A STUDY TO DETERMINE A SOUND INDUSTRIAL ARTS PROGRAM FOR THE NORTHWEST SCHOOL

APPROVED:

Homer E. Money
Major Professor

Harold Brentzel
Minor Professor

S. A. Blackburn
Director of the Department of Industrial Arts

Jack Johnson
Dean of the Graduate School

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THESIS

Presented to the Graduate Council of the
North Texas State College in Partial
Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

By

Merrill D. Williamson, B. S.

Denton, Texas

August, 1952

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CHAPTER I

INTRODUCTION

Background and History of the Problem

For several years the scholastic enrollment has been declining in the districts which now comprise the Northwest Independent School District. The trend was first noted in 1946 when the Elizabeth School District, the Walnut Grove School District, and the Roanoke School District were forced to consolidate. Documentary evidence shows that this grouping would best serve the interests of both the scholastics and the county as a whole.[1]

The scholastics in the Northwest District continued to decline. On March 30, 1948, Rhome of Wise County, Haslet of Tarrant County, and Justin and Roanoke of Denton County received warnings from the State Department of Education that the schools could not continue to operate unless their enrollment increased.[2]

On November 22, 1948, the superintendents and school boards of these four high schools met at Roanoke with the

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[1]Official record of a meeting of the Denton County Board of School Trustees, October 24, 1946.

[2]Report sent to Rhome, Haslet, Justin, and Roanoke High Schools by L. A. Woods, State Superintendent of Education, March 30, 1948.

Denton, Wise, and Tarrant County Superintendents of Education. Their purpose in meeting was to discuss the possibility of consolidating the school districts which they represented. This meeting led to an election on January 22, 1949, at which time the four schools voted to consolidate. The name agreed upon for the new school district was Northwest Independent School District.[3]

The Northwest District has an area of 213 square miles. Although there has been no census taken, it is estimated that the population of the district is approximately 5000. There are 285 students currently enrolled in grades seven through twelve. The school's attendance record shows that 165 boys and 120 girls are now attending school.[4]

From the records that are available, it seems that self preservation was the motive which led these school districts to consolidate. There seems to be no outstanding difference between the cause for this consolidation and consolidations that have occurred in other localities in the past. It was through the pooling of scholastics and financial resources that they were permitted to retain a high school in the Northwest Community.

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[3] Minutes of school board meetings on file at Northwest High School.

[4] Record of attendance for the school year 1949-1950, on file at Northwest High School.

Statement of Problem

The problem of this study is to determine if an industrial arts program can be developed to fit the needs of the Northwest High School Community.

Source of Material

Materials used in this study were taken from books, professional magazine articles, pamphlets, school documents, and unpublished related studies. A survey was conducted to secure data for analyzing the needs and interests of the Northwest Community. Information was sought from parents, boys, and girls concerning their use of leisure time, interests, need for vocational training, individual needs, and home and family needs.

Delimitation of Problem

This study will be limited to the Northwest High School Community, because an attempt will be made to set up a specific program to fit this community's needs.

Method of Procedure

Chapter I is an introduction to the study. It consists of the background and history of the Northwest Independent School District, a statement of the problem, source of material, delimitation of problem, method of procedure, definition of terms, and a summary of four related studies.

In Chapter II an analysis is made of the industrial arts programs of thirteen community schools now in operation. In this chapter an effort is made to show how industrial arts is being taught and integrated with other studies in each school.

In Chapter III an effort is made to determine what constitutes a sound program of industrial arts in a community school. A study of the philosophy and objectives of the community school and of industrial arts is made in order to determine criteria from which a sound program of industrial arts may be developed.

Chapter IV is used to analyze the data gathered in a survey which was conducted to determine the interests and needs of the parents and students of the Northwest community.

Chapter V includes the summary, conclusions, and recommendations of this study followed by a proposed program of industrial arts for the Northwest High School.

Definition of Terms

The term "adults" as used in this study includes all the residents of the Northwest Independent School District who are past the legal school age in Texas.

"Students" will be used when referring to those who are regularly enrolled in grades seven through twelve in the Northwest High School.

"Northwest" will henceforth relate to the Northwest High School of the Northwest Independent School District.

Those enrolled in grades seven through twelve who reside in the Rhome, Haslet, Justin, and Roanoke districts are the students at Northwest.

Related Studies

Four studies were found which relate to the problem involved in this thesis. Only one study was found in which an attempt was made to develop an industrial arts program to fit community needs.

Bishop made a study to determine the needs of the Highland Park Community for industrial arts.[5] In his study information was sought from parents and students concerning their hobbies, leisure-time interests, habits, and needs. The city district in which the study was made consisted of a relatively high income group.[6] This study is concerned with a group which consists largely of farmers and small townspeople with a wide range of income. The problems are similar because in both there is an effort to determine an industrial arts program to fit the interests and needs of a community.

Some conclusions that were made by Bishop as a result of the study are as follows:

1. Industrial arts is valuable in training students to do home repairs.

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[5]Alvin C. Bishop, "To Determine the Needs of the Community of Highland Park for the Industrial Arts" (Unpublished Master's Thesis, Department of Industrial Arts, North Texas State College, 1948), p. 1.

[6]Ibid., p. 2.

2. Industrial arts is capable of developing a variety of hobbies.
3. A survey should be conducted from time to time to determine needed curriculum changes. [7]

The conclusions and recommendations made as a result of the Highland Park study were of some value in planning this study.

In an analysis of the function of handicrafts for life adjustment situations, Brenholtz made an attempt to determine the areas of living which can be aided by a crafts program.[8] His study is primarily concerned with a single phase of industrial arts, whereas this study is concerned with several phases.

The study was built on the premise that education should serve four areas of living which are home living, recreation, occupation, and civic living. It was found in the study that education for home living could be aided by crafts more than the other areas with recreation and occupation following in that order. No use of crafts could be made to aid the civic area.[9]

The following pertinent conclusions and recommendations were made:

1. Handicrafts can fill an important place in education for life adjustment. It should be of value in

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[7] Ibid., pp. 52-53.

[8] Gerald S. Brenholtz, "An Analysis of the Functions of Hahdicrafts in Education for Life Adjustment Situations," (Unpublished Master's Thesis, Department of Industrial Arts, North Texas State College, 1949), p. 1.

[9] Ibid., pp. 25-26.

helping the students develop skills and understandings that will help them to earn a better living.

2. Better living conditions in the homes should result from the handicrafts program since many of the projects will go into the home. It is hoped that the students will learn to observe the needs of the home and to fill those needs with material that is at hand.

3. The handicrafts program in the high school should be planned around the areas of persistent life situations.

4. The program should be planned so that the needs of society for able, rational, and well-adjusted citizens will be met as well as possible.

5. The program should be planned in such a manner that the needs of the student will be met. 10

The conclusions and recommendations that were made are general in nature and are not of value except in situations where handicrafts are needed.

In a study made by Tomkins in 1942, he made an attempt to determine an adequate course of industrial arts for the ninth grade in terms of child needs, psychological possibilities, and social needs.[11] His contention was that youth have four needs which may be classified as recreational living, home living, vocational living, and community living. A survey was conducted to determine the needs of the ninth grade students. The industrial arts courses that were being offered were analyzed to determine whether or not they were meeting the needs of the students.

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[10] Ibid., pp. 61-64.

[11] Alex Tomkins, "Determination of an Adequate Course of Industrial Arts for Ninth Grade in Terms of Child Needs, Psychological Possibilities, and Social Needs," (Unpublished Master's Thesis, Department of Education, North Texas State College, 1942), p. 1.

The foloowing pertinent conclusions were made concerning the needs of all youth:

1. The mental health of some individuals may be contributed to by industrial or occupational types of work.
2. The school program should meet those needs of youth not otherwise met.
3. The industrial arts shop could use athletic and recreational equipment as a source for some projects.
4. Many youths in America do not make valuable use of their leisure time or free time.
5. Education must be constantly expanding to meet the needs of society.
6. A well-rounded program of activities and the proper food, water, rest, and shelter are essential to good health.
7. All available recreational facilities should be made use of by the officials in charge as often as possible.
8. There is some justification for the statement that shop courses, using laboratory and applied practices, cause some children to form favorable attitudes toward school and society in general.
9. In some cases the enrollment from freshman to senior years in high school shows a decrease.
10. A community program should be all-inclusive, to meet the needs of its youth.
11. A course in industrial arts can be valuable in helping to make occupational adjustments.
12. The industrial arts shop can sometimes be used to valuable advantage by the parents of the community.
13. There is a specific need for guidance courses to be offered early in the secondary curriculum.
14. The community recreational program should meet the social leisure-time needs.
15. Disintegration has caused many recreational problems, requiring skillful guidance and the cooperation of all to solve them.
16. The nature of the father's occupation often affects the status of the entire family. [12]

A more comprehensive study concerning the needs of youth was not found in the search for related studies. It is indicative of the need for industrial arts in many situations.

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[12] Ibid., pp. 98-100.

In 1948, Voss made an examination of the needs of youth and found that their needs could be classified under four areas of living which are home living, leisure or recreational living, vocational living, and community living. The study was concerned with all the needs of youth.[13] This study is concerned with those needs which may be satisfied through participation in some phase of industrial arts.

The following conclusions were made by Voss:

1. All youth need:
   a. To develop and maintain good health and physical fitness.
   b. To be instructed in the proper use of leisure time.
   c. To cultivate the willingness and the ability to cooperate effectively in democratic institutions.
   d. A range of personal interests, for esthetic satisfaction.
   e. Guidance in choosing an occupation and for vocational preparation.
   f. To know how to make and hold friends.
   g. To develop saleable skills and those understandings and attitudes that make the worker an intelligent and productive participant in economic life. To this end, most youth need supervised work experiences as well as education in the skills and knowledge in their proposed occupation.
   h. To know how to purchase and use goods and services intelligently.
   i. The opportunity to earn money.
2. It seems to be possible to give the youth training in meeting his needs in one or more of the areas of living.

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[13] Frances G. Voss, "To Determine a Sound Program for Organizing the Needs of Youth and the Curriculum in the Secondary School," (Unpublished Master's Thesis, Department of Education, North Texas State College, 1948), pp. 99-100.

3. It seems to be possible to give the youth training in meeting more of his needs in the area of community living than in any other area. The area of home living runs a close second. The areas 'making a living,' and 'recreational living' give training in meeting the same number of needs.

4. It is recommended that the curriculum of the secondary school be reorganized around the needs of youth, and since the needs of youth can be grouped under or around four purpose areas of living--living in the home, leisure or recreational living, making a living (vocational), and living in the community--it is recommended that these areas be utilized as a working basis for organizing the curriculum. [14]

The related studies that were discussed in this chapter were of some help in organizing this study. The recommendations and conclusions of the above studies suggest some factors for consideration in Chapter III of this study in which the philosophy and objectives of the community school are examined. However, before entering into a discussion of the philosophy and objectives of the community school, an examination will be made of several recognized community school programs in order to determine the role industrial arts is now playing in the various school programs.

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[14] Ibid., pp. 96-98.

CHAPTER II

THE COMMUNITY SCHOOL IN OPERATION

In an effort to find out what type of industrial arts programs are being carried on in some recognized community schools, reference has been made to several studies and articles that have been published recently by recognized men in the field of education. The studies and articles concerned the entire curriculum of the elementary and secondary schools, however, only the information pertaining to industrial arts is used in this study.

In this chapter a brief description is given of each industrial arts program to illustrate the use of industrial arts in the community school. Only those activities which seem consistent with the philosophy and objectives of industrial arts are mentioned.

The Holtville Community School

In the Holtville Community School, Deatsville, Alabama, much more emphasis is placed on the students' interests, needs, and ambitions than is placed on the needs and interests of community adults. In most of cases cited, the interests of individual students were considered paramount.[1]

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[1] Whilden Wallace, James Crietzberg, and V. M. Sims, The Story of Holtville, p. 4.

The Holtville school starts out each year with a student-teacher conference which helps each pupil to plan a year's work that will meet his interests and needs. It is usually necessary to offer many courses if all the requests are to be met. As a result, very few courses are offered in which groups of more than two or three participate. In many instances, in which no instructors are available, arrangements are made whereby one class passes down its knowledge of the subject to the new class. Students participate in and receive credit for courses in building construction, electrical wiring, plumbing, maintenance, and printing. All of the work is done on the school campus. Other courses including woodworking, metal work, drawing, and crafts are offered to students who choose to take them.[2]

The Allen-White Community School

In Whiteville, Tennessee, the Allen-White High School program has as its main objective the teaching of skill to Negro boys so their ability to earn a livelihood will be increased. The per capita income in the Allen-White community is far below the average of the nation. While learning skills the students perform jobs which improve homes and living conditions in their community. The school plant has ten buildings which were built by students in the building

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[2] Ibid., p. 4.

trades as a part of their work experience. All carpentry repairs on the campus are made by the students. The students visit homes in the community and assist in repairing and rebuilding those homes that are in need of repair.

In the evenings farmers in the community, many of whom do not have more than a fourth_grade education, meet at the school to discuss ways of improving their farm homes and farm buildings. In one case, these farmers went so far as to request that night courses in shop mathematics, use and care of tools, and home repair be offered.

