measure cloth	3	19	9	10

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
17. Construct simple graphs	2	20	6	14
18. Compute building materials	0	23	1	22
19. Collect precision work models	15	12	6	6
20. Collect pictures	11	13	4	9
21. Study characteristics of objects	8	14	2	12
22. Collect raw materials	12	12	4	8
23. Collect measurable data	6	18	1	17
24. Report on project	10	14	1	13
25. Speak and write terms of industry	7	17	3	14
26. Describe familiar industrial objects	18	5	1	4
27. Construct marionettes	7	18	7	11
28. Construct objects for science	17	6	5	1
29. Paper and cardboard	23	1	1	0
30. Clay modeling	24	1	1	0
31. Soap sculpturing	4	19	4	15
32. Leathercraft	0	21	3	18
33. Block printing	2	19	6	13
34. Art metal work	0	21	1	20
35. Plastics	2	19	5	14
36. Wood	1	20	5	15
37. Weaving	6	14	8	6

According to twenty-three second grade teachers, activities involving the mediums of paper and cardboard were used, while twenty-four second grade

teachers reported that their students made clay objects. The data in Table III indicate that no teachers were using activities which involve the computation of common building materials such as lumber. Only two of the second grade teachers reported they used activities involving the construction of different types of transportation models, such as model airplanes, trucks, trains, and ships which are available in kit form. Two teachers indicated that they planned and used activities which involve the weaving of useful objects such as napkins; eleven teachers indicated that this type of activity would be of value if the equipment and supplies for it were made available. None of the teachers indicated that the mediums of leathercraft and art metal work were used in the second grade. If the necessary facilities were made available, twelve teachers indicated they believed activities involving the use of a sand table would be of value, and eleven teachers thought candle making would be of value. Six of the second grade teachers indicated that activities involving the medium of block printing would be of value if the necessary equipment and supplies were made available.

The data presented in Table IV were obtained from twenty-three questionnaires returned by third grade teachers.

TABLE IV

INDUSTRIAL ARTS ACTIVITIES AND MEDIUMS USED IN GRADE III BY TWENTY-THREE TEACHERS IN DALLAS PUBLIC SCHOOLS

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
1. Make and assemble model homes	14	10	8	2
2. Construct transportation models	3	20	5	15
3. Secure construction models	7	17	7	10
4. Use sand table	7	17	15	2
5. Take field trips	4	20	8	12
6. Construct a scrapbook	5	18	5	13
7. Construct simple looms and weave	12	14	11	3
8. Collect candle making materials	2	21	10	11
9. Construct clay models	20	6	2	4
10. Construct wooden weapons	12	11	4	7
11. Build maps of area studied	13	12	4	8
12. Form plaster of Paris objects	1	21	13	8
13. Weave useful objects	4	20	13	7
14. Carving objects of soap and wood	3	20	11	9
15. Design and construct scenery	7	16	10	6
16. Measure cloth	4	20	6	14

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
17. Construct simple graphs	1	21	6	15
18. Compute building materials	1	22	2	20
19. Collect precision work models	12	14	4	10
20. Collect pictures	14	12	7	5
21. Study characteristics of objects	10	15	5	10
22. Collect raw materials	9	15	7	8
23. Collect measurable data	12	12	5	7
24. Report on projects	9	13	4	9
25. Speak and write terms of industry	10	15	5	10
26. Describe familiar industrial objects	15	10	4	6
27. Construct marionettes	5	19	11	8
28. Construct objects for science	8	17	11	6
29. Paper and cardboard	25	1	1	0
30. Clay modeling	22	6	2	4
31. Soap sculpturing	3	17	11	6
32. Leathercraft	0	18	6	12
33. Block printing	3	15	5	10
34. Art metal work	1	16	6	10
35. Plastics	1	16	1	15
36. Wood	1	16	1	15
37. Weaving	11	11	10	1

The data in Table IV indicate the third grade teachers include industrial arts type activities to a greater extent than the first or second grade teachers. Fourteen third grade teachers indicated they planned and

used activities which involve fabrication of model homes, and eight more teachers reported this type of activity would be of value if provisions were made for including this and other similar activities. According to the data in Table IV, seven teachers used activities which involve the sand table, and fifteen otherteachers indicated they would like to include such activities. The construction of various objects of clay by the students was an activity which twenty-three grade teachers used in their teaching. The construction of scenery for class plays and seasonal activities was utilized by seven teachers, and ten additional third grade teachers indicated they would include this type of activity. According to the data in Table IV, eleven teachers believed activities involving the construction of objects for use in units of learning involving science would be desirable, if the necessary tools and supplies were available. Eight teachers indicated they included this type of activity. The mediums of art metal work and plastics were thought to be of value by six third grade teachers, if provisions were made for including activities involving these mediums.

Twenty-four questionnaire were completed and returned by the fourth grade teachers. The data obtained from the questionnaires are shown in Table V.

TABLE V

INDUSTRIAL ARTS ACTIVITIES AND MEDIUMS USED IN GRADE IV BY TWENTY-FOUR TEACHERS IN DALLAS PUBLIC SCHOOLS

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
1. Make and assemble model homes	8	13	10	3
2. Construct transportation models	8	14	9	5
3. Secure construction models	4	16	9	7
4. Use sand table	8	14	13	1
5. Take field trips	2	18	14	4
6. Construct a scrapbook	4	16	5	11
7. Construct simple looms and weave	10	10	7	3
8. Collect candle making materials	9	11	8	3
9. Construct clay objects	10	10	10	0
10. Construct wooden weapons	5	15	12	3
11. Build maps of area studied	15	7	7	0
12. Form plaster of Paris objects	3	17	11	6
13. Weave useful objects	3	17	11	6
14. Carving objects of soap and wood	12	9	8	1
15. Design and construct scenery	8	14	8	6
16. Measure cloth	4	17	12	5
17. Construct simple graphs	11	10	6	4
18. Compute building materials	3	18	10	8

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
19. Collect precision work models	12	10	6	4
20. Collect pictures	12	10	10	0
21. Study characteristics of objects	14	8	7	1
22. Collect raw materials	10	12	8	4
23. Collect measurable data	15	7	2	5
24. Report on project	9	10	4	6
25. Speak and write terms of industry	10	11	5	6
26. Describe familiar industrial objects	11	11	5	6
27. Construct marionettes	5	15	11	4
28. Construct objects for science	6	14	12	2
29. Paper and cardboard	18	1	1	0
30. Clay modeling	11	10	7	3
31. Soap sculpturing	1	17	6	11
32. Leathercraft	8	13	6	7
33. Block printing	4	15	7	8
34. Art metal work	1	18	6	12
35. Plastics	1	18	8	10
36. Wood	9	11	6	5
37. Weaving	11	10	8	2

The data indicate that all of the activities listed in Table V were used by the fourth grade teachers to some extent. Only two teachers were using learning activities centered around field trips to observe first hand the construction of a dwelling; however, fourteen of the teachers indicated a desire to include this activity. Ten of the twenty-four teachers

reported they used activities which involve collecting raw materials such as lumber. Nine teachers indicated the medium of wood was included in some class activities. In the opinion of eleven of the fourth grade teachers, activities involving casting objects of plaster of Paris would be of value if the necessary materials and tools were made available. Activities centered around the construction of models of the various types of transportation are presently utilized by nine of the teachers. Ten of the fourth grade teachers reported they do not include this type activity but think it is of value. In the opinion of twelve of the teachers, the construction of objects for use in the units of learning involving science would be of value if the necessary equipment and supplies were made available. The mediums of paper and cardboard were used in various activities by eighteen of the teachers.