As an example of what is being done, the students went into a nearby community and conducted a survey to determine the needs. As a result, they have added screens to eight homes, and plans have been made for building sanitary toilets. A community slaughter pit is now under construction. Another worthwhile project of the students was the building of a tuberculosis isolation ward. Some students develop enough skill in these work experiences to enable them to earn a livelihood at carpentry and other similar trades.[3]

The Ascension Parish School

Although the Ascension Parish School, Ascension, Louisiana, is principally vocational in nature, it has as its objective the improvement of living within the community. The

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[3] W. K. McCharen, Selected Community School Programs in the South, p. 18.

community needs shilled workers in forging, electrical wiring, motor repairing, cabinet making, furniture repairing, farm machinery repairing, and carpentry. These skills are being taught as the students work to improve their community.[4]

The Burton Heights School

Students in the Burton Heights School, Williamsburg, Virginia, have learned to build window screens and sanitary toilets by building them for homes in the community. After a visit to the school, McMharen has this to say about the operation of the industrial arts program:

> The school shop encourages the construction of new articles and the repair of old. Every boy carries on a home project. Long needed repairs were made because the school demonstrated the possibility.[5]

The industrial arts program of this school is typical of the programs found in similar situations. It seems that the primary purpose of the industrial arts program of the Burton Heights School is to teach students how to improve home living.

The Frost Community School

The industrial arts students of the Frost Community School are largely concerned with improving their school plant. Students construct and maintain the schools' playground equipment. They have built concrete walks, tables,

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[4] Ibid., p. 25.

[5] Ibid., p. 38.

bulletin boards, dictionary stands, and other useful items for the school. A lunch room was constructed by the shop students at a lower cost to the school than would have otherwise been possible. All of the electrical wiring on the campus is done by students as well as all of the varnishing, painting, and repair work.[6]

The Geneva School

Althought the Geneva School offers only elementary training, it is an example of how schools can provide industrial arts for their students without the regular facilities. Integration of industrial arts with academic courses is stressed in this school.

Of the Geneva School McCharen says:

> It was observed that every classroom was equipped with some hand tools orderly arranged. There was a work bench in each room that was used at appropriate times by the boys where they not only developed manual skills, but also learned arithmetic in meaningful situations. One project that had been popular with the boys was making shoe-shine boxes. This activity resulted in the development of arithmetic and manual skills, and also in better grooming since the boys took their shine-boxes home with them and were encouraged to use them in keeping their shoes shines. 7

The Vine Grove School

Industrial arts in the Vine Grove School, Hardin County, Kentucky, benefits the adults of the community as well as

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[6] Ibid., pp. 55-57.

[7] Ibid., p. 62.

the students of the school. Three days each week the shop is available to the adults of the community for the construction, repair, and maintenance of farm tools and equipment of all types. Shop teachers are available whenever they are needed to give assistance.[8]

Waynesboro High School

Waynesboro, Virginia, being more industrialized than most of the other communities mentioned in this study, uses the high school shop for a different purpose. Where the adult programs in other communities have attempted to improve homes and home living, the Waynesboro School offers aid to the industrial workers of the community. From time to time courses in the use and care of hand tools, mechanical drawing, shop mathematics, and mechanics are offered in order to make the industrial workers more efficient in their work. These courses are offered at the request of both the industries and their employees.[9]

The Atwater School

In the Atwater School, a well equipped woodworking shop is available to students and adults. The shop is used by adults who want to use it to build furniture and other items for their homes. Some furniture is manufactured for sale. Although shop courses may be taken by the students

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[8] Ibid., p. 118. [9] Ibid., p. 120.

for credit, the shop is not used for that alone. The woodworking shop is used more extensively by students who are working on some problem of special interest to them which requires shopwork. As a specific example, a group of students decided to build a log cabin to use for recreational purposes. The students cut logs and constructed the building. They trapped a stream of water which is used to drive a large water wheel to produce electricity for lighting the cabin. These students built their own gymnasium in the same manner. These work experiences were initiated by the students as a result of a real need.[10]

The Glencol Community School

In the Glencol Community School, Glencol, Illinois, Mayer says the principal function of industrial arts is in furnishing hobbies for students and adults. Monday night is set aside especially for parents of the community to come in and do work in leather, metal, and wood. About this community night Mayer writes:

> The crafts shop becomes a veritable home mechanics room. If a mother needs a shelf, she comes in and makes it. Father brings in some furniture to repair.[11]

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[10] E. G. Olsen, School and Community, p. 212.

[11] Jane Mayer, The Community a Laboratory, Progressive Education Association Service Center Pamphlet (1941), p. 11.

A program of this type, which brings the adults of a community together, should tend to improve the relations between the school and community.

The Macedonia Co-operative Community

The Macedonia School, Clarksville, Georgia, like the Glencol School, encourages hobby work. Guidance is available for those desiring help in rebuilding or making new additions to their homes. George E. Mitchell, director of the program, has this to say about it:

> For the encouragement of hobbies, one building on the park grounds has been designed with separate, supervised rooms especially equipped to suit those interested in photography, radio, model airplane building, auto mechanics, chemistry, music, painting, and so forth. The park merges imperceptibly with the community owned forest of 700 acres. In the center is a small saw mill, a steam kiln for drying lumber, storage sheds, a planer, and a shop where citizens may be assisted in designing and making of furniture, toys, or even additions to their homes. 12

The facilities for carrying on a community program in industrial arts seem to be more adequate in the Macedonia Community than in any other community that was found to be operating a community shop program.

The Parker District Community

In the Parker District Community, Greenville, South Carolina, a relatively low per capita income exists because many of the people are not capable of earning a

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12 C. O. Arndt and L. J. Bowles, Parents, Teachers and Youth Build Together, Prepared for the Service Center of the American Education Fellowship (1947).

living. For this reason, the school promotes the vocational aspect of industrial arts. The main purpose of the program is to teach some specialized trade to the boys and girls which will improve their ability to make a living. In this way the school can help to improve the standard of living in the community.

All the shop courses offered in the lower grades are exploratory in nature. This helps the students discover their real interests and abilities before they specialize in some field that may later prove unsatisfactory for them. In an effort to supply occupational training, the vocational department offers courses in drafting, carding, spinning, weaving, machine shop, shop mathematics, body and fender repair, and diversified occupations.[13]

The Arthurdale School

Industrial arts was first initiated into Arthurdale, West Virginia, by a group of miners who lost their jobs when the mines of the town were closed. These stranded miners believed that the only way for them to achieve financial restoration was through organization and planning.

The Mountaineer Craftmen Co-operative Association was organized and a furniture making shop was established by

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[13] The Parker District High School and the Parker District Community, A report prepared by the Parker District High School Faculty with the assistance of the Staff of the Southern Association Study (1942), pp. 5-72.

them at the town center. They made all types of furniture for themselves at first, but it soon became possible for them to sell some of their products. Many of the people acquired a positive source of income as a result of this enterprise. A few years later the program was taken over by the Arthurdale School at the request of the Association. Even though the Association has relinquished its control of the workshop, it still serves as a community center for the people of Arthurdale.

Courses are offered to students in woodworking but that is not the only function of the Arthurdale School Shop. History is made more meaningful to the students because they are permitted to reconstruct the town houses of Arthurdale while studying the history of the town. Industrial arts is integrated with other courses in the Arthurdale School when it is possible.[14]

In this chapter an examination has been made of the industrial arts programs of thirteen community schools. The examination revealed that the role of industrial arts was not the same in all of the schools. The various functions that industrial arts has been found to perform in the community schools which have been examined in this chapter are:

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[14] Elsie R. Clapp, Community Schools in Action, p. 136.

1. To teach boys a trade at which they may earn a living in the community.

2. To prepare adults for advancement in their field of employment.

3. To teach the people of the community how to use their leisure time profitably.

4. To improve sanitary conditions in the community.

5. To improve community living by improving the physical environment of the community.

6. To improve home living by making the homes more comfortable and more sanitary.

7. To improve the physical environment of the students by improving the school plant.

8. To encourage students to improve their personal appearance.

9. To increase the efficiency of factory employees.

10. To make academic courses more meaningful to students.

11. To aid local industries in their effort to become more efficient and more productive.

12. To meet the needs of the students.

13. To meet the interests of the students.

14. To aid farmers of the community in the repair and maintenance of their farm equipment.

15. To give assistance to the adults of the community in their efforts to improve their homes.

16. To maintain the school plant.

17. To bring the adults of the community in closer relationship to the school.

One might conclude after an examination of the above schools that there is no set pattern that can be followed in setting up an industrial arts program for a school. Yet out of the above it seems that need--the need of the boy or girl, the need of the school, the need of the adults, the need of the community--seems to be the controlling factor. It was only when the needs of the community were met that the project seemed to succeed. One might conclude from the above that the traditional type of program is not generally adequate, especially in low income groups who live in remote sections of the country away from the more populous and wealthier communities. These secluded communities are generally inhabited with people of low intelligence who have permitted their farm lands to become less productive because of their poor methods of farming.

In the following chapter an effort will be made to determine what constitutes a sound program of industrial arts in a community school. A study of the philosophy and objectives of the community school and of industrial arts will be made in order to determine criteria from which a sound program of industrial arts may be based.

CHAPTER III

THE PLACE OF INDUSTRIAL ARTS IN THE COMMUNITY SCHOOL

It is the purpose of this chapter to examine the factors which should influence the type of industrial arts program in a community school.

In building an industrial arts program there are always some factors to be considered if the program is to function properly. There must be some justification for any program whether it is industrial arts or some other program. Of course, there are many aims and objectives which may be accomplished by industrial arts but the accomplishment of these objectives alone is not sufficient.

Industrial arts is, and must be, a part of general education and as such it must be justified on the basis that it is needed to carry out the philosophy of the school. In this chapter an effort will be made to determine what constitutes a sound program of industrial arts in a community school. To do this the purposes and objectives of the community school must first be determined.

The Philosophy, Objectives, and Characteristics of the Community School

The purpose of the school is to educate. In the traditional schools the primary purpose of education has been to

prepare students for college entrance. However, in recent years there has been a re-defining of education so that its meaning has broadened. This broadening has been affected by those who have been able to see that preparing students for college alone is not sufficient. Since only a small per cent of all high school graduates enter college, a majority of the students have not been adequately prepared for life. For this reason schools must make a concerted effort to meet the needs of those who do not plan to enter college.

Another group which has been neglected by the schools is the community adult group. They have been graduated from school without being prepared for life. Needs and problems continue to arise after students enter community adult life. Thus it is the duty and obligation of the school to see that a student's educational opportunities are not terminated upon graduation.

L. D. Haskew gives the following definition of education in a community:

> Education is a means to an end. That end is the satisfactory solution of problems of living faced by people. The people in a community have educational needs because they have life needs. The school is established in order that these educational needs may be met. Consequently, the primary role of the school is to see that all the educational needs of all the people in the community are met. 1

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1 L. D. Haskew, "The Community Is the School's Classroom," The School Executive, LXVII (January, 1948), 30-32.

If the above definition can be accepted as the purpose of education, then it becomes necessary to determine the areas of living in which man's needs are likely to arise.

According to a previous study it was found that man's needs are apt to fall into four general areas of living. These areas are called purpose areas. In Voss's study it was found that man's purpose areas of living are, living in the home, leisure or recreational living, living in the community, and making a living (vocational).[2] Within these areas students and adults will find many specific needs which are not general in nature but which will be dictated by situations as they exist in a given community. However, there are some needs which may be considered general--needs which must be reckoned with if students are to become intelligent participants in community life.

The Educational Policies Commission lists the imperative needs of all youth as follows:

> All youth need to develop saleable skills and those understandings and attitudes that make the worker an intelligent and productive participant in economic life. To this end, most youth need supervised work experiences as well as education in the skills and knowledge of their occupation.
>
> All youth need to develop and maintain good health and physical fitness.
>
> All youth need to understand the rights and duties of the citizen of a democratic society, and to be

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[2]Frances G. Voss, "To Determine a Sound Program for Organizing the Needs of Youth and the Curriculum in the Scondary School," (Unpublished Master's Thesis, Department of Education, North Texas State College, 1948), pp.96-98.

diligent and competent in the performance of their obligations as members of the community and citizens of the state and nation.

All youth need to understand the significance of the family for the individual and society and the conditions conducive to successful family life.

All youth need to know how to purchase and use goods and services intelligently, understanding both the value received by the customer and the economic consequences of their acts.

All youth need to understand the methods of science, the influence of science on human life, and the main scientific facts concerning the nature of the world and of man.

All youth need opportunities to develop their capacities to appreciate beauty in literature, art, music, and nature.

All youth need to be able to use their leisure time well and to budget it wisely, balancing activities that yield satisfaction to the individual with those that are socially useful.

All youth need to develop respect for other persons, to grow in their insight into ethical values and principles, and to be able to live and work co-operatively with others.

All youth need to grow in their ability to think rationally, to express their thoughts clearly, and to read and listen with understanding. [3]

The needs listed above are the needs of all youth. They are general in nature and provisions should be made in every school curriculum for the development of all students in each phase. If the school is to function democratically, it must not only provide adequate learning conditions for these general needs but it must be organized and operated in a manner that will permit the people of the community to solve problems that are not provided for in the general program. To do this the school must take on a specific and dynamic character.

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[3] National Education Association, Education for All American Youth, A Report Prepared by the Educational Policies Commission, pp. 225-226.

School life lists the common characteristics of the democratic community school as follows:

> The community school seeks to operate continuously as an important unit in the family of agencies serving the common purpose of improving community living.
>
> The community school shares with citizens continuing responsibility for the identification of community needs and the development of subsequent action programs to meet these needs.
>
> The community school begins its responsibility for better living with the immediate school environment.
>
> The curriculum of the community school is sufficiently comprehensive and flexible to facilitate the realization of its purpose.
>
> The community school program is dynamic, constantly changing to meet emergency needs.
>
> The community school makes use of all community resources for learning experiences.
>
> The community school develops and uses distinctive types of teaching materials.
>
> The community school shares with other agencies the responsibility for providing opportunities for appropriate learning experiences for all members of the community.
>
> The community school recognizes improvement in social and community relations behavior as an indication of individual growth and development.
>
> The community school develops continuous evaluation in terms of the quality of living for the pupils, teachers, and administrators; for the total school program; and for the community.
>
> The pupil personnel services of the community school are cooperatively developed in relation to community needs.
>
> The community school secures staff personnel properly prepared to contribute to the distinctive objectives of the school, facilitates effective work and continuous professional growth by members of the staff, and maintains only those personnel policies which are consistent with the school's purposes.
>
> The community school maintains democratic pupil-teacher-administrator relationships.
>
> The community school creates, and operates in, a situation where there is high expectation of what good schools can do to improve community living.
>
> The community school buildings, equipment, and grounds are so designed, constructed, and used as to make it possible to provide for children, youth, and

> adults those experiences in community living which are not adequately provided by agencies other than the school.
>
> The community school budget is the financial plan for translating into reality the educational program which the school board, staff members, students, and other citizens have agreed upon as desirable for the community.[4]

If these characteristics are common to all community schools then they may be used as a working basis for the successful operations of other schools under similar conditions. This in no way suggests that programs in all community schools are identical. It shows that similar means have been used in achieving the goals and purposes of the schools.

After recognizing the characteristics of the successful community school it becomes necessary to build a program that will be consistent with those characteristics. It seems that if the educational organization is to function democratically, the needs of all those in the community who are concerned should be met. In meeting these needs the characteristics listed above should be manifested.

Other than meeting the universal needs of all youth, the school must satisfy the needs of all the individuals in the community. These needs will likely fall within the four-purpose areas of living. The needs which may arise from these purpose areas are not apt to be the same with all individuals

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[4] School Life, Sixteen Characteristics of the Community School, XXXI (November, 1948), 2.

or all communities. Since these differences may be expected to be present, there must be some effort by the school to determine what the specific needs in a community are.

Samuel Everett has the following to say about a school's obligation to a community:

> Society conducts schools for the purpose of improving the lives of individuals and their communities. The wise procedure is to discover the needs of the individuals and the community and then carry on activities in the school curriculum to meet these needs. [5]

Although this procedure has not been prevalent in the public schools, there have been many educators to recommend its use. As far back as 1927 there was information showing the advantages of such a program. In that year Glueck wrote: "Statistical information together with the illustrations of work going on in several cities, and the findings of the National Community Center Association Committee, indicated that each district in which a school center was located had to discover its own needs rather than follow a prescribed program."[6]

To endeavor to fill the needs of all those in a community is indeed a complicated and difficult task for a school to undertake. Discovering the areas of living in which the needs are most likely to arise is not sufficient. Neither is it sufficient to recognize the needs that are common to all.

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[5] Samuel Everett, The Community School, p. 305.

[6] E. T. Glueck, The Community Use of Schools, p. 138.

The school must go one step further and cater to the needs that arise from the special situation that will be found to exist in each individual community. To discover a community's needs and to build a program of action designed to satisfy those needs requires a thorough knowledge and understanding of the various aspects of the community.

In the following quotation, E. R. Clapp states the factors which must be considered in dealing with problems in a community:

> In a community's education one is never dealing with a fixed plan, a formula, or a ready-made organization, but with needs as they are revealed--needs and aspirations of the people with all their potentialities and prejudices, their ambitions and handicaps, their ways of thinking and feeling, their relationships and social environment, their cultural and racial background as well as their physical surroundings. 7

From the above discussion of the various aspects of planning a community school program, it seems that the most pertinent factors may be listed as follows:

1. The needs of youth and adults may normally be expected to fall into four purpose areas of living.

2. All youth have some needs that are universal.

3. All youth may be expected to have special needs which will be determined by the situation existing in the community.

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7 E. R. Clapp, Community Schools in Action, p. 355.

4. A school's obligation to a student does not stop at graduation but continues on into adult life.

5. Since education is life, adults in a community may be expected to have needs which the school may help to satisfy.

6. It is necessary for teachers, pupils, and adults to understand the various aspects of their community if a satisfactory solution to their problems is to be found.

7. The universal needs and individual needs of those in the community should be the basis for determining a program of education. Any program that is introduced into a school curriculum must be justified on the basis that it is required to fill one of these needs.

If the teaching of industrial arts in a community school is to be justified, it must merit its position by filling some need in a community. This necessitates an examination of industrial arts to determine its possibilities and to consider what contribution it has to make toward the goals of community education.

The Philosophy and Objectives of Industrial Arts

Philosophical background and history.--Industrial arts, as such, is relatively new in the public schools, however many things have influenced the philosophy and progress of its growth down through the ages. The first manual training was taught by the Jews as far back as 2000 B. C. They believed

that at least one half of each day should be set aside to teach their sons a trade.[8]

Later, in 1592 A. D., Comenius made a study of the child and concluded that its constructive and destructive instincts were one and the same. It was recommended that handwork be taught in the school to train the child's constructive instincts to dominate his destructive instincts.[9]

During the years from 1745 to 1852, educational philosophy was influenced by such thinkers as Pestalozzi, Froebel, and Herbart. They, especially Herbart, believed that through the teaching of hand work social reform would be brought about and that some moderation in class distinction would result.[10]

The first evidence of the modern philosophy of industrial arts was shown in the years immediately following 1850. During those years Ruskin influenced the arts and crafts movement in England. It was believed that arts and crafts could not be justified on the basis of art for art's sake, but that art should be used in such a way that it would serve the people in their daily lives. The influence of this movement was offset, however, within a few years.[11]

Beginning in 1868, the Russian System of teaching hand work became the predominant influence on the methods of

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[8]John F. Friese, Exploring the Manual Arts, p. 3.

[9]Ibid., pp.3-4. [10]Ibid., p.4 [11]Ibid., p. 7.

teaching. The Russian System of teaching hand work represented a step backward from the philosophy of Ruskin. The belief behind the Russian System was that the teaching of skill was of prime importance in hand work. Although the situation in Russia at that time called for the training of skilled workers in the shortest length of time, their methods carried over into the schools which were operating for a different purpose. Students were taught by the exercise method which gave no consideration to the individual. No projects were made which were of value to the student. At that time skilled workers were needed. It was their belief that the quickest way to prepare skilled workers was to have the student complete a series of exercises which were arranged to go from the simple to the complex. The traditional industrial arts programs of schools today re influenced to some extent by this Russian Movement.[12]

The philosophy on which the Swedish Sloyd was based has perhaps exerted a greater influence on present day industrial arts than any of those mentioned above. Since all children instinctively have a desire to be active, it was believed that hand work was the ideal activity and situation for teaching many worthwhile things. Students were permitted to make worthwhile items which created interest and made for an ideal teaching situation in which many other things could be taught.[13]

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[12] Ibid., pp.9-10.

[13] Ibid., pp. 10-11.

The Sloyd was originally intended to function as a part of general education whereas none of the other systems were designed for that purpose. In 1882 the Sloyd System gained its first hold on American manual training in Boston, Massachusetts. The National Education Association refused to accept it as a part of general education at first but after seven years it was finally approved. Interest in industrial arts continued to grow and now it is considered a vital part of general education by most educators.[14]

Present day philosophy of industrial arts.--After reviewing the history of industrial arts one can easily see that its philosophy has changed gradually from catering to the teaching of skill to a more broad philosophy which takes into consideration the individual and his needs. In the past teachers have attempted to justify industrial arts on the basis of its own philosophy without due consideration to the philosophy and objectives of general education. This has been due mostly to the fact that industrial arts has not in the past been recognized as a part of general education. It has been set aside to teach vocational work to those who were not interested in academic studies. It has also been set aside by the administration to care for the mentally deficient, and for those who have been considered disciplinary problems in academic classrooms. Industrial arts is now recognized and accepted by most educators as a necessary.

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[14] Ibid., pp. 15-17.

part of general education and as such it must take its place in the school program to serve as a vital part of that program.

Industrial Arts and Living

Man must live twenty-four hours every day. During this day his time is consumed by a rather limited number of activities. It has been shown in a previous discussion in this study that man's activities fall into well defined categories or areas of living. It seems that industrial arts can give some training which will be of value in each of the areas of living.

Industrial arts and home living.--Man spends a considerable amount of each day at home. Under such conditions there should normally be some concern with the task of making the home more comfortable and enjoyable. To keep the home a comfortable place in which to live requires some time, skill, and knowledge for making repairs and improvement. It is the purpose and objective of industrial arts to teach students the basic skills required for making ordinary home repairs. In the process of learning these skills the student handles and becomes familiar with various materials and learns how to choose quality in products. The student may also learn to appreciate the time and work required for completing a job. This is valuable consumer education for those who hire work done.[15]

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[15]Gordon O. Wilber, Industrial Arts in General Education, pp.42-43.

Industrial arts and recreational living.--Before the industrial revolution there was little need for schools to emphasize training for leisure time activities. Since the beginning of the twentieth century, however, there has been a great reduction in the time required for man to produce the necessities of life. On farms the use of machinery and other modern conveniences have reduced or completely done away with many of the chores which were once a great consumer of time. This great change, which has been brought about by the industrial revolution, has left society in general with a considerable amount of leisure time which must be used.

Industrial arts offers many possibilities to students for developing interesting, useful, and profitable hobbies for leisure time use. Wilber says that it is one of the objectives of industrial arts "to develop recreational activities in the area of constructive work." [16]

Industrial arts and living in the community.--Man is a social creature. Therefore, it seems that there should be some provision made in the curriculum for improving social behavior. It seem possible to provide conditions for such training in the field of industrial arts. In shop classes there is usually a limited amount of equipment which must be shared by all students. This condition helps to create circumstances under which cooperation, tolerance, and tact must be practiced if

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[16] Ibid., pp. 42-43.

group harmmny is to prevail. Leadership and followership may be developed to some extent through work on projects of mutual need and interest.[17]

Industrial arts and vocational living.--The possibilities for industrial arts in the area of vocational living are very broad. Practically all students choose a career at some time in their early life. Before a wise choice can be made the student must have explored all the fields in which he has anticipated an interest. Industrial arts offers many opportunities for students to explore the various manual trades. This permits the student to test his interest and ability in various fields before a vocation is chosen.[18]

Once a vocation is chosen industrial arts can give valuable prevocational training in the field ofmanual labor. In some cases vocational training may be completed before students graduate from high school. This kind of training is usually available in technical high schools which are found only in the larger cities. Facilities for thorough vocational training in the rural areas are usually not available.

In localities where vocational training cannot be offered work experiences may be especially beneficial to

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[17] Ibid., p. 43.

[18] William T. Bowden, Industrial Arts in Modern Education, pp. 56-57.

students. Such experiences not only aid the student in his task of learning but help him to prepare for future life.

In a discussion on this subject Olsen says that work experiences:

> Offer occupational orientation and exploratory vocational experience.
> Stimulate a healthy attitude toward work.
> Deepen civic insight as it brings firsthand contact with varying social-industrial conditions.
> Identify the adolescent with the adult group through their cooperative attempts to meet a real need in a real situation.
> Meet a social need as students are progressively inducted into the labor force and ultimately achieve full personal competence in their chosen careers.
> Relate doing with thinking. Excessive verbalized education is not adequately functional for the modern world. 19

Work experiences not only make the educational contributions listed above but they are valuable to special problem students and exceptional students. First, work experiences make an important contribution to the education of students who have limited mental ability. In such cases the student invariably has difficulty in attaining success or a sense of satisfaction from the study of academic subjects. This difficulty may be overcome to some degree through student participation in his field of interest. Consequently, education may become more meaningful to the mentally deficient student.[20]

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[19]Edward G. Olsen, School and Community, p. 274.

[20]Ibid., p. 278.

On the other hand the mentally superior student may benefit through some types of work experiences. Usually this type of student is permitted to go through school without either gaining a knowledge of or an appreciation for work. In such cases the student may fail to understand the proper relationship between thinking and doing.