Table VI presents data concerning industrial art activities and mediums used in grade five as reported by the questionnaire by twenty-two fifth grade teachers.

TABLE VI

INDUSTRIAL ARTS ACTIVITIES AND MEDIUMS USED IN GRADE V BY TWENTY-TWO TEACHERS IN DALLAS PUBLIC SCHOOLS

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
1. Make and assemble model homes	6	13	10	3
2. Construct transportation models	9	8	7	1
3. Secure construction samples	8	11	6	5
4. Use sand table	6	12	9	3
5. Take field trips	4	15	10	5
6. Construct a scrapbook	3	15	10	5
7. Construct simple looms and weave	4	15	8	7
8. Collect candle making materials	7	10	9	1
9. Construct clay objects	7	10	8	2
10. Construct wooden weapons	5	12	10	2
11. Build maps of area studied	12	8	7	1
12. Form plaster of Paris objects	1	17	12	5
13. Weave useful objects	2	16	12	4
14. Carving objects of soap and wood	7	11	10	1
15. Design and construct scenery	8	11	10	1
16. Measure cloth	2	16	10	6
17. Construct simple graphs	15	6	6	0
18. Compute building materials	0	19	9	10

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
19. Collect precision work models	13	7	4	3
20. Collect pictures	8	11	10	1
21. Study characteristics of objects	11	8	6	2
22. Collect raw materials	10	9	6	3
23. Collect measurable data	6	12	7	5
24. Report on projects	10	9	7	2
25. Speak and write terms of industry	13	8	5	3
26. Describe familiar industrial objects	15	4	3	1
27. Construct marionettes	5	13	11	2
28. Construct objects for science	3	16	13	3
29. Paper and cardboard	22	1	1	0
30. Clay modeling	9	12	12	0
31. Soap sculpturing	4	15	10	5
32. Leathercrcraft	0	18	9	9
33. Block printing	3	16	11	5
34. Art metal work	0	19	9	10
35. Plastics	1	17	8	9
36. Wood	5	13	10	3
37. Weaving	6	13	8	5

The data in Table VI reveal that fifteen of the teachers plan language arts activities which include learning activities designed to describe accurately familiar industrial objects such as tools, a model car, or machine. Activities involving carving of objects from soap and wood, in the opinion of ten teachers, would be of value if provisions were made to include them. Twelve of the twenty-two teachers

include map construction of the area studied and seven others would include this activity if the necessary facilities were made available. The data show that ten teachers would include construction activities involving the medium of wood if the necessary tools and equipment were made available. Only four of the twenty-two indicated that activities were planned which involve field trips to observe the actual construction of a building, while the data show that ten others would like to include this type of learning experience, if arrangements could be made for taking field trips.

The data obtained from the questionnaires completed and returned by seventeen sexth grade teachers are presented in Table VII. Of the seventeen teachers who returned the questionnaire, one teacher reported she uses activities which involve candle making; and nine of the teachers thought this activity would be of value if the necessary supplies and equipment were made available for this type of activity.

TABLE VII

INDUSTRIAL ARTS ACTIVITIES AND MEDIUMS USED IN GRADE VI BY SEVENTEEN TEACHERS IN DALLAS PUBLIC SCHOOLS

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
1. Make and assemble model homes	6	9	8	1
2. Construct transportation models	0	13	6	17
3. Secure construction samples	6	7	3	4
4. Use sand table	1	13	7	6
5. Take field trips	2	12	5	7
6. Construct a scrapbook	4	10	6	4
7. Construct simple looms and weave	3	11	7	4
8. Collect candle making materials	1	12	9	3
9. Construct clay objects	6	8	4	4
10. Construct wooden weapons	4	9	6	3
11. Build maps of area studied	8	7	5	2
12. Form plaster of Paris objects	2	12	7	5
13. Weave useful objects	2	12	9	3
14. Carving objects of soap and wood	6	7	5	2
15. Design and construct scenery	10	5	3	2
16. Measure cloth	4	10	6	4
17. Construct simple graphs	11	4	4	0
18. Compute building materials	2	12	6	6

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
19. Collect precision work models	8	6	1	5
20. Collect pictures	10	5	3	2
21. Study characteristics of objects	6	8	5	3
22. Collect raw materials	9	5	2	3
23. Collect measurable data	6	7	5	2
24. Report on projects	9	5	3	2
25. Speak and write terms of industry	9	4	3	1
26. Describe familiar industrial objects	10	2	1	1
27. Construct marionettes	5	2	2	5
28. Construct objects for science	4	9	8	1
29. Paper and cardboard	15	0	0	0
30. Clay modeling	4	8	5	3
31. Soap sculpturing	4	6	4	2
32. Leathercraft	1	11	4	7
33. Block printing	3	10	5	5
34. Art metal work	1	11	5	6
35. Plastics	0	12	7	5
36. Wood	3	9	6	3
37. Weaving	2	11	5	6

Ten of the seventeen teachers indicated they used activities which involve designing and construction of scenery foruse with class plays or other seasonal activities. Two of the teachers indicated they are presently planning and using activities which involve the forming of objects such as minature mountain ranges and volcanoes from plaster of Paris, and seven other teachers indicated they would like to include this type of activity. In the opinion of eight of

the sixth grade teachers, activities involving the construction of such objects as wind vanes and display cases would be of value for use in units of learning in the area of science. The data show that seven teachers would include activities involving the medium of plastic if facilities were available.

Table VIII contains data concerning industrial arts activities andmediums as used by all of the 140 elementary teachers in grades one through six. The data are presented collectively in order to obtain an overall point of view concerning the industrial arts activities used in the elementary schools of Dallas, Texas, and to show the opinions of the same teachers toward including more industrial arts activities if facilities and other necessary services were made available.