Olsen attaches a great deal of importance to this thought as shown by his statement as follows:

> Thinking and doing are inseparable aspects of sound human growth. Action without thought is unethical. Functional education does not consist in mornings devoted to thought and afternoons dedicated to action. It relates 1) thinking and doing 2) planning, organizing, executing, and judging in organic unity, rather than in artificial sequence. [21]

It is generally accepted that in industrial arts there is an opportunity to relate thinking and doing. In building a project the idea must first be conceived. After conceiving the idea the student must plan for the execution of the idea. The project is then built and the student has a physical object to show the result of his thinking. The thinking and planning that was done would never have resulted in the construction of the project if there had not been some physical action. Neither would there have been a finished product if thinking had not occurred beforehand.[22]

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[21] Ibid., p. 281.

[22] Bowden, op. cit., p. 18.

It has been found that industrial arts may fill many needs in a school and in a community. These needs may be universal or they may be the specific needs of individuals. While filling these needs industrial arts can give student many other benefits.

Richardson lists the things all students should be expected to accomplish in industrial arts as follows:

> 1. To develop the ability to select, care for, and use properly the thing he buys or uses.
> 2. To develop an appreciation of good workmanship and good design.
> 3. To develop an attitude of pride or interest in his ability to create useful things.
> 4. To develop in each pupil a feeling of self-reliance and confidence in his ability to deal with peopleaand to care for himself in an unusual or unfamiliar situation.
> 5. To develop the habit of an orderly method of procedure in the performance of any task.
> 6. To develop the habit of self-discipline which requires one to do a thing when it should be done, whether it is a pleasant task or not.
> 7. To develop the habit of caseful, thoughtful work without loitering or wasting time.
> 8. To develop an attitude of readiness to assist others when they need help, and to join in group undertakings.
> 9. To develop a thoughtful attitude in the matter of making things easy and pleasant for others.
> 10. To develop a knowledge and understanding of mechanical drawing, the interpretation of the conventions used in drawings and working diagrams, and the ability to express one's own ideas by means of drawings.
> 11. To develop elementary skills in the use of the more common tools and machines, and a knowledge of the methods and procedure in tasks frequently encountered by the average man together with a knowledge of the work qualities and characteristics of some of the most used materials.
> 12. To develop the ability to use the mathematics required in the various trades. 23

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[23] C. P. Richardson, "A Reinterpretation of Industrial Arts Objectives, Industrial Arts and Vocational Education, XI (Feb. 1944), 555.

In achieving the various objectives of industrial arts, students may have an opportunity to learn many other things. Most boys and girls are interested in making things with their hands. This is a psychological encouragement that may lead students into new fields of interest. If given a chance to build projects in which they are interested and for which they have a need, it becomes possible to teach other subjects along with shop. Courses such as science, history, and mathematics can be correlated with shop to make them more meaningful to students.[24]

Since man is an active creature, he has need for physical development. The work incentive offered in industrial arts may lead students into activities which will help to develop their bodies. To do satisfactory work in industrial arts the student must have physical coordination. Participation in shop work seems to improve one's physical coordination.[25]

Industrial arts and community education.--Industrial arts must serve a dual role in the community school. First, the program must be built around the universal needs of students and others in the community. In this capacity industrial arts serves as a part of general education.

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[24] William T. Bowden and others, Industrial Arts in Modern Education, p. 19.

[25] Ibid., p. 19.

Industrial arts must also cater to the needs arising from the special situation existing in a given community. This necessitates a thorough study of the community to determine its needs. The needs of a community will be determined by its geographic location, number and kinds of businesses, financial and physical resources, business opportunities, possibilities for employment, and by the interests of individuals and groups in the community.

In the following chapter an effort will be made to determine the needs and interests of the Northwest School Community with a view toward building a sound program of industrial arts for that school.

CHAPTER IV

THE NEEDS AND INTERESTS OF STUDENTS AND ADULTS OF THE NORTHWEST COMMUNITY

The findings in Chapter III indicate that a sound program of education will meet the universal and individual needs of the people of a community. It is also indicated that the universal needs of students are predeterminable to a large extent. Contrariwise, the people of a community may be expected to have individual needs which will be determined by the conditions existing in their community. It is the purpose of this chapter to determine those individual needs and interests of the Northwest students and adults that can be met by a program of industrial arts.

The Geography and Resources of the Northwest Community

The geography of the Northwest Community.--The Northwest Community is located in north central Texas. Its area extends into Denton, Tarrant, and Wise Counties with the greater portion being in Denton County. This community lies in the northern portion of the grand prairie region which is noted for its livestock and small grains products. This is accounted for by the relatively shallow and sometimes rocky black clay soil. There is moderate rainfall each year ranging from thirty to thirty-five inches. The principal farm products

of this area are oats, corn, cotton, grain sorghum, and hay. Since the grand prairie region is principally a livestock producing area, most of the products of the cultivated land are used for feeding purposes. There is approximately three times as much pasture land in this region as there is cultivated land.[1]

From the above it seems that the absence of mineral resources, oil, and other vital products have caused the Northwest Community to remain a rural farming area. The community in general may be considered prosperous. This may be accounted for by the large markets of the Fort Worth-Dallas area which le within a sixty-mile radius of the Northwest Community.

Business resources of the Northwest Community.--The Northwest Community is primarily a farming area with few natural resources. It follows that there is little manufacturing of any magnitude in the immediate area. Since this condition is found to exist, it seems necessary to determine what the possibilities are for employing those graduates of Northwest High School who choose to remain in the community.

As a means of determining the various types of employment possibilities in the Northwest Community, an inquiry was made concerning the number and types of businesses in the

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[1] W. T. Chambers, The Geography of Texas, pp. 149-158.

community. Information was also sought regarding the number of employees of each business and the expected annual employee turnover. Table 1 shows the findings.

TABLE 1

NUMBER AND KINDS OF BUSINESS ESTABLISHMENTS AND EMPLOYEES IN THE NORTHWEST COMMUNITY

Kind of business	Number of businesses	Full-time employees	Part-time employees
Appliance sales	3	1	0
Automobile sales	1	2	0
Banks	2	3	0
Barber shops	3	0	0
Cleaning and pressing	1	0	0
Contractor, building	1	1	9
Cotton gin	3	0	9
Credit union	1	1	0
Doctors	4	2	0
Drug sales	3	1	0
Drygoods sales	2	0	0
Farm implement sales	4	11	0
Garages, mechanic	10	4	3
Gasoline agencies	2	2	0
Gasoline stations	19	7	0
Grain elevators	1	1	0
Grocery sales	15	11	1
Hardware sales	5	3	0
Insurance sales	4	0	0
Lumber sales	2	2	0
Movie theater	1	1	0
Postal service	4	5	0
Real estate sales	2	0	0
Restaurants	5	10	1
Shoe repair service	1	0	0
Tank manufacturing	1	15	25
Telephone service	3	3	0
Transportation	3	21	0
Variety stores	2	1	1
Water sales	3	1	0
Total	111	109	49

The businesses which are listed in Table 1 are all organized establishments which are in continuous operation. There are indeterminable numbers of carpenters, bricklayers, mechanics, cattle traders, and other job workers who are not persistently following their respective trades. They are not listed in Table 1 because they offer little opportunity to high school graduates who are seeking full-time employment.

The Northwest Community was found to have 111 business establishments operating within its confines. They are comprised of thirty different kinds of businesses which may be classified in three groups. The largest of these three groups is comprised of seventy-three sales units. The second largest group is made up of thirty-seven service units. The third largest, which consists of only one unit, is classified as a manufacturing and sales unit.

The seventy-three sales units were found to use fifty-one full-time employees and three part-time employees. Forty-four full-time employees and twenty-one part-time employees are used by the thirty-seven service units. The manufacturing and sales unit employs fifteen full-time workers and twenty-five part-time workers.

The data in Table 1 show that there are seven business establishments which use no employees except for the owners or members of their immediate families. Of the thirty varieties of business establishments listed, five employ sixty-eight people. This number represents 62 per cent of

all the full-time employees in the Northwest Community. Of these sixty-eight employees, thirty-two are sales personnel, twenty-one are service personnel, and fifteen are manufacturing personnel.

Although there is no accurate information available as to the annual employee turnover, it is considered negligible by those in the community who were questioned. It seems that when this situation exists there are few possibilities for employment in the community. This condition is offset, however, by the readily accessible labor market in the Fort Worth area. It has been estimated that a number of the Northwest residents in excess of 150 are presently employed in that area.

It seems that there are few possibilities for Northwest High School graduates to find full-time employment in their community. The possibilities for such employment will ultimately be determined, however, by the number of graduates who choose to remain in their home community and by the trades or professions they will eventually follow.

The Needs and Interests of the Northwest Boys

To determine the needs and interests of the Northwest boys, questionnaires were sent to all the boys enrolled in grades seven through twelve. Of the 165 questionnaires which were distributed among the boys, 133 were completed and returned. This number represents 81 per cent of the male students at Northwest High School.

The questionnaire consisted of twenty-four questions dealing with the needs and interests of the Northwest boys. Only those needs and interests which pertain to industrial arts education were of concern. The questions are divided into four groups for presentation in this study. Group one deals with the leisure time needs and interest of the boys. The second group presents data concerning the interests of the Northwest boys in industrial arts. Group three concerns the postgraduate plans of the boys, and group four is used to determine the students' specific interests in the various phases of industrial arts.

Leisure time needs and interests of the boys.--The research that was conducted in the previous chapter suggests that the youth of today have some need for education for leisure time use. Furthermore, it is implied that industrial arts provides some worthwhile activities for youth to engage in during their leisure time. The contribution that industrial arts can make toward teaching boys and girls to use their leisure time profitably will be determined, however, by the interests that are manifested in such a program.

The boys were asked five questions concerning their leisure time needs and interests. They are as follows:

4. Do you have a hobby?____ What?_____
5. Do you have a part-time job which permits you to earn spending money after school?_____
9. What do you do during the summer months when you are not in school?_____
10. What chores are you required to perform at home?____

11. Do you think your out-of-school months would be more enjoyable and profitable to you if you had a shop in which to build some things of value and interest to you?_____

Table 2 shows the data that were taken from the questionnaires on the above questions.

TABLE 2

LEISURE TIME NEEDS AND INTERESTS OF THE NORTHWEST BOYS

Question number	Yes	No	Undecided
4	83	50	0
5	32	101	0
9	122	11	0
10	108	25	0
11	106	26	1

Eighty-three of the boys are actively engaged in organized hobbies. Twenty-seven of this group are pursuing hobbies that are directly related to industrial arts. The remainder of the group indicate that they are interested in hobbies that are only indirectly related to the field of industrial arts. The twenty-eight hobbies that are directly related to industrial arts are: sixteen crafts hobbies, nine woodworking hobbies, and two drawing hobbies.

Questions nine and ten were answered rather ambiguously and do not reveal the information for which they were intended. However, in checking the answers it was found that they could be used to indicate whether the boys are required to do chores at home and to show the number of boys who are

required to work during their summer vacation periods. Almost the same number of boys are required to do chores at home that are required to work during their out-of-school months. Only thirty-two of the students have part-time jobs at which they can earn spending money.

The answers to question eleven show that 106 boys feel that their summer vacation periods would be more enjoyable and profitable to them if a well equipped shop were available to them. Only twenty-six students gave negative answers to this question. One student was undecided as to whether an available shop would benefit him during his vacation period.

Twenty per cent of the boys indicated that they are engaged in hobbies which are directly related to industrial arts. Seventy-nine per cent indicated a need for an adequate shop. This seems to suggest that more of the boys would pursue shop work as a hobby if adequate facilities were available. These data suggest that the students are generally interested in shop work as a leisure time activity.

Attitudes of the Northwest Boys toward shop work.--As a means of determining the need for an industrial arts program in the Northwest School the boys were asked eleven questions. The information sought from the boys was concerning their interest in and their need for such a program. The questions are as follows:

1. Do you own a bicycle?_____
2. Do you own a car?_____

3. Do you own a motor scooter?_____
6. Are you taking a shop course?_____
7. Have you ever taken a shop course?_____
8. Have you ever had the opportunity to take shop?_____
17. Do you like to make things with your hands?_____
18. Do you have a shop of your own?_____
19. Do you have enough tools to make the things you would like to make?_____
20. Would you like to take shop work?_____

Table 3 gives data concerning the replies.

TABLE 3

ATTITUDES OF THE NORTHWEST BOYS TOWARD SHOP WORK

Question number	Yes	No	Undecided
1	82	51	0
2	7	126	0
3	10	123	0
6	55	78	0
7	70	63	0
8	78	55	0
17	116	17	0
18	16	117	0
19	33	100	0
20	111	21	1

There are eighty-two bicycles, seven cars, and ten motor scooters among the 133 boys who are enrolled at Northwest High School. The vehicles may normally be expected to require periodic repairs and adjustments. As previously indicated in this study, there were found to be no repair shops in the community which specialize in making such repairs. It seems, therefore, that a need is indicated for adequate facilities which the students may use to make repairs on their vehicles.

Fifty-five of the 133 students indicated by their answers that they are now taking a shop course. It may be noted that industrial arts is not being taught at Northwest High School at the present time. An investigation showed that the shop course which is presently offered is taught as a part of vocational agriculture.

It was found that seventy-eight students have had the opportunity to take shop work. Of this number, seventy students have elected to take advantage of the opportunity. This seems to indicate that there is considerable interest in industrial arts at Northwest especially among the students who have had the opportunity to take shop work.

The data show that of the 133 students who completed the questionnaires, 116 answered affirmatively when asked if they like to make things with their hands. The same group answered affirmatively 111 times when asked if they would like to take a shop course.

Only sixteen boys were found to have shops of their own in which to work. However, thirty-three boys indicated that they have enough tools available to construct the things they want.

In analyzing the above data it seems that the attitudes of the boys are generally favorable toward industrial arts. The data also suggest that a large per cent of the boys need a more adequate shop than they now have available.

Post graduate plans of the Northwest boys.--Questions twelve through sixteen provide some data on the post graduate plans of the Northwest boys. The questions are as follows:

12. What trade or vocation does your father or guardian follow?_____
13. Do you plan to follow his trade?_____
14. What do you plan to do when you finish school?_____
15. Do you plan to enter college?_____
16. Do you plan to remain in your home community after you finish high school?_____

Table 4 presents the data concerning the above questions.

TABLE 4

POST GRADUATE PLANS OF THE NORTHWEST BOYS

Question number	Yes	No	Undecided
13	49	69	15
15	55	63	15
16	57	59	17

Question fourteen, which is omitted in Table 4, became invalid and hence lost its usefulness to the study because of the type of answers that were given. The question, which inquired as to the vocational plans of the boys, received either no answer or the student indicated only that he intends to work. However, the answers to questions twelve and thirteen give some information concerning the vocational intentions of those who plan to follow the trade or vocations of their fathers.

It was found that of the forty-nine boys who plan to follow their fathers' trade, fourteen plan to go to college and thirty-one plan to remain in the Northwest Community.

The trades that are followed by the forty-nine fathers are shown in Table 5.

TABLE 5

VOCATIONS OF FORTY-NINE NORTHWEST ADULTS

Vocation	Number of adults following the vocation
Aircraft work	3
Carpentry	2
Dairy farming	3
Farming, ranching and dairying	4
Farmer, general	25
Farming and trading	1
Farming, trucking, and ranching	1
Farming and business	1
Grocery store owner	1
Implement dealer	1
Mechanic,automobile	3
Paint contractor	1
Trucking	1
Washateria owner	1
Welder	1

From the above data it may be seen that the greater percentage of the students plan to follow some type of farming as a vocation. Of the forty-nine students who indicated that they are planning to follow their fathers' trade, a total of thirty-five may be classified under some type of farming. Only three of the group indicated a desire to enter private business. A total of eleven students plan to engage in trades

which may be taught or explored in the field of industrial arts. Those trades are welding, mechanics, contract painting, implement sales, carpentry, and aircraft work.

Fifty-five of the 133 students gave affirmative answers when asked if they plan to enter college after graduating from high school. There were sixty-three negative answers to this question. Fifteen students indicated that they are undecided as to whether they want to go to college.

The answers to question sixteen show that fifty-seven of the Northwest students plan to remain in their home community after graduating from high school. Seventeen students said that they were undecided about their future.

It is apparent that there is considerable indecision among the Northwest boys concerning their post graduate plans. However, the data indicate that the indecision exists with students in specific school grades rather than with the group as a whole. It may be seen in Figure 1 that seventh grade students are generally more certain about their post graduate plans than are the students of the eighth, ninth, tenth, and eleventh grades. The data seem to indicate that the boys are increasingly uncertain of their post graduate plans as they advance through the grades.

It was found that five and one-half per cent of the seventh grade boys are uncertain as to whether they want to follow their fathers' trades. The percentage of uncertainty increased to 13 per cent of the boys in grade eight.

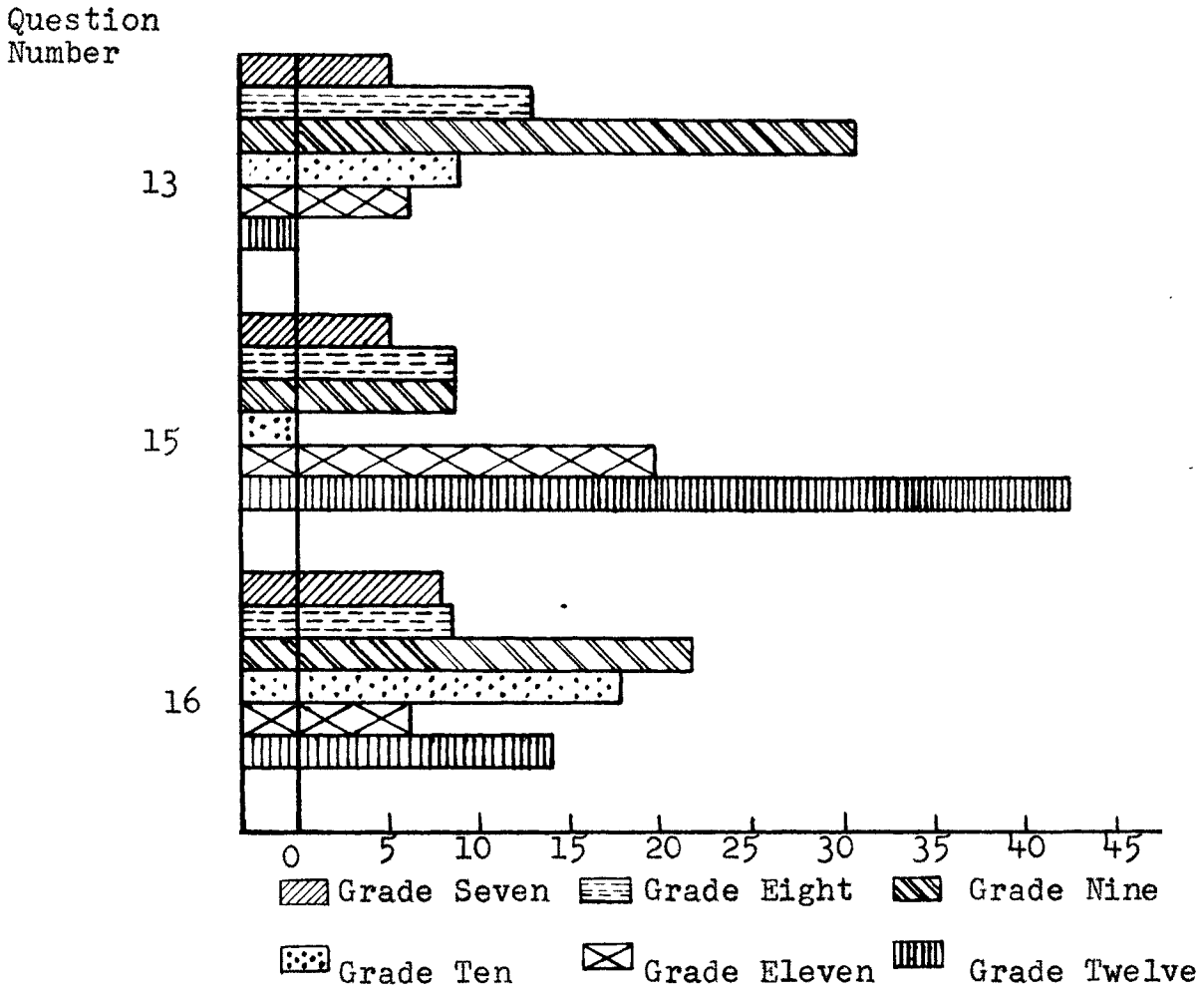

Fig. 1--A comparison of the indecision that was found among the seventh, eighth, ninth, tenth, eleventh, and twelfth grade students concerning their post graduate plans.

The most indecision was found among the boys of grade nine in which slightly over 30 per cent of the students were found to have made no decision concerning their vocational plans. This relative indecision decreased sharply in grades ten and eleven and then fell to zero in grade twelve. There were no twelfth grade boys who were undecided on this question.

Of the boys who were asked if they plan to go to college, the least amount of indecision was found among those of grade ten. The greatest amount of uncertainty was found among the students of the twelfth grade. Approximately 42 per cent of these boys were undecided about whether they want to go to college. However, except for grade ten, there was found to be a gradual increase in indecision as the boys advance to the higher grades.

Of the boys who were asked if they plan to remain in their home community after graduation, those of grade eleven were most certain. The most uncertainty was found among the boys of grade nine. In that group, 21 per cent of the boys were undecided as to whether they would continue to live in the Northwest Community after graduating from high school.

Of the 133 boys who completed and returned their questionnaires, 40 per cent of them plan to enter college, 26 per cent plan to engage in some type of farm work, and 11 per cent of the boys were found to be uncertain about their vocational preferences. This seems to suggest that there is little need for vocational training in the field of industrial arts. Since indecision was found to be higher among the boys in the upper grades, industrial arts of an exploratory nature might be of some benefit to the students by helping them to discover their vocational interests and abilities.

Special interests of the boys in industrial arts.--In In this part of the study an effort is made to determine the

specific phase or phases of industrial arts in which the Northwest boys are interested. As a means of determining their interests, the boys were given three different but similar lists of projects from which to choose. They were asked to select a first, second, and third choice from each list. Each list consisted of fifteen items of which three were selected from each of the following phases of industrial arts: sheetmetal, benchmetal, and machine shop, woodworking, crafts, and mechanical drawing. The three groups of projects will be referred to in this discussion as Group A, Group B, and Group C.

The projects listed in Group A are as follows:

1. Making a chicken feeder
2. Making a hunting knife
3. Making an end table
4. Making a leather billfold
5. Drawing plans for a flower pot
6. Making a minnow bucket
7. Making a steam engine
8. Making a bird house
9. Making a leather belt
10. Drawing plans for a bird house
11. Making an ash tray
12. Making a cold chisel
13. Making a magazine rack
14. Making a watch band
15. Drawing plans for a tie rack

The items listed in Group B are as follows:

1. Making a screwdriver
2. Making a fish net
3. Drawing plans for a chicken feeder
4. Making a set of book ends
5. Making a dust pan
6. Making a shoe scraper
7. Making a jewelry box
8. Drawing plans for a jewelry box
9. Making a tie rack

10. Making a camping stove
11. Making an end wrench
12. Making costume jewelry
13. Drawing plans for a steam engine
14. Making a match holder
15. Making a funnel

The items listed in Group C are as follows:
1. Drawing plans for a cold chisel
2. Making a serving tray
3. Making a flower pot
4. Making a center punch
5. Making a kitchen stool
6. Drawing plans for an end table
7. Making a plastic picture frame
8. Making a water trough for chickens
9. Welding a broken plow
10. Making a pig feeding trough
11. Drawing plans for a magazine rack
12. Making a bow and arrow
13. Making a chicken feeder
14. Making threads on a bolt
15. Making a hammer handle

In each of the above groups of projects there are three items which are generally made of sheetmetal. The frequency with which the students selected these items as projects of interest should indicate whether their interests lie in specific projects of whether there is a general interest in the sheetmetal phase of industrial arts.

Table 6 shows the frequency of the selections of sheetmetal projects in Groups A, B, and C.

There seems to be some interest in each of the nine sheetmetal projects. The interest manifested in project number five, Group B, is negligible since it was selected only twice. In contrast, project number ten, Group B, was selected a total of sixty-five times. Projects number six and ten were selected as first choices ten and seventeen times respectively, whereas

projects number three and thirteen received no first choices. The items which were selected as first choices most frequently are a minnow bucket and a camping stove.

TABLE 6

FREQUENCY OF SELECTION OF SHEETMETAL PROJECTS IN GROUPS A, B, AND C

Project number	First choice	Second choice	Third choice	Total choices each project
		Group A		
1	5	5	8	18
6	10	4	0	14
11	1	6	6	13
		Group B		
5	1	0	1	2
10	17	31	17	65
15	2	7	12	21
		Group C		
3	0	3	3	6
8	6	7	8	21
13	0	4	5	9

projects number three and thirteen received no first choices. The items which were selected as first choices most frequently are a minnow bucket and a camping stove.

The above data seem to indicate that there is little interest in sheetmetal, as such, among the Northwest boys. However, the above information may suggest that student interest

in this phase of industrial arts was apparent only when it could be used as a tool with which an item of need or of interest could be made.

The data in Table 7 indicate a more general interest among the boys in the benchmetal and machine shop phase of industrial arts than was shown in the sheetmetal phase.

TABLE 7

FREQUENCY OF SELECTIONS OF BENCHMETAL AND MACHINE SHOP PROJECTS IN GROUPS A, B, AND C

Project number	First choice	Second choice	Third choice	Total choices each project
		Group A		
2	22	15	14	52
7	18	12	11	41
12	3	3	4	10
		Group B		
1	6	3	8	17
6	2	5	10	17
11	5	3	8	16
		Group C		
4	6	10	6	22
9	17	14	8	39
14	0	6	11	17

In the above table it is seen that item number two--making a hunting knife--was chosen as a project of interest a total of fifty-two times. Only two other projects were chosen a comparable number of times. They are, project

number seven, Group A, and project number nine, Group C, which were chosen forty-one and thirty-nine times respectively. Comparatively little interest was shown in the projects listed in Group B.