TABLE III

INDUSTRIAL ARTS ACTIVITIES AND MEDIUMS USED IN GRADES I THROUGH VI BY 140 TEACHERS IN DALLAS PUBLIC SCHOOLS

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
1. Make and assemble model homes	39	75	45	30
2. Construct transportation models	25	91	37	54
3. Secure construction samples	51	67	30	37
4. Use sand table	26	93	65	28
5. Construct a scrapbook	28	90	45	45
6. Take field trips	26	88	33	55
7. Construct simple looms and weave	35	87	46	43
8. Collect candle making materials	25	89	48	41
9. Construct clay objects	59	63	37	26
10. Construct wooden weapons	47	68	35	33
11. Build maps of area studied	75	51	27	24
12. Form plaster of Paris objects	17	100	55	45
13. Weave useful objects	17	100	54	46
14. Carving objects of soap and wood	33	85	47	38
15. Design and construct scenery	49	72	38	34
16. Measure cloth	29	90	45	45
17. Construct simple graphs	41	77	31	46
18. Compute building materials	6	112	30	82

Activities and Mediums	Activity is used		Activity not used but considered desirable	
	Yes	No	Yes	No
19. Collect precision work models	70	58	23	35
20. Collect pictures	66	60	37	23
21. Study characteristics of objects	57	63	28	35
22. Collect raw materials	59	63	30	33
23. Collect measurable data	50	68	21	47
24. Report on projects	58	59	21	38
25. Speak and write terms of industry	59	64	22	42
26. Describe familiar industrial objects	81	37	16	21
27. Construct objects for science	41	76	56	20
28. Construct marionettes	28	89	51	38
29. Paper and cardboard	125	5	5	0
30. Clay modeling	83	37	27	10
31. Soap sculpturing	26	87	37	50
32. Leathercraft	2	94	31	63
33. Block printing	16	93	38	55
34. Art metal work	3	104	27	77
35. Plastics	6	101	36	65
36. Wood	21	87	32	55
37. Weaving	40	75	48	27

The data in Table VIII show that fifty or more of the 140 elementary teachers use industrial arts activities which involve collecting samples of construction materials, constructing objects of clay, building geographical maps of the areas studied, collecting models of precision work, collecting pictures of industry, studying characteristics of objects, collecting raw materials,

collecting measurable data, reporting on projects, speaking and writing terms used in industry, and describing familiar industrial objects. As shown by the data, 125 of the 140 teachers indicated the mediums of paper and cardboard were used. Eighty- three teachers indicated the medium of clay modeling was used, and forty teachers reported the medium of weaving was used. Only two teachers indicated that activities were planned and used which involve the medium of leathercraft, and three teachers replied that art metal work was included. Forty-five or more of the teachers were of the opinion that additional industrial arts activities such as making and assembling model homes, taking field trips to observe first hand construction of a home, constructing simple looms and weaving, collecting materials and making candles, forming plaster of Paris objects, measuring cloth for a play house or the classroom windows, constructing marionettes, and constructing objects for use in units of learning involving science would be desirable and of value for enriching the elementary curriculum if facilities and other necessary services were made available. Thirty-one or more of the teachers indicated the mediums of soap sculpturing, leathercraft, block printing, plastics, wood, and weaving would be of value in the event facilities and other services were made available.

The data indicate that the grade level in which various industrial arts activities are included determines, to some extent, the nature of the activities which are presently included and the teachers' opinions as to the value of the activities. The data in Table II show that only two of the twenty-three first grade teachers plan and include activities involving the construction of maps of the area studied, while twelve of the twenty-three third grade teachers

included activities involving the construction of maps. The data indicate that some of the activities and mediums are not included to any extent or deemed desirable by the teachers in the first and second grades. This is probably due to the level of difficulty of the activities and mediums as listed in the various tables.

Table IX presents the opinions of 140 elementary teachers concerning the organization and implementation of industrial arts activities for integration into the elementary curriculum. This information was available by separate grades, one through six, but is presented in one composite table for all gardes due to the general nature of the information involved. The data presented in Table IX indicate that eighty-two teachers, or 58 per cent of the classroom teachers were of the opinion that some additional industrial arts activities could be included and conducted in the regular classrooms. Ninety-two, or 65 per cent, of the teachers indicated they were receptive to including more industrial arts activities at the elementary level for supplementing and enriching the elementary curriculum.

TABLE IX

DATA CONCERNING THE OPINIONS OF THE ELEMENTARY TEACHERS IN REGARD TO THE ORGANIZATION AND IMPLEMENTATION OF INDUSTRIAL ARTS ACTIVITIES IN THE ELEMENTARY SCHOOLS OF DALLAS

Questions	Answers	
	Yes	No
38. Could industrial arts activities be taught in your present calss-room?	82	44
39. Are you receptive to industrial arts at elementary level as sup-plementing areas?	92	41
40. Should it be taught as a separate subject and in a separate labora-tory?	48	70
41. Should the regular classroom be equipped for this type of activity?	53	38
42. Would there be sufficient time to include some industrial arts in the regular classroom?	61	50
43. How could the necessary supplies and tools be handled?		
A. Kept in the regular class-room?	54	41
B. Stored at a central point in the school?	57	29
C. Stored in an industrial arts laboratory and issued by an industrial arts con-sultant?	29	46

Only forty-eight classroom teachers, or 34 per cent of the teachers who returned the questionnaires, were of the opinion that industrial arts activities should be taught as a separate subject and in a separate laboratory. There were fifty-three teachers, or 37 per cent, that were of the opinion that the regular classroom should be equipped for including

some industrial arts activities in the regular classroom schedule. The teachers indicated they believed the necessary supplies and tools could be handled most effectively by storing the supplies and tools in the classroom or at a central point in the building so they could be secured by the classroom teacher as needed.

The data obtained from the questionnaires completed and returned by thirty-three elementary principals are shown in Table X and XI. Data in Table X show the elementary principals' opinions in regard to the value of industrial arts activities for use in the elementary curriculum. Twenty-one of the thirty-three elementary principals indicated they were of the opinion that all of the activities and mediums as listed in Table X would be of value if facilities and other necessary services were made available.

TABLE X

DATA CONCERNING THE OPINIONS OF THIRTY-THREE ELEMENTARY PRINCIPALS TOWARD INDUSTRIAL ARTS ACTIVITIES IN THE ELEMENTARY CURRICULUM

Activities and Mediums	Opinions	
	Yes	No
1. Make and assemble model homes	25	8
2. Construct transportation models	27	6
3. Secure construction samples	24	9
4. Use sand table	30	3
5. Take field trips	27	6
6. Construct a scrapbook	23	10
7. Construct simple looms and weave	28	5
8. Collect candle making materials	30	3
9. Construct clay objects	31	2
10. Construct wooden weapons	24	9
11. Build maps of area studied	31	1
12. Form plaster of Paris objects	23	10

Activities and Mediums	Opinions	
	Yes	No
13. Weave useful objects	30	3
14. Carving objects of soap and wood	30	3
15. Design and construct scenery	27	6
16. Measure cloth	31	2
17. Construct simple graphs	32	1
18. Compute building materials	24	9
19. Collect precision work models	26	7
20. Collect pictures	32	1
21. Study characteristics of objects	28	5
22. Collect raw materials	31	2
23. Collect measurable data	30	3
24. Report on projects	28	5
25. Speak and write terms of industry	30	3
26. Describe familiar industrial objects	31	2
27. Construct marionettes	27	6
28. Construct objects for science	31	2
29. Paper and cardboard	32	1
30. Clay modeling	31	2
31. Soap sculpturing	31	2
32. Leathercraft	22	11
33. Block printing	30	3
34. Art metal work	21	12
35. Plastics	24	9
36. Wood	28	5
37. Weaving	28	5

Thirty-two of the thirty-three principals believe that activities which involve the construction of various objects such as simple weather instrument, mounting boards for insect collections, and displays cases would be of value for use in units of learning involving the subject matter area of science if provisions were made and materials were provided for including this type of activity. Twenty-three indicated that activities involving forming objects of plaster of Paris would be of value. The data show that twenty-five principals thought that activities involving the fabrication of model homes would be desirable, and twenty-seven were of the opinion that

activities involving field trips to observe the construction of building would be of value.