The three most popular projects have nothing in common either as to usefulness or method of construction. Two of the projects--making a hunting knife and welding a broken plow--are each considered a means to an end. The other project--making a steam engine--is an end in itself.

From the above it seems that there is a wide range of interest among the boys in the metalworking phase of industrial arts. However, since three of the nine projects received fifty-six per cent of all the choices which were made, it is indicated that student interest is in the project rather than in metal work.

The next phase of industrial arts to be discussed is woodwork. The choices of projects in this phase should be more valid than were the choices of projects in the phases that have previously been discussed. This is indicated because 52 per cent of the boys who completed and returned their questionnaires have previously had some woodworking experience. This experience should have provided the students with a knowledge of woodwork which they did not have of the other phases.

Table 8 shows the frequency with which the woodworking projects were chosen.

TABLE 8

FREQUENCY OF SELECTIONS OF WOODWORKING PROJECTS IN GROUPS A, B, AND C

Project number	First choice	Second choice	Third choice	Total choices each project
		Group A		
3	10	5	5	20
8	2	5	5	12
13	1	1	10	12
		Group B		
4	10	20	14	44
9	3	11	9	23
14	0	9	11	20
		Group C		
5	18	17	11	46
10	5	10	11	26
15	3	3	15	31

Group A projects which were chosen a total of forty-four times, were apparently of less interest to the boys than were the projects in Groups B and C which were chosen eighty-seven and ninety-three times, respectively. The first choices in each of the groups likewise varied to a large degree.

In each of the groups one project was most frequently selected as a first choice. Likewise, it holds true that the project in each group which was most frequently selected as a first choice also received the greatest total of choices in

each group. These items, without exception, were of usefulness in the home. Since the least popular items in each of the groups are also items of domestic use, it seems that the individual item and not the type of project determined the student's interest in the woodworking phase of industrial arts.

The data in Table 9 show that the crafts phase of industrial arts offered some items that were of interest to a great number of boys while other items were apparently of little

TABLE 9

FREQUENCY OF SELECTIONS OF CRAFTS PROJECTS IN GROUPS A, B, AND C

Project number	First choice	Second choice	Third Choice	Total choices each project
		Group A		
4	30	24	20	74
9	22	34	11	67
14	2	4	19	25
		Group B		
2	52	14	11	77
7	6	6	2	14
12	2	2	3	7
		Group C		
2	16	4	6	26
7	14	16	10	40
12	20	12	9	41

interest. The three items which were most frequently selected as first choices also received the greatest total

number of choices. These three projects--making a billfold, making a belt, and making a fishnet--received fifty-eight per cent of all the choices that were made in the crafts phase of industrial arts. In contrast, items number seven and twelve in Group B were selected as first choices only six and two times respectively. These two items--making a jewelry box and making costime jewelry--were obviously of little interest to the Northwest boys. The projects which were most frequently chosen by the students are items of usefulness to the individual.

The last phase of industrial arts to be discussed is mechanical drawing. The nine projects listed in this phase were selected from among the projects in the other phases that have previously been discussed. A comparison of the interest shown in projects in this phase with the interest shown in the corresponding projects in the other phases should be of some significance in determining the basis for the choices that have been made by the Northwest boys.

The degree of interest shown in the different projects in this phase varied considerably. Some projects were attractive to a great number of students while others were ovbiously of little interest.

Table 10 shows the number of times each item was selected by students as a project of interest.

TABLE 10

FREQUENCY OF SELECTIONS OF MECHANICAL DRAWING PROJECTS IN GROUPS A, B, AND C

Project number	First choice	Second choice	Third choice	Total choices each project
		Group A		
5	0	4	1	9
10	1	3	3	7
15	2	1	6	9
		Group B		
3	8	2	2	12
8	1	1	4	6
13	8	9	11	28
		Group C		
1	8	5	3	16
6	8	11	9	28
11	1	2	8	11

The above table indicates that two projects were of much greater interest to the students than were any of the others. These projects--drawing a steam engine and drawing an end table--with twenty-eight choices each, received approximately 46 per cent of all the choices that were made in this phase. In contrast, the two projects which were of least interest to the students received only 9 per cent of the total choices. These projects--drawing a flower pot and drawing jewelry box--were selected five and six times respectively. This suggests

that the interest that was manifested in mechanical drawing was determined to a large degree by the type of project to be drawn. This is further indicated by a comparison of the above percentages with the percentages of interest shown in the corresponding projects in the other phases.

Table 11 shows that there tends to be a parallel interest between drawing an item and constructing that item.

TABLE 11

A COMPARISON OF THE INTEREST IN DRAWING AN ITEM WITH THE INTEREST IN CONSTRUCTING THAT ITEM

Item	Percentage of interest in drawing item	Percentage of interest in constructing item
Flower pot	4.1	3.5
Jewelry box	3.8	4.9
Steam engine	23.0	17.7
End table	23.0	8.9

The percentages indicate a slightly higher interest in drawing an object than in constructing the object. However, in each instance where interest is low in drawing an article it is also comparatively low in constructing the article. It is also indicated that when interest in drawing an item is high there is a high percentage of interest in making the item. This suggests that the students are generally interested in

drawing only in so far as it is useful to them in producing an item of need or interest.

In comparing the interest that was shown among the boys in the various phases of industrial arts, it seems that there is considerably more interest in some phases than in others.

The following table shows the total number of times that projects in each of the phases were selected by the Northwest boys as items of interest:

TABLE 12

A COMPARISON OF STUDENT INTEREST IN FIVE PHASES OF INDUSTRIAL ARTS

Phase of Industrial arts	Number of choices in each phase	Per cent of total choices
Sheet metal	169	15.1
Bench metal and machine shop	231	20.7
Crafts	371	33.2
Woodwork	224	20.1
Mechanical drawing	122	10.9

The figures in the above table represent 1117 choices that were made by 124 Northwest boys. Each boy made an average of 9.01 choices.

It is evident that the crafts projects which received slightly over 33 per cent of all the choices were generally

of more interest to the students than were the projects in any of the other phases. Mechanical drawing projects which received only slightly less than 11 per cent of all the choices seem to be generally of less interest to the students than were the projects in any of the other phases.

It was found previously that each of the phases offered some projects that were of interest to a large per cent of the students. It seems then that the interest that was manifested by the students in each of the phases was determined to a large degree by the projects from which they were permitted to choose. This suggests that the students have indicated an interest in general shop work with some emphasis on crafts rather than in a specialized course in which only one phase is taught.

The Needs and Interests of the Northwest Girls

The number of girls currently enrolled at Northwest is 120. Questionnaires were sent to the entire group. The response was good. The 112 questionnaires that were completed and return represent slightly over 93 per cent of all the girls enrolled in grades seven through twelve.

The questionnaires consisted of fourteen questions which sought information from the girls concerning their post graduate or vocational plans, leisure time interests and needs, and interest in industrial arts.

Post graduate plans of the Northwest girls.--Of the fourteen questions that were asked each of the Northwest girls, five concerned their post graduate plans. The questions sought information concerning their career interests, interests in higher education, interests and intentions as to family life, and information concerning their plans to remain in the Northwest Community after graduating from high school. The five questions were stated as follows:

2. Does your mother work outside the home?_____
8. Do you plan to go to college?_____
9. Are planning a career?_____
10. Do you plan on family life without either going to college or entering a career?_____
12. Do you plan to remain in your home community after you finish high school?_____

The data in Table 13 show the answers that were received concerning the above questions.

TABLE 13

POST-GRADUATE PLANS OF ONE HUNDRED TWELVE NORTHWEST GIRLS

Question number	Yes	No	Undecided
2	24	88	0
8	60	47	5
9	71	39	2
10	23	87	2
12	33	65	14

In considering the data it seems that there is little indecision among the girls concerning their post graduate plans. Only on question number twelve was there an unusual amount of uncertainty. On that question fourteen girls were undecided as to whether they will remain in the Northwest Community after graduating from high school.

Seventy-one of the 112 girls indicated that they are planning careers. Eighty-seven of the girls plan to enter career work either before or after engaging in family life. Since there are only twenty-three girls in the group who are planning to enter family life without either engaging in career work or going to college, it seems that there is comparatively little interest in education for home living. With such a large number of girls manifesting an interest in career work and in going to college, it is suggested that there is some need for vocational training and for college preparation.

Leisure time interests of the Northwest girls.--Two questions of the questionnaires dealt with the leisure-time interests of the Northwest girls. These questions sought information from the girls concerning their hobbies and the amount of leisure time they have available each week. The questions were stated as follows:

6. Do you have a hobby?____What?_____
7. How much leisure time do you have each week exclusive of Sundays?_____

Of the 112 girls who were asked whether they were engaged in hobbies, ninety-four answered in the affirmative, while only eighteen gave negative answers. One girl indicated by her answer that there was some doubt as to whether her leisure time activities could be called a hobby.

Ninety-two of the ninety-four girls gave satisfactory answers when asked concerning the hobbies in which they were engaged. Only two answers were received which could not be interpreted. One girl, for example, indicated that shd did "different things" for a hobby.

Table 14 shows the hobbies ninety-two Northwest girls were found to be pursuing.

TABLE 14

HOBBIES OF NINETY-TWO NORTHWEST GIRLS

Hobby	Number of girls pursuing hobby
Baby sitting	11
Cooking and sewing	14
Collecting items	5
Crafts	15
Dancing	5
Drawing	5
Flowers and gardening	3
Music	13
Photography	5
Radio	2
Reading	7
Shopping	1
Sports	15
Writing letters	1

There was found to be a wide range of leisure-time activities among the girls. However, fifty-seven of the

ninety-two hobbies can be classified under four general headings. They are as follows: cooking and sewing, crafts, music, and sports. The only hobbies directly related to industrial arts are crafts and drawing. There were twenty girls interested in the two hobbies.

Question number seven inquired as to the amount of leisure time each girl has each week, exclusive of Sunday. The following table shows these date:

TABLE 15

HOURS OF LEISURE TIME AVAILABLE EACH WEEK TO ONE HUNDRED NORTHWEST GIRLS

Hours of leisure time available each week	Number of students
0	7
1 to 5	12
6 to 10	12
11 to 15	18
16 to 20	10
21 to 25	39
26 to 30	0
31 to 35	1
36 to 40	1

Of the 112 girls who were asked to estimate the number of hours of leisure time they have available each week only 100 gave answers that could be interpreted with reasonable accurateness. Nine students left the question blank and three students gave "I don't know" as their answer.

The above figures reveal that seven girls have no leisure time exclusive of Sunday. Only three of the girls have

more than twenty-five hours of leisure time each week. From this it is seen that a large percentage of the girls have some time available for the pursuit of hobbies. Approximately 93 per cent of the girls indicated that they have some leisure time, whereas only 84 per cent were found to be interested in hobbies. It is indicated that students generally have some leisure time each week and that a large majority are using their leisure time in the pursuit of worthwhile activities.

Interest of the Northwest Girls in industrial arts.--Five questions were asked concerning the attitudes and interests of the Northwest girls toward shop work. Those questions were stated as follows:

3. Have you ever taken a shop course?_____
4. Have you ever had the opportunity to take shopwork?_____
5. Would you like to take shopwork?_____
11. Do you think girls should be permitted to take shopwork?_____
13. Do you like to make things with your hands?_____

The following table shows the data that were taken from the questionnaires on these questions.

The answers to question four reveal that thirty-nine girls have had the opportunity to take shopwork. Thirty of these thirty-nine girls denote by their answers to question number three that they have elected to participate in one or more shop classes. These figures show that 76.9 per cent of those who have had the opportunity to take shopwork have done so.

TABLE 16

ATTITUDES OF ONE-HUNDRED-TWELVE NORTHWEST GIRLS TOWARD INDUSTRIAL ARTS

Question number	Yes	No	Undecided
3	30	82	0
4	39	73	0
5	88	24	0
11	104	6	2
13	106	6	0

With eighty-eight affirmative answers to question number five, it is indicated that 78.5 per cent of the girls would like to take some kind of shopwork. An even greater number of the girls say they like to make things with their hands. It is signified then that of the 106 girls who like to make things with their hands only eighty-eight of them are interested in the type of handwork offered in industrial arts.

Question number eleven inquired as to the attitudes of the girls concerning industrial arts. Only six of the group think that girls should not be permitted to take shopwork. The table above shows that questions eleven and thirteen, with six negative answers each, indicate that the girls who do not like to make things with their hands also do not think that girls should be permitted to take shopwork.

These data seem to indicate that there is a high percentage of interest among the Northwest girls in industrial arts. This suggests that some effort should be made to determine the types of projects that are of interest to the girls.

Question number fourteen lists nine items which might be used as projects for a girls' shop class. Some of the objects may be made of wood, some of metal, and some of leather. The question was stated as follows:

14. Check three of the following items which you would be interested in making. Place the number(1) by your first choice, number (2) by your second choice, and number (3) by your third choice.