Table XI presents some data concerning the principals' opinions concerning the organization and implementation of industrial arts activities at the elementary level. The data presented in Table XI indicate that most of the principals were receptive to including some industrial arts activities, and that the activities should be conducted in the regular classroom and not taught as a separate subject in a separate laboratory.

TABLE XI

DATA CONCERNING THE OPINIONS OF THIRTY-THREE ELEMENTARY PRINCIPALS IN REGARD TO THE ORGANIZATION AND IMPLEMENTATION OF INDUSTRIAL ARTS ACTIVITIES IN THE ELEMENTARY SCHOOLS OF DALLAS

Questions	Answers	
	Yes	No
38. Could industrial arts activities be included in the regular classroom?	22	10
39. Are you receptive to industrial ar arts at elementary level as supplementing other areas?	24	9
40. Should it be taught as a separate subject and in a separate laboratory?	7	21
41. Should the regular classroom be equipped for this type of activity?	18	8
42. Would there be sufficient time to include some industrial arts in the regular classroom?	22	10
43. How could the necessary supplies and tools be handled?		
A. Kept in the regular classroom	13	10
B. Stored at a central point in the school?	14	9
C. Stored in an industrial arts laboratory and issued by an industrial arts consultant?	6	12

Data concerning the opinions of teachers and elementary principals toward including industrial arts activities in the elementary curriculum are presented in Table XII. For ease of comparison the data are shown in terms of percentage.

TABLE XII

COMPARISON OF THE OPINIONS OF ELEMENTARY TEACHERS AND PRINCIPALS TOWARD INDUSTRIAL ARTS IN THE ELEMENTARY CURRICULUM

Activities and Mediums Considered as Being Desirable	Teachers		Principals	
	Yes	No	Yes	No
1. Make and assemble model homes	74%	26%	76%	24%
2. Construct transportation models	53	47	82	18
3. Secure construction samples	69	31	73	27
4. Use sand tables	79	21	91	9
5. Take field trips	62	38	82	18
6. Construct a scrapbook	52	48	70	30
7. Construct simple looms and weave	66	34	85	15
8. Collect candle making materials	64	36	91	9
9. Construct clay objects	86	14	94	6
10. Construct wooden weapons	71	29	73	27
11. Build maps of area studied	89	11	94	6
12. Form plaster of Paris objects	62	38	70	30
13. Weave useful objects	60	40	91	9
14. Carving objects of soap and wood	68	32	91	9
15. Design and construct scenery	72	28	82	18
16. Measure cloth	62	38	94	6
17. Construct simple graphs	61	39	97	3
18. Compute building materials	22	78	73	27

Activities and Mediums Considered as Being Desirable	Teachers		Principals	
	Yes	No	Yes	No
19. Collect precision work models	73	27	79	21
20. Collect pictures	82	18	97	3
21. Study characteristics of objects	70	30	85	15
22. Collect raw materials	73	27	79	21
23. Collect measurable data	60	40	91	9
24. Report on projects	68	32	85	15
25. Speak and write terms of industry	72	28	91	9
26. Describe familiar industrial objects	82	18	94	6
27. Construct marionettes	67	33	82	18
28. Construct objects for science	83	17	94	6
29. Paper and cardboard	100	0	97	3
30. Clay modeling	92	8	94	6
31. Soap sculpturing	56	44	94	6
32. Leathercraft	34	66	66	34
33. Block printing	50	50	91	39
34. Art metal work	28	72	64	36
35. Plastics	39	61	73	27
36. Woos	49	51	85	15
37. Weaving	77	23	85	15

The data in Table XII indicate the classroom teachers are of the opinion that a limited amount of additional industrial arts activities and mediums would be desirable and of value for supplementing other subject matter areas if necessary facilities and services were made available. A further examination of the data reveals that the majority of the elementary principals are of the opinion that industrial arts activities are of value and consider them desirable for use in the elementary curriculum.

Table XIII presents data which may be used for comparing the teachers' and principals' opinions in regard to the organization of industrial arts activities at the elementary level.

The data in Table XII whow that eighty-two, or 64 per cent, of the teachers were of the opinion that some industrial arts activities could be included and taught in their present classroom, and 69 per cent of the principals were of the opinion that industrial arts activities could be included in the classrooms. Only 40 per cent of the teachers and 26 per cent of the principals were of the opinion that industrial arts should be taught as a separate subject. The time element appears to be a question on the part of the classroom teachers. The principals were more inclined to be of the opinion there would be time for some industrial arts activities in the regular classroom schedule.

TABLE XIII

DATA CONCERNING THE OPINIONS OF THE ELEMENTARY PRINCIPALS AND CLASSROOM TEACHERS IN REGARD TO THE ORGANIZATION AND IMPLEMENTATION OF INDUSTRIAL ARTS ACTIVITIES

Questions	Teachers		Principals	
	Yes	No	Yes	No
38. Could industrial arts activities be taught in your present classroom?	64%	36%	69%	31%
39. Are you receptive to industrial arts at elementary level as supplementing other areas?	69	31	73	27
40. Should it be taught as a separate subject and in a separate laboratory?	40	60	26	74
41. Should the regular classroom be equipped for this type of activity?	58	42	70	30
42. Would there be sufficient time to include some industrial arts in the regular classroom?	55	45	70	30

Questions	Teachers		Principals	
	Yes	No	Yes	No
43. How could the necessary supplies and tools be handled?				
A. Kept in the regular classroom?	57	43	57	43
B. Stored at a central point in the school?	66	34	61	39
C. Stored in an industrial arts laboratory and issued by an industrial arts consultant?	40	60	33	67

The data indicate the teachers and principals believe the best method for handing the necessary tools and supplies would be to keep them in suitable cabinets in the regular classroom or stored at a central point in the school and secured by the classroom teachers as needed.

CHAPTER V

THE ELEMENTARY CURRICULUM OF THE DALLAS INDEPENDENT SCHOOL DISTRICT

In order to determine the need for industrial arts activities in the elementary curriculum of the Dallas Independent School District, the curriculum bulletins which have been developed for the various subject matter areas for grades one through six were studied.

In Chapters II and III information and data were presented to show how industrial arts activities can be integrated with certain subject matter areas of the elementary curriculum. Only parts of the various curriculum bulletins which will lend themselves to integration with industrial with industrial arts activities, as indicated by previous research, was presented in Chapter IV. Excerpts were taken from various curriculum bulletins along with the activities which have been suggested for the use in teaching the various units. Following Chapter IV, data and information will be presented concerning to what extent industrial arts activities are integrated with the various units of learning in the elementary curriculum of Dallas.

The Dallas Public Schools have printed formal curriculum bulletins in the following subject matter areas:

Social-Science Studies
Mathematics
Language Arts
Health and Physical Education
Art
Music

After reviewing the elementary curriculum of the Dallas Public Schools, the subject matter areas which

research indicates can receive the most benefit by including the industrial arts activities that will be presented in summary form.

The curriculum bulletins for mathematics, language arts, art, and musci pertain only to specific subject matter for each grade as indicated by each bulletin. The bulletins concerning health, safety, and physical education are somewhat multiple-purpose in nature in that the materials include health, safety, and physical education. In the curriculum bulletin for social-science studies, materials are included for the study of history, geography, science, and civics.

Social-science studies will be the first subject matter area presented. The Dallas Public Schools have printed several curriculum bulletins for the social science areas. There is a separate bulletin for each grade level, one through six. Each of the six bulletins is divided, for purposes of organization, into two parts. Part one of each bulletin is devoted to the introduction, in which the point of view, general objectives, general nature of the program, suggestions concerning evaluation are set forth. Part two of each bulletin consists of suggested units of study for a particular garde.

For the purpose of this study, it appeared to be appropriate to present excerpts from part two of each of the six curriculum bulletins for social-science studies. An attempt was made to list all of the suggested units of study by separate grades. From the list of the units of study suggested for each grade, at least a part of one unit of study was presented for each grade, one through six.

For grade one, there are eight suggested units of study with one additional unit which is optional.

The suggested units of study for grade one are as follows:

Unit One- How Can We Live Happily at School?
Unit Two- How Do We Work Together for Shelter, Food and Clothing?
Unit Three- How Do Plants and Animals Get Ready for Jack Frost?
Unit Four- How Are We Connected With Far Away People and Places?
Unit Five- How Do Animals and Plants Live?
Unit Six- How Does Spring Waken Plant and Animal Life?
Unit Seven- How Do We Work Together to Protect Health and Property?
Unit Eight- How Do We Work Together to Play and Enjoy Living?
Optional- How Do We Tame Fire and Use It as a Friend?[1]

This unit, which is recommended for grade one, has a total of sixty-six suggested activities for use by the teacher and pupil in the study of the unit. The activities include reading, singing, story telling, dramatization, one possible field trip, construction activities, and others.

For grade two, six suggested units of study, with one additional unit which is optional, have been developed. The units of study for grade two are as follows:

Unit One- How Do Animals and Plants Live and Grow in Field, Forest, and Streams?
Unit Two- How Is The Work of The Community Carried On?
Unit Three- How Have People Learned to Provide for Their Needs?
Unit Four- What Can We Learn About the Wonders of Our Earth?
Unit Five- What Can We Learn About the Sun, Moon, and Stars?
Unit Six- How Does the Farm Help Provide Food For Us?
Optional- How May We Find the World of Wonder

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[1]Dallas Public Schools, "Social-Science Studies, A Tentative Course of Study for Grade one", (Dallas 1969), table of contents.

In The Library?[2]

The tentative course of study in social-science studies for grade three lists the following six units and one optional unit:

Unit One- How Did Early Man Learn to Make Plants and Animals Useful to Him?
Unit Two- How Did the North American Red Man Live, and Why Did the Plains Indians Move About?
Unit Three- Why are Water and Air Important to Us?
Unit Four- How Does the Sun Affect the Way People Live in Texas, Lapland, anddthe Philippine Islands?
Unit Five- Why Must We Say "Thank You" to All the World?
Unit Six- Why Do the Different Kinds of Animals Live and Work Together?
Optional- How May We Use Our Playtime for Wholesome Fun and Growth?[3]

There are nine suggested units of study for grade four and one additional unit chich is optional. The units for grade four are as follows:

Unit One- How Has Agriculture Enriched Our Lives?
Unit Two- How Has Trading Become the Life-blood of Civilization?
Unit Three- How Has a River Bluff Settlement Become Our Thriving City of Dallas?
Unit Four- How Has Man Learned to Make More Comfortable and Attractive Clothing?
Unit Five- How Does the Weather Bureau Learn and Tell Secrets of Our Ocean of Air?
Unit Six- How Have the Swiss and Dutch Learned to Fit Themselves to Their Surroundings?
Unit Seven- How Does Sound Bring Color and Harmony into Our Lives?

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[2]Dallas Public Schools, "Social-Science, A Tentative Course of Study for Grade Two" (Dallas, 1967), table of contents.

[3]Dallas Public Schools, "Social-Science Studies, A Tentative Course of Study for Grade Three" (Dallas, 1969), table of contents.

Unit Eight- How Does Travel Acquaint Us With Our Country and Our Ever-Changing Earth?

Unit Nine- How Do Birds, Frogs, Fish and Insects Change Through the Seasons?

Optional- How Does America Seek to Maintain Its Democracy Through Education?[4]

The sixth unit listed for the fourth grade was entitled "How Have the Swiss and Dutch Learned to Fit Themselves to Their Surroundings?" and is presented here in part. The objectives listed for this unit are:

A. How have the Dutch and Swiss people made their lives interesting through art, music, and legends?
B. What physical conditions do we find in Holland and Switzerland?
C. How have environmental conditions affected the people's ways of making a living?
D. How have the customs and characteristics of the people developed because of their constant struggle with land and sea?
E. Why are visitors from other lands attracted to these countries?[5]

For purposes of contrast, the study of the two aforementioned countries is carried on concurrently during the progress of the unit. The suggested subject matter, however, has been divided and assembled separately under the heading of "Holland" and "Switzerland". Listed under the headings of "Holland" are found the characteristics of the land and climate, with emphasis on the dikes and the drainage problems of the Dutch. Consideration is given to the occupations of the people in relation to the country, and the characteristics of the people and their mode of living. Listed under the heading of "Switzerland" are found characteristics of the country with respect to the surface, climate and location, occupations of

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[4]Dallas Public Schools, "Social-Science Studies, A Tentative Course of Study for Grade Four", (Dallas, 1969), table of Content.

[5]Ibid., p. 134.

the people in relation to the country, and characteristics of the people and their mode of living. A discussion of the interesting places and things for the tourists to see in these two countries is also included in the suggested subject matter.[6]

The curriculum bulletin for grade five contains ten units of study and one unit which is optional. The units given for grade fice are as follows:

Unit One- How Did the Old World Find the New?
Unit Two- How Did the People of Other Countries Become Colonists of the New World?
Unit Three- How Did the Little American Nation Become a Great American Nation?
Unit Four- How are Oxygen and Fire Both Friend and Foe?
Unit Five- How Is Fishing Fun and More Than Fun?
Unit Six- What Part Has Mining Played in the Industrial Development of Our World?
Unit Seven- Why and How Have Mother Earth's Trees Become One of the Primary Industries?
Unit Eight- How Have Wheels, Wings, and Hulls Made Life Rich?
Unit Nine- How Does Light Brighten Life?
Unit Ten- How Has Man's Development of Better Houses Made Him Happy?
Optional- How Have Modern Pioneers Helped Enrich Our Lives?[7]

The tentative course of study in social science studies for grade six lists the following nine units and one optional unit.

Unit One- How Is Air Necessary to Life?
Unit Two- How and Why Is Water Necessary for Ourselves, Our Work, and Our Play?
Unit Three- How Does Mother Earth Bless Us With Her Soil?

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[6]Ibid., pp. 135-161.