1. Aluminum ash tray
2. Leather belt
3. Jewelry box
4. Aluminum serving tray
5. Leather hand bag
6. Book ends
7. Metal coasters
8. Coin purse
9. Hosiery box

Table 17 shows the frequency with which each of the above items was selected as a project of interest.

Only 105 of the 112 girls elected to answer this question. Six girls indicated by their replies that they are not interested in any kind of shopwork. One girl who indicated an interest in shopwork found none of the projects to be of interest to her.

Projects 1, 4, and 7 are items which are usually made of sheetmetal. Item number four of this group was selected

TABLE 17

FREQUENCY OF SELECTIONS OF SHOP PROJECTS
BY ONE HUNDRED FIVE NORTHWEST GIRLS

Project number	First choice	Second choice	Third choice	Total
1	3	4	5	12
2	31	30	15	76
3	12	9	15	36
4	13	22	9	44
5	41	18	6	65
6	1	5	16	22
7	0	3	6	9
8	0	7	22	29
9	4	7	11	22

as a first choice thirteen times, whereas item number seven received no first choices. Project number one was selected as a first choice only three times. With a total of forty-four choices, item number four--aluminum serving tray--seems to be much more popular than either of the other two items.

In the above table, items number 2, 5 and 8 are objects which are ordinarily made of leather. Items number 2 and 5--leather belt and leather hand bag--with thirty-one and forty-one first choices respectively, are of considerable interest to the students. They also received the largest total number of choices of any of the projects with seventy-six and sixty-five choices respectively. Project number 8 with no first choices is obviously of little interest to the girls.

Items number 3, 6, and 9 are articles which are usually made of wood. Of this group, item number 3 was selected as a first choice twelve times. Item number 6 was selected as a first choice once and item number 9 was selected as a first choice only four times. Although the number of first choices for each of these varied greatly, the number of times they were selected as second and third choices indicates some interest in each of the projects. The item of most general interest is a jewelry box. This item, which is project number 3, was selected a total of thirty-six times. Projects number 6 and 9 were selected as items of interest twenty-two times each. There is less variation between the total number of choices each of the woodworking projects received than is shown between the projects in leather work and sheet-metal.

These data denote considerable interest among the girls in all of the projects except one. Project number 7--making metal coasters--which was selected only nine times, is evidently of little interest to most of the students.

Needs and Interests of the Northwest Adults

The findings in the previous chapter imply that a school's obligation to students is not terminated upon graduation but extends on into adult life. In keeping with this theory, questionnaires were prepared for the adults as

a means of determining their needs and interests. Information was sought concerning the kinds of repairs that are made in the homes, the equipment available for making such repairs, and the need for instructional aids in making the repairs. The adults were also queried about their leisure time activities.

The seventy-five adults who were interviewed represented families of the Rhome, Roanoke, Haslet, and Justin localities. To facilitate a more accurate sampling of ideas and opinions the adults were divided into five groups according to their trades or professions. A person to person contact was made with each adult to insure, in so far as possible, accuracy in filling out the questionnaires. Those who were contacted have an average 8.8 years of formal schooling. Eight were found to have attended college for at least one year and one has never attended school.

Table 18 shows the geographic and occupational distribution of the adults.

It may be seen from Table 18 that only three professional people were contacted. However, this number seems to be a fair sampling of the professional group.

The thirty-seven questions of the adult questionnaire are divided into five groups for presentation in this study. Group one consists of twenty-two questions. These questions inquired as to the types of home repairs that are made by adults. The questions which were asked are as follows.

TABLE 18

DISTRIBUTION OF NORTHWEST COMMUNITY ADULTS
WHO COMPLETED THE QUESTIONNAIRES

Occupation	Location				Total
	Rhome	Roanoke	Haslet	Justin	
Business owner	6	5	4	4	19
Farm owner	5	4	5	5	19
Farm tenant	4	3	5	3	15
Laborer	5	4	5	5	19
Professional	0	1	0	2	3
Total	20	17	19	19	75

2. Do you repair your own furniture?_____
3. Do you refinish your own furniture?_____
4. Do you make furniture and automobile upholstery repairs?_____
5. Do you paint your home and outhouses?_____
6. Do you make repairs on your home?_____
7. Do you do your own roofing?_____
8. Do you make repairs on your mechanical equipment such as plows, mowers, combines, etc.?_____
9. Do you sharpen your own plows?_____
10. Do you make or repair your own harness or other leather articles?_____
11. Do you make electrical repairs in your home?_____
12. Do you do your own electrical wiring?_____
13. Do you have kitchen and bathroom plumbing in your home?_____
14. Do you make repairs on your house plumbing?_____
15. Do you make all your soldering repairs?_____
16. Do you make your own sheetmetal repairs?_____
17. Do you make most of the repairs on your automobile?

18. Do you have adequate equipment for making the above repairs?

19. Do you think you could make the above repairs more successfully if you had taken more shop courses in school?

23. Did you get any training in school which has helped you perform the maintenance and repair jobs that you are required to do from day to day?

24. If a well equipped shop were made available to you do you think it would be an aid to you and your family?

25. Would you feel capable of using a well equipped shop if it were made available?

26. Do you think a school shop, if made available to the community, would be of any value to the community?

The answers that were received to the above questions show that many adults attempt to make their own repairs. Although unanimity was not found to exist on any of the questions, a majority of the adults attempt to make their own home repairs. The average number of adults who say that they make all of the above repairs is thirty-nine. This figure represents 52 per cent of the entire group.

Table 19 shows the answers that were received from the seventy-five adults on the above questions.

Thirty-four of the group attempt to repair their furniture, while forty-one adults never make such repairs. A slightly larger number of the adults do the necessary furniture refinishing in their homes than were found to make repairs. Of the seventy-five adults, thirty-nine were found to do their refinishing and thirty-six make no attempt to refinish their furniture.

Only twenty-one of the adult group make furniture and automobile upholstery repairs. Although the entire group

indicated that they have some need for upholstery repairs in their homes, fifty-four never attempt to make such repairs.

TABLE 19

THE EXTENT TO WHICH SEVENTY-FIVE ADULTS MAKE CERTAIN HOME REPAIRS AND THE ADEQUACY OF FACILITIES AND TRAINING FOR MAKING SUCH REPAIRS

Question number	Yes	No	Not applicable
2	34	41	0
3	39	36	0
4	21	54	0
5	62	13	0
6	60	15	0
7	48	27	0
8	52	20	3
9	14	29	32
10	11	18	46
11	35	38	2
12	39	34	2
13	60	15	0
14	49	16	10
15	43	32	0
16	13	55	7
17	44	30	1
18	14	61	0
19	67	8	0
23	20	55	0
24	65	10	0
25	48	27	0
26	71	4	0

A relatively large number of the adults paint their homes and outhouses. Sixty-two of the adults gave affirmative answers to this question while only thirteen answered negatively. Sixty of the adults were found to make some

carpentry repairs on their homes whereas only forty-eight indicated that they make repairs on the roofs of their homes.

The question, "Do you make repairs on your mechanical equipment such as plows, mowers, combines, etc.?" received only twenty negative answers. Three adults indicated that they have no such repairs to make.

Only fourteen of the group--and they were farmers--sharpen their own plows. The question was not applicable to thirty-two of the adults.

Very little need was found for repairs on leather articles. Forty-six of the adults say that they have no leather articles on which repairs are needed. Of the remaining twenty-eight who have occasional needs for such repairs, only eleven make the repairs themselves.

Two of the seventy-five homes were found to have no electricity available for use. Thirty-five adults indicate that they mend their electrical equipment while thirty-nine do the simpler job of renovating the electrical wiring in their homes.

Only sixty of the seventy-five homes have kitchen and bath plumbing. The plumbing renovations in forty-nine of the homes are made by the adults of the homes.

In considering the minimum amount of equipment and skill that are needed for making soldering repairs, it seems that all adults could do such work. However, only forty-three

of the adults attempt to do this kind of mending while thirty-two hire all of their soldering done.

Thirteen of the adults indicate that they remedy their own sheetmetal needs while fifty-five hire such work done. The question was not applicable to seven of the adults.

The question, "Do you make most of the repairs on your automobile?", was answered affirmatively forty-four times and negatively thirty times. Only one adult remarked that this question was not applicable to him.

These data suggest that a majority of the Northwest adults attempt to make most of their needed repairs at home. Although an average of thirty-nine adults attempt to make each of the above repairs, only fourteen intimated by their answers to question number eighteen that they have adequate equipment for making such repairs. Sixty-seven of the seventy-five adults think they could make the above repairs more successfully if they had taken more shop courses in school. Only eight of the adults indicated that their education is adequate for making home repairs.

Only twenty of the adults say that their school training has helped them to perform the maintenance and repair jobs which they are required to do from day to day. However, forty-eight of the group feel that they are capable of using shop equipment.

A large majority of those who were questioned think that a school shop would be beneficial to the individual

families and to the community as a whole. Eight of the entire group think that a school shop would not help them. Only four adults do not think that a school shop, if made available, would be of any value to the community.

Leisure-time needs and interests of the adults.--Questions number 20, 21, and 22 deal with the leisure-time needs and interests of the Northwest adults. They were stated as follows:

20. Do you have a hobby?____What?_____
21. How much leisure time do you have each week?_____
22. Did you get any training in school which has helped you to use your leisure time profitably?_____

Sixty-three of the Northwest adults indicate that they are engaged in some kind of hobby, whereas sixty-two say they have some leisure time each week. Of this group, it was found that only twenty-eight adults feel that their schooling has helped them to use their leisure time profitably.

The adults were generally found to have a considerable amount of leisure time at their disposal. The greatest number were found to have from ten to twenty hours of leisure time each week. Forty adults classified themselves in this group. The next largest group, consisting of thirteen adults, have from five to ten hours at their disposal each week for the pursuit of hobbies. Seven adults have twenty to thirty hours each week and only one was found to have more than thirty hours of spare time. One adult failed to estimate the

amount of spare time he has each week but noted that he has all the time that is needed.

Table 20 reveals the hobbies of sixty-three Northwest adults.

TABLE 20

HOBBIES OF SIXTY-THREE NORTHWEST ADULTS

Hobby	Number engaged in hobby
Art and design	1
Hunting and fishing	29
Mechanics	2
Photography	2
Reading	8
Making home repairs	1
Watch making	1
Woodwork	3
Preaching	1
Training horses	3
Sports	12

The various hobbies that were found among the group cover a very wide range of activities. Very few of the hobbies are directly related to industrial arts. Forty-one of the leisure-time activites may be classified under sports. Of this group of hobbies, twenty-nine are field sports and twelve are national sports of a competitive nature such as baseball and football. Only five of the various hobbies are directly related to industrial arts. In this group, one adult is engaged in art and design as a hobby, two are seeking hobbies in mechanics, three are following hobbies in woodwork, one in watchmaking, and one makes home repairs as a hobby.

The data show that a large percentage of the adults are engaged in worthwhile leisure-time activities. Many of these activities are either directly or indirectly related to industrial arts. Since only twenty-eight of the Northwest adults feel that their formal schooling has helped them to use their leisure time profitably, it seems that industrial arts could be of some aid to the adults in their pursuit of leisure-time activities.

Adult interest in school sponsored shop program.--Each of the seventy-five adults was asked if they would be interested in a school sponsored shop program. It was explained to them that the school shop would be open one or more nights per week and that adequate aid would be available to instruct them in the use of tools and equipment. Twenty-two of the adults feel that this type of program would be neither helpful nor of interest to them. Forty-three of the seventy-five adults expressed an interest in such a program.

Those who intimated that they would participate in this type of program were given a list containing twenty-one possible phases of interest. Each adult was asked to select from this list one or more phases which would be helpful or of interest to him. The forty-three adults made 298 choices. The average number of choices made by each is 7.2.

Table 21 shows the number of choices for each phase.

TABLE 21

THE FREQUENCY WITH WHICH FORTY-THREE NORTHWEST ADULTS INDICATED A DESIRE TO PARTICIPATE IN CERTAIN PHASES OF INDUSTRIAL ARTS

Phase	Number of times chosen
Machine shop	24
Carpentry	17
Cabinet making	21
Welding	30
Tractor mechanics	29
Concrete mixing	15
Practical electricity	16
Sheetmetal	10
Mechanical drawing	7
Leather work	4
Upholstery	11
Plastering	6
Farm implement mechanics	24
Plumbing	20
Furniture refinishing	12
Shop mathematics	10
Blacksmithing	12
Auto mechanics	18
Bricklaying	7
Radio repair	4
Plastics	4

There was some interest manifested in each of the phases even though the amount of interest in each varied markedly. It seems that the group as a whole does not feel that mechanical drawing, leather work, plastering, bricklaying, radio repair, and plastics would be of any help to them. None of these was selected more than seven times. The phases in which the greatest amount of interest was shown are welding, machine shop, tractor mechanics, and farm implement mechanics. The popularity of these phases is probably explained

by the fact that a large majority of the Northwest adults are farmers.