[7]Dallas Public Schools, "Social-Science Studies A Tentative Course of Study for Grade Five" (Dallas, 1969), table of contents.

Unit Four- How Can We Help Our Animal Friends and Combat Our Animal Foes?
Unit Five- Do You Live to Eat or Eat to Live?
Unit Six- How Has Communication Made the World Better and Smaller?
Unit Seven- What Is the Romantic Eary Story of Our Twenty-eighth State?
Unit Eight- How Have Our City and Our State Become Industrially Great?
Unit Nine- What Progress Have Texans Made in Culture and Education?
Optional- Who Are These People We Call Our Good Neighbors?[8]

A brief summary of the seventh unit will be given for grade six. This unit is called "What Is the Romantic Early Story of Our Twenty-Eight State?" The suggested objectives for this unit are to find:

A. What does being a Texan mean to us?
B. Why did the people of Texas desire to annexation of Texas to the United States.[9]

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[8]Dallas Public Schools, "Social-Science Studies, A Tentative Course of Study for Grade Six" (Dallas, 1969), table of contents.

[9]Ibid., p. 69.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was (1) to study research concerning industrial arts activities at the elementary level; (2) to gather and study information and data concerning industrial arts activities in the elementary schools of Texas and other states; (3) to study the present curriculum of the elementary schools of Dallas; (4) to determine to what extent industrial arts activities are currently included in the elementary schools and to determine the opinions of the elementare teachers and principals toward this type of activity; and (5) to offer suggestions and recommendations for including industrial arts activities in the curriculum of the Dallas Public Schools, if the results of the study indicate this type of activity is needed for improving the elementary curriculum.

The information and data used in the study were obtained from four sources which are as follows:

1. Some of the information and data used were obtained from research completed in the field of industrial arts concerning industrial arts activities at the elementary level.

2. Other data and information were obtained from schools in Texas and other states which include industrial arts activities in the elementary curriculum.

3. Data and information pertaining to the present curriculum of the elementary schools of Dallas, Texas, were obtained through a review of some of the curriculum guides which have been developed for use in the

various subject matter areas.

4. Information and data concerning the extent to which industrial arts activities are currently included in the curriculum of the elementary schools of Dallas, and the opinions of the classroom teachers and elementary principals in regard to this type of activity, were obtained from questionnaires which were completed and returned by 140 classroom teachers and thirty-three elementary principals.

Findings

When studied, the information and data presented in this study revealed the following concerning the industrial arts activities in the curriculum of the elementary public schools of Dallas, Texas.

1. According to the data, only four first grade teachers were including activities that involve the construction of model homes in the various units of learning they were teaching; five more of the twenty-three teachers indicated they were of the opinion this activity was of value. The curriculum guide for grade one in the social science studies area suggests that activities involving the construction of model homes be utilized in the planning and teaching of some of the suggested units of learning.

2. The aforementioned curriculum guide for grade one lists activities involving the construction of simple graphs or charts. The data indicate only one first grade teacher is currently including this type of activity, and only three more of the twenty-three indicated they would include this activity if the necessary facilities were made available.

3. According to the data, only four of the twenty-seven second grade teachers plan and include activities that involve field trips; four more of

the twenty-seven teachers indicated this type of activity would be of value if arrangements could be made to include field trips. According to the Social Science Studies curriculum guide for grade two, suggestions are made to include a field trip to the Dallas Children's Museum and a field trip to observe a under construction.

4. The data show that only five of the twenty-three third grade teachers include activities involving the construction of scrapbooks planned around the various units of learning in social science studies. The curriculum guide for this subject matter area in grade three offers suggestions for including this type of activity.

5. It was found that the curriculum guide for social science studies at the third grade level contains specific suggestions for including activities involving the collecting of raw materials which are obtained from other countries; however, the data show that only nine of the third grade teachers currently include this type of activities; seven other teachers were of the opinions that activities of this type would be of value.

6. The data indicate that twelve of the twenty-four fourth grade teachers include activities involving collecting models and specimens of precision work produced by industry, and six more of the twenty-four indicated this type of activity would be of value. The curriculum guide for social science studies makes recommendations for including activities of this type.

7. The excerpts presented concerning the unit of learning entitled "How Has Man's Development of Better Houses Made Him Happy?" for use in social science studies for grade five contains suggestions which

could involve many of the industrial arts activities as listed in the questionnaire completed and returned by twenty-two fifth grade teachers. The data show that only six classroom teachers include activities that involve the construction of model homes while ten additional teachers were of the opinion this activity would be of value if facilities were made available for including the construction of model homes.

8. The data show that only ten of the twenty-two fifth grade teachers plan and use activities that involve the collecting of raw materials; yet the curriculum guide makes recommendations for including this type of activity.

9. Although the curriculum guide for social science studies for grade six suggests a field trip to the Children's Museum to observe the tools, trades, crafts, and customs of early American Indians, only two of the seventeen teachers indicated they used field trips and only five of the sixth grade teachers indicated this type of activity would be of value if arrangements could be made to take field trips.

10. Suggested activities to be used in planning and teaching of the various units in the areas of mathematics and language arts are not given in the curriculum guides for mathematics and language arts; however, the data indicate that while some industrial arts activities are included in these subject matter areas by the classroom teachers, there are opportunities where additional industrial arts activities could be included in the subject matter areas of mathematics and language arts.

11. The elementary classroom teachers are of the opinion that some additional industrial arts activities would be of value and could be included in the elementary curriculum.

12. The majority of the elementary teachers are not receptive to including industrial arts activities as a separate subject matter area but indicated the activities should be integrated with the activities involved in the regular units.

13. The elementary principals were of the opinion that industrial arts activities would be of value and could be included in the elementary curriculum of the Dallas Public Schools.

14. Eighty-two of the 140 teachers were of the opinion that industrial arts activities could be included and taught or conducted in the regular classrooms, and twenty-two of the thirty-three principals were of the opinion industrial arts activities could be included and taught in the regular classrooms of the elementary schools.

15. Sixty-one of the teachers indicated there would be time to include some industrial arts activities in the regular class schedule, and twenty-three principals were of the opinion that there would be sufficient time to include some industrial arts activities in the regular classroom schedule.

16. In the event the necessary facilities and services were made available for including industrial arts activities, the teachers were of the opinion that the best method for handling the tools and supplies would be to store them in suitable cabinets or at a central point in the school.

Conclusions

The conclusions drawn from the data and information presented in this study are as follows:

1. Research and literature in the field of elementary industrial arts activities show that industrial

arts activities are of value and can be used to enrich the elementary curriculum.

2. The curriculum guides for the various subject matter areas, as developed and used in the elementary schools of Dallas, include numerous opportunities for including industrial arts activities.

3. Some of the classroom teachers include industrial arts activities to a limited extent in the various units of learning; however, the data indicate that in many cases the elementary classroom teachers are not planning and useing the activities as suggested in the curriculum guides for the various subject matter areas.

4. The data presented in Table XII (see pages 74-75) indicate that the elementary principals are more receptive than are the teachers to including additional industrial arts activities. One possible explanation for the differences of opinion ofthe classroom teachers and principals toward including industrial arts activities for enrichment of the elementary school could be that the principal is faced with all the problems of the school, whereas the classroom teacher is only involved with a segment of the total program. One further explanation could be that the principal is aware of the overall needs of the school in providing for the below average child and the above average, or socalled gifted child.

Recommendations

It appears that the data and information presented in this study justify the following recommendations:

1. A tentative curriculum guide should be developed for industrial arts activities at the elementary level in the Dallas Public Schools.

2. The necessary facilities and services should

be provided in one of the sixty-two elementary schools in order that more industrial arts activities could be included and data and information collected for further study.

3. An effort should be made to teach the elementary classroom teachers more about industrial arts activities and how they could be utilized for enriching the various units of learning which are currently included in the curriculum of the elementary schools of Dallas, Texas.

APPENDIX

This questionnaire has been designed to gather information to determine if more elementary industrial arts or handicraft activities are deemed desirable and could be included in the elementary schools of Dallas, Texas. The questionnaire has been so constructed that your responses can be made by either placing a check mark () or supplying a short answer.

All information and data you supply will be used for research purposes only and will be held in strict confidence.

Your interest and cooperation will be greatly appreciated in this matter. A self-addressed and stamped envelope is enclosed for your convenience, and a prompt reply will be appreciated.

Respectfully yours,

Fredie M. Cohen
Instructor of Industrial Arts
Franklin D. Roosevelt High School

Mr. Mrs. Miss. . . . . Date. . . . .
(Circle one which applies)

Name of School. . . . . .

The term industrial arts or handicraft activities at the elementary level refers to information and manipulative handicraft work which involves some of the tools, materials, processes, and products of industry that are related to home and community life of the elementary school age child.

Questionnaire:

In your opinion, would more of the following type of activities be of value for enriching the curriculum of your school, if facilities were made available for including the activities?

		Yes	No
1.	Make and assemble model homes and landscapes of the people studied.	( )	( )
2.	Construct models of ships, trains, planes, and cars.	( )	( )
3.	Have students secure samples of tools and materials used in the construction of the homes of the people studied.	( )	( )
4.	Use a sand table to construct landscapes of the different areas studied with emphasis upon type of terrain, climate, forests, rivers, etc.	( )	( )
5.	Take field trips to observe first hand tools, materials, and processes used to construct a home.	( )	( )
6.	Construct a scrapbook of the different types of architecture used in the different areas studied with class discussions about the different types of architecture.	( )	( )
7.	Construct simple hand looms and weave some samples of cloth.	( )	( )
8.	Collect the materials necessary for candle making and make some candles. Compare candle light to the lighting		

		Yes	No
	used in a modern home.	( )	( )
9.	Construct some useful and ornamental objects from clay similar to those used by the people being studied.	( )	( )
10.	Construct from wood some samples of the weapons used for protection, sports, and for securing food.	( )	( )
11.	Build maps of the area being studied indicating principal industrial, residential areas, etc.	( )	( )
12.	Form articles by pouring wet plaster of Paris into molds.	( )	( )
13.	Weave useful articles from reeds, canes, and other weaving materials.	( )	( )
14.	Design and construct useful and ornamental objects used by the people being studied by carving wood, soap, and other materials.	( )	( )
15.	Design and construct scenery for special ocassions such as a folk dance, seasonal activities and others.	( )	( )
16.	Have students measure the amount of cloth needed to make curtains for a toy house, or window in the classroom.	( )	( )
17.	Construct a simple graph illustrating the number of people employed in various occupations within the community such as food distribution, transportation, building, etc.	( )	( )
18.	Compute the amount of lumber, nails, and paint required to build a model of a frontier settlement or some other similar project.	( )	( )
19.	Have students bring articles from home which represent precision work on the part of industry, such as a model airplane engine, an erector set, a toy stove, and others.	( )	( )

		Yes	No
20.	Collect pictures and make bulletin board exhibits of different measuring instruments such as a ruler, yardstick, tape measure, micrometer, and other.	( )	( )
21.	Study physical characteristics of common articles such as pencils, paper, glass, clothing, plastics, wood, and metal.	( )	( )
22.	Make collections of raw materials found in the home, community, or state. Ask committees of pupils to label and classify the material.	( )	( )
23.	Encourage the class or group of pupils to collect measurable data such as weather information, fuel used in school heating systems, over a period of time. Help construct charts and graphs that give meaning to these data.	( )	( )
24.	Make reports on the progress of the projects: tell about construction procedures. Retell stories, read about the people and their industrial activities which the groups study.	( )	( )
25.	Practice speaking and writing the words and phrases used in industry.	( )	( )
26.	Describe familiar industrial products taken from the immediate environment of the child.	( )	( )
27.	Construct marionettes and a stage, dress the marionettes similar to the clothing worn by the people being studied.	( )	( )
28.	Construct mounting boards, insect frames, and shadow boxes to be used in the study of science and nature.	( )	( )

MEDIUMS

		Yes	No
29.	Paper and cardboard	( )	( )
30.	Clay modeling	( )	( )
31.	Soap sculpturing	( )	( )
32.	Leathercraft	( )	( )
33.	Block printing	( )	( )
34.	Plastics	( )	( )
35.	Wood	( )	( )
36.	Art metal work	( )	( )
37.	Weaving	( )	( )

PLEASE INDICATE YOUR REACTION TO THE FOLLOWING QUESTIONS

Yes	No		
( )	( )	38.	In your opinion, could industrial arts activities be included in the regular classroom?
( )	( )	39.	Are you receptive to including industrial arts activities at the elementary level for supplementing other curriculum areas, if facilities and other needed services were made available?
( )	( )	40.	If you believe industrial arts activities should be included at the elementary level, should it be taught as a separate subject and in a separate laboratory?
( )	( )	41.	If you do not believe industrial arts activities should be taught as a separate subject in a separate laboratory should the regular classroom be equipped for this type of activity?
( )	( )	42.	In your opinion, would there be sufficient time to include some industrial arts activities in the regular

Yes No

43. In your opinion, how could the necessary supplies and tools be best handled?

( ) ( ) A. Kept in the regular classroom in suitable cabinets by the classroom teacher?

( ) ( ) B. Supplies and tools stored at a central point in the school and secured by the regular classroom teacher as needed?

( ) ( ) C. Supplies and tools stored in an industrial arts laboratory and issued to the classroom teacher as needed by an industrial arts consultant?

It would be greatly appreciated if you would advance any opinions and recommendations in regard to elementary industrial arts or handicraft experiences at the elementary level in the space provided below.

"IS THERE SOMETHING MISSING IN YOUR AREA OF INSTRUCTION?"

QUESTIONNAIRE

For

DETERMINING IF MORE INDUSTRIAL ARTS AND HANDICRAFT ACTIVITIES COULD BE USED TO ENRICH ELEMENTARY EDUCATION IN THE DALLAS PUBLIC SCHOOLS

TO

The Elementary Classroom Teachers in the Dallas Public Schools

The questionnaire has been designed to gather information to determine if more elementary industrial arts or handicraft activities are deemed desirable and could be included in the elementary schools of Dallas, Texas. The questionnaire has been so constructed that your responses can be made by either placing a check mark () or supplying a short answer.