These data indicate that there might be some need anticipated for a school sponsored shop program in the Northwest community. Since 64 per cent of the adults have previously suggested that they would not feel capable of using shop tools and equipment, it seems that some instruction and guidance would be needed to carry out such a program.

Attitude of the adult group toward education.--The adults were asked nine questions concerning their attitudes toward education. The questions were stated as follows:

27. Do you think it is the duty of the school to help in solving community problems?_____
28. Do you think boys and girls should be taught a vocation or trade in high school if they do not plan to enter college?_____
29. Do you think a school should offer general courses to beginning high school students in order for them to find out what their interests and abilities are?_____
30. If you had had an opportunity to take a large variety of courses while in school, do you think you could have chosen a vocation more wisely?_____
31. Did you get any training in school which has directly aided you in your job?_____
32. During the course of your life have you realized interests and abilities that you were not aware of at the time you chose your present occupation?_____
33. Would you be willing for high school boys and girls to help you make repairs if they had adequate supervision?

Table 22 shows the data on these questions.

Sixty-eight of those who were interviewed think it is the duty of the school to help in solving community problems. Only seven of the group feel that community problems should be of no concern to a school.

TABLE 22

ATTITUDE OF THE ADULT GROUP TOWARD CERTAIN ASPECTS OF EDUCATION

Question number	Yes	No
27	68	7
28	74	1
29	74	1
30	61	14
31	26	49
32	41	34
33	74	1

Almost all of the adults think that boys and girls should be taught a vocation or trade in high school if they do not plan to go to college. There was only one dissenting answer to this question.

Seventy-four of the seventy-five adults feel that beginning high school students should be permitted to engage in several exploratory courses in order for them to test their interests and abilities. This seems paradoxical since only sixty-one of the adults think that they could have chosen a vocation more wisely if they had investigated their interests and abilities before leaving school. The answers to question number thirty-two further indicate the need for students to explore their anticipated fields of interest. On this question forty-one of the adults indicate that they now realize some interests and abilities that they were not aware of at the time they chose their present vocations.

Very few of those who were interviewed think their formal school training has directly aided them in their jobs. There were twenty-six affirmative answers and forty-nine negative answers to this question.

The adults expressed a high degree of willingness for boys and girls to help them make home repairs. It was specified that the students would have adequate instructions and supervision when making such repairs. There was only one dissenter to this question.

The data that have been discussed in this chapter reveal a general interest in industrial arts among the Northwest boys, girls, and adults. The parents have indicated by their answers to several questions that they would welcome a dynamic program of industrial arts in their community. They seem to be aware of some needs of the students and of what industrial arts can do for the residents of their community. It is probable that the school could expect a high degree of cooperation and participation from the adults and students of the community.

The next and concluding chapter will present the conclusions that were reached from the study of the foregoing data and the materials that were discussed in the previous chapters.

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND A PROPOSED PROGRAM OF INDUSTRIAL ARTS FOR THE NORTHWEST SCHOOL

Summary

On January 22, 1949, the qualified voters of the Rhome, Roanoke, Haslet, and Justin communities chose to consolidate their respective school districts into the Northwest Independent School District. It is the purpose of this study to determine if a sound program of industrial arts for this newly-consolidated high school and community is needed.

In Chapter II an analysis is made of the industrial arts programs of several recognized community schools. It was found that the role of industrial arts varies considerably with the different schools examined. This variation seemed to be apparent when the needs and interests of the individual communities were found to be different. This examination revealed that no set pattern can be followed in setting up a program of industrial arts for a community school.

Chapter III is used to determine the place of industrial arts in the community school. In this chapter the philosophy, objectives, and characteristics of the community school are discussed as means of determining the nature of the community school. A discussion is also made of the

philosophy, aims, and objectives of industrial arts with a view toward finding the function of industrial arts in the community school.

In Chapter IV the data that were compiled from the questionnaires are analyzed. The questionnaires provided some information on the needs and interests of a representative number of boys, girls, and adults of the Northwest community. The geographical, financial, employment, and business aspects of the community are also discussed in this chapter.

Conclusions

From a study of the materials and data that have been presented in the previous chapters, it seems possible to make the following conclusions:

1. The literature in the field of education indicates that industrial arts can make some contribution toward the goals of the community school.

2. To be sound, a program of industrial arts must be consistent with the philosophy and objectives of the community school. The program should be justified on the basis that it is needed to carry out the objectives of the school of which it is a part.

3. Industrial arts can satisfy some of the needs of boys, girls, and adults in the four areas of living which are: home living, recreational living, making a living, and community living.

4. There is considerable interest in industrial arts among the boys and girls. There seems to be more interest in crafts than in the other phases of industrial arts.

5. The students do not have adequate shop facilities with which to pursue some of the leisure-time activities in which they have indicated interests.

6. There seems to be little need for the type of vocational training that industrial arts has to offer.

7. The adult group have indicated a need for facilities and instructional aid to help them make their home repairs. A large majority of the group have indicated a desire to participate in a school-sponsored shop program one night or more each week.

8. A majority of the adults have indicated by their answers to several questions that they would welcome help from the school in solving their problems.

Recommendations

The following recommendations are offered as an outgrowth of the study:

1. Industrial arts should be included in the Northwest High School Curriculum when it is financially permissible.

2. A qualified industrial arts teacher should be employed to teach the course if and when it is offered.

3. School shop facilities should be made available to the students during their summer vacation periods.

4. The school shop should be made available to the adults of the community as the need for such becomes evident. The adults have indicated that they would require some supervision in this kind of endeavor.

5. Further studies should be made periodically as a means of keeping the industrial arts program abreast with the emerging needs and interests of the students and adults of the community.

By virtue of the types of projects that are of most interest to the boys, it seems that the industrial arts program most suited to their needs is one of a general nature. The boys have indicated an interest in shopwork, but there seems to be little difference in the degree of their interest in each of the phases of industrial arts. It is suggested that general shopwork be offered including woodwork, sheetmetal, benchmetal, machine shop, mechanical drawing, and crafts. Since the boys have indicated that crafts offer more projects that are of interest to them, it seems that some emphasis should be placed on that phase. A general shop program would also provide opportunities for students to explore several fields in which they might anticipate an interest.

The girls have indicated that their primary interests in industrial arts lie in the type of work that a crafts program has to offer. It is suggested that a general crafts

course be offered to the girls with some emphasis on leather work.

APPENDIX

Questionnaire for Boys

Name_____Address_____

Grade_____Age_____

1. Do you own a bicycle?_____

2. Do you own a car?_____

3. Do you own a motor scooter?_____

4. Do you have a hobby?_____What?_____

5. Do you have a part-time job which permits you to earn spending money after school?___What?_____

6. Are you now taking a shop course?_____

7. Have you ever taken any shop courses?_____

8. Have you ever had the opportunity to take shopwork?_____

9. What do you do during the summer months when you are not in school?_____

10. What chores are you required to perform at home?_____

11. Do you think your out of school months would be more enjoyable and profitable to you if you had a shop in which to build some things of value and interest to you?

12. What trade or vocation does your father or guardian follow?_____

13. Do you plan to follow his trade?_____

14. What do you intend to do when you finish school?_____

15. Do you plan to enter college?_____

16. Do you plan to remain in your home community after you finish high school?_____

17. Do you like to make things with your hands?_____

18. Do you have a shop of your own?_____

19. Do you have enough tools to make the things you would like to make?_____

20. Would you like to take shop work?_____

21. List five things which you have made for yourself.

    1._____ 3._____ 5._____

    2._____ 4._____ 6._____

22. Check three of the following which are of most interest to you. Place the number (1) by your first choice, number (2) by your second choice, and number (3) by your third choice.
    1. Making a chicken feeder_____
    2. Making a hunting knife_____
    3. Drawing plans for a chicken feeder_____
    4. Making a leather billfold_____
    5. Drawing plans for a flower pot_____
    6. Making a minow bucket_____
    7. Making a steam engine_____
    8. Making a bird house_____
    9. Making a leather belt_____
    10. Drawing plans for a bird house____
    11. Making an ashtray_____
    12. Making a cold chisel_____
    13. Making a magazine rack_____
    14. Making a watch band_____
    15. Drawing plans for a tie rack____

23. Check three of the following which are of most interest to you. Place the number (1) by your first choice, number (2) by your second choice, and number (3) by your third choice.
    1. Making a screwdriver_____
    2. Making a fish net_____
    3. Drawing plans for a chicken feeder_____
    4. Making a set of book ends_____
    5. Making a dust pan_____
    6. Making a shoe scraper_____
    7. Making a jewelry box_____
    8. Drawing plans for a jewelry box_____
    9. Making a tie rack_____
    10. Making a camping stove_____
    11. Making an end wrench_____

12. Making costume jewelry_____
13. Drawing plans for a steam engine_____
14. Making a match holder_____
15. Making a funnel_____

24. Check three of the following which are of most interest to you. Place the number (1) by your first choice, number (2) by your second choice, and number (3) by your third choice

1. Drawing plans for a cold chisel_____
2. Making a serving tray_____
3. Making a flower pot_____
4. Making a center punch_____
5. Making a kitchen stool_____
6. Drawing plans for an end table_____
7. Making a plastic picture frame_____
8. Making a watering trough for chickens_____
9. Welding a broken plow_____
10. Making a pig trough_____
11. Drawing plans for a magazine rack_____
12. Making a bow and arrow_____
13. Making a chicken feeder_____
14. Making threads on a bolt_____
15. Making a hammer handle_____

Questionnaire for Girls

Name_____Address_____

Age_____Grade_____

1. What occupation does your father follow?_____

2. Does your mother work outside the home?_____

3. Have you ever taken a shop course?_____

4. Have you ever had the opportunity to take shopwork?_____

5. Would you like to take shopwork?_____

6. Do you have a hobby?_____What?_____

7. How much leisure time do you have each week exclusive of Sunday?_____

8. Do you plan to go to college?_____

9. Are you planning a career?_____

10. Do you plan on family life without either going to college or entering family life?_____

11. Do you think girls should be permitted to take shopwork?

12. Do you plan to remain in your home community after you finish high school?_____

13. Do you like to make things with your hands?_____

14. Check three of the following which you would be interested in making. Place the number (1) by your first choice, number (2) by your second choice, and number (3) by your third choice.

_____1. Aluminum ash tray
_____2. Leather belt
_____3. Jewelry box
_____4. Aluminum serving tray
_____5. Leather hand bag
_____6. Book ends
_____7. Metal coasters
_____8. Leather coin purse
_____9. Hosiery box

Questionnaire for Adults

Name_____Address_____

1. What is your occupation?_____
2. Do you repair your own furniture?_____
3. Do you refinish your own furniture?_____
4. Do you make furniture and automobile upholstery repairs?
5. Do you paint your home and outhouses?_____
6. Do you make repairs on your home?_____
7. Do you do your own roofing?_____
8. Do you make repairs on your mechanical equipment such as plows, mowers, combines, etc.?_____
9. Do your sharpen your own plows?_____
10. Do you make or repair your own harness or other leather articles?_____
11. Do you make elecrrical repairs in your home?_____
12. Do you do your own electrical wiring?_____
13. Do you have kitchen and bathroom plumbing in your home?
14. Do you make repairs on your house plumbing?_____
15. Do you make all of your soldering repairs?_____
16. Do you make your own sheetmetal repairs?_____
17. Do you make most of the repairs on your automobile?____
18. Do you have adequate equipment for making the above repairs?_____
19. Do you think you could make the above repairs more successfully if you had taken more shop courses in school?_____
20. Do you have a hobby? _____What?_____

21. How much leisure time do you have each week?_____

22. Did you get any training in school which has helped you use your leisure time profitably?_____

23. Did you get any training in school which has helped you perform the maintenance and repair jobs that you are required to do from day to day?_____

24. If a well equipped shop were made available to you, do you think it would be an aid to you and your family?___

25. Would you feel capable of using a well equipped shop if it were made available?_____

26. Do you think a school shop, if made available to the community, would be of any value to the community?_____

27. Do you think it is the duty of the school to help in solving community problems?_____

28. Do you think boys and girls should be taught a vocation or trade in high school if they do not plan to enter college?_____

29. Do you think a school should offer general courses to beginning high school students in order for them to find out what their interests and abilities are?_____

30. If you had had an opportunity to take a large variety of courses while in school, do you think you could have chosen a vocation more wisely?_____

31. Did you get any training in school which has directly aided you in your present job?_____

32. During the course of your life, have you realized interests and abilities that you were not aware of at the time you chose your present occupation?_____

33. Would you be willing for high school boys and girls to help you make repairs if they had adequate supervision?

34. Check the courses which would be of interest and helpful to you if shop courses were offered to community adults one night or more per week.

Machine shop
Carpentry
Cabinet making
Sheetmetal
Mechanical drawing
Leather work

Welding
Tractor mechanics
Concrete work
Practical electricity
Furniture refinishing
Blacksmithing
Bricklaying
Plastics
Upholstery
Plastering
Farm implement mechanics
Plumbing
Shop mathematics
Auto mechanics
Radio repair

List any other courses that you are interested in.

_____

_____

35. Where do you work?_____

36. At what age did you leave school?_____

37. What grade did you complete in school?_____

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