All information and data you supply will be used for research purposes only and will be held in strict confidence.

Your interest and cooperation will be greatly appreciated in this matter. A self-addressed and stamped envelope is enclosed for your convenience, and a prompt reply will be appreciated.

Respectfully yours,

Fredie M. Cohen
Instructor of Industrial Arts
Franklin D. Roosevelt High School

Mr. Mrs. Miss. . . . . .
(Circle one which applies

Name of School. . . . . .

Grade Level Taught
(Check one) One.... Two.... Three.... Four....Five....

Six....

Please check the subject matter areas you are now teaching.

( ) Social Science Studies ( ) Reading

( ) Arithmetic ( ) Language Arts

( ) Spelling and Writing ( ) Music

The term industrial arts of handicraft activities at the elementary level refers to information and manipulative handicraft work which involves some of the tools, materials, processes and products of industry that are related to home and community life of the elementary school age child.

Questionnaire				Opinions	
At the present time do you include any of the following type activities in your area of instruction?				In the event you do not include any of the following type activities in your area of instruction, in your opinion would any of the activities be of value and assist you, if facilities were made available for including the activities?	
Yes	No			Yes	No
( )	( )	1.	Make and assemble model homes and landscapes of the people studied.	( )	( )
( )	( )	2.	Construct models of ships, trains, planes, and cars.	( )	( )
( )	( )	3.	Have students secure samples of tools and materials used in the construction of the homes of the people studied.	( )	( )

Questionnaire				Opinions	
				Yes	No
( )	( )	4.	Use a sand table to construct landscapes of the different areas studied with emphasis upon type of terrain, climate, forests, rivers, etc.	( )	( )
( )	( )	5.	Take field trips to observe first hand the tools, materials, and processes used to construct a home.	( )	( )

At the present time do you include any of the following type activities in your area of instruction.

In the event you do not include any of the following type activities in your area of instruction, in your opinion would any of the actiiv-ities be of value and assist you, if facil-ities were made available for includ-ing the activities?

Yes	No			Yes	No
( )	( )	6.	Construct a scrapbook of the different types of architecture used in the different areas studied with class discussions about the different types of architecture.	( )	( )
( )	( )	7.	Construct simple hand looms and weave some samples of cloth.	( )	( )
( )	( )	8.	Collect the materials necessary for candle making and make some candles. Compare candle light to the lighting used in a modern home.	( )	( )
( )	( )	9.	Construct some useful and ornamental objects from clay similar to those used by the people being studied.	( )	( )
( )	( )	10.	Construct from wood some samples of the weapons used for protec-	( )	( )

Yes	No		Yes	No
		tion, sports, and for securing food.		
( )	( ) 11.	Build maps of the area being studied indicating principal industrial, residental areas, etc.	( )	( )
( )	( ) 12.	Form articles by pouring wet plaster of Paris into molds.	( )	( )
( )	( ) 13.	Weave useful articles from reeds, canes, and other weaving materials.	( )	( )
( )	( ) 14.	Design and construct useful and ornamental objects used by the people being studied by carving wood, soap, and other materials.	( )	( )
( )	( ) 15.	Design and construct scenery for special ocassions such as a folk dance, seasonal activities and others.	( )	( )
( )	( ) 16.	Have students measure the amount of cloth needed to make curtains for a toy house, or a window in a classroom.	( )	( )
( )	( ) 17.	Construct a simple graph illustrating the number of people employed in various occupations within the community such as food distribution, transportation, building, etc.	( )	( )
( )	( ) 18.	Compute the amount of lumber, nails, and paint required to build a model of a frontier settlement or some other similar project.	( )	( )
( )	( ) 19.	Have students bring articles from home which represent precision work on the part of the industry, such as a model airplane engine, an erector set, a toy stove, and others.	( )	( )
( )	( ) 20.	Collect pictures and make bul-	( )	( )

Yes	No		Yes	No
		letin boards exhibits of different measuring instruments such as a ruler, yardstick, tape measure, micrometer, and others.		
( )	( ) 21.	Study physical characteristics of common articles such as pencils, paper, glass, clothing, plastics, wood and metal.	( )	( )
( )	( ) 22.	Make colllection of raw materials found in the home, community, or state. Ask committees of pupils to label and classify the material.	( )	( )
( )	( ) 23.	Encourage the class or a group of pupils to collect measurable data such as weather information, fuel used in school heating system, over a period of time. Help construct charts and graphs that give meaning to these data.	( )	( )
( )	( ) 24.	Make reports on the progress of the projects: tell about construction procedures. Retell stories, read about the people and their industrial activities which the group study.	( )	( )
( )	( ) 25.	Practice speaking and writing the words and phrases used in industry.	( )	( )
( )	( ) 26.	Describe familiar industrial products taken from the immediate environment of the child.	( )	( )
( )	( ) 27.	Construct marionettes and a stage, dress the marionettes similar to the clothing worn by the people being studied.	( )	( )
( )	( ) 28.	Construct mounting boards, insect frames, and shadow boxes to be used in the study of science and nature.	( )	( )

Questionnaire

At the present time do you include any of the following mediums in your area of instruction?

Opinions

In the event you do not include any of the following mediums in your area of instruction, in your opinion would any of the mediums be of value and assist you, if facilities were made available for including the mediums?

Yes	No		Yes	No
( )	( ) 29.	Paper and cardboard	( )	( )
( )	( ) 30.	Clay modeling	( )	( )
( )	( ) 31.	Soap sculpturing	( )	( )
( )	( ) 32.	Leathercraft	( )	( )
( )	( ) 33.	Block printing	( )	( )
( )	( ) 24.	Art metal work	( )	( )
( )	( ) 25.	Plastics	( )	( )
( )	( ) 26.	Wood	( )	( )
( )	( ) 27.	Weaving	( )	( )

PLEASE INDICATE YOUR REACTION TO THE FOLLOWING QUESTIONS

Yes	No	
( )	( ) 38.	In your opinion, could industrial arts activities be included in the regular classroom in which you teach?
( )	( ) 39.	Are you receptive to including industrial arts activities at the elementary level for supplementing other curriculum areas, if facilities and other needed services were made available?
( )	( ) 40.	If you believe industrial arts activities should be included at the elementary level, should it be taught as a separate subject and in a separate laboratory?

Yes No

( ) ( ) 41. If you do not believe industrial arts activities should be taught as a separate subject in a separate laboratory should the regular classroom be equipped for this type of activity?

( ) ( ) 42. In your opinion, would there be sufficient time to include some industrial arts activities in the regular classroom period?

43. In your opinion, how could the necessary supplies and tools be best handled?

( ) ( ) A. Kept in the regular classroom in suitable cabinets by the classroom teacher?

B. Supplies and tools stored at a central point in the school and secured by the regular classroom teacher as needed?

C. Supplies and tools stored in an industrial arts laboratory and issued to the classroom teacher as needed by an industrial arts consultant?

It would be greatly appreciated if you would advance any opinions and recommendations in regard to elementary industrial arts or handicraft experiences at the elementary level in the space provided below.

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