1954

The Scope of an Industrial Arts Program for Community Unit School District #4 of Paris, Illinois

Raymond V. Griffin

THE SCOPE OF AN INDUSTRIAL ARTS PROGRAM FOR COMMUNITY UNIT SCHOOL DISTRICT #4 OF PARIS, ILLINOIS

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Eastern Illinois State College
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This paper is submitted for approval in partial fulfillment of the requirements for the Master of Science in Education degree.

Approved by

DEDICATION

I wish to dedicate this work to the memory of my father, Ray Griffin, who did not have the opportunities for education that I have had, but who made it possible for his son to have that which he had not.

Raymond V. Griffin

FOREWORD

This study is intended for those who are interested in the place and the contribution an industrial arts program could make in the lives of the rural youth in Unit School District #4. The presentation of the nature of an industrial arts program, as well as the suggested program, should prove valuable to the school board, superintendent, principals, and teachers alike. If we are to achieve our primary aim in education of preparing the student to be a worthy and useful citizen in later life, we must prepare him for those things which he will encounter in life. In our industrialized civilization, this means training in industrial arts.

This study attempts to present some of the problems and needs which will be encountered in formulating a new industrial arts program in this community.

The writer wishes to thank Dr. Walter Klehm and all the staff of the industrial arts department of Eastern Illinois State College and the authors listed in the bibliography for the great help they have given. The writer also wishes to thank all those public minded citizens who have responded so nicely in helping him to gather the information presented herein.

Raymond V. Griffin

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CHAPTER I

INDUSTRIAL PROBLEMS AND PROCEDURES

Introductory statement. Life is easier today than it was for our forefathers. Why is it possible for us to say this? The answer, of course, is self-evident--machines. Machines, the product of industry, have been made possible by great technological developments.

One hundred fifty years ago, children learned to use their hands almost as soon as they could walk. They learned the craftsmanship necessary to sustain life. Their father taught them to do those things which his father had taught him, and there was plenty of opportunity to practice, for their needs were great. The boys learned early such skills as building furniture, making shoes and iron nails. In time, they became quite proficient in these skills; a person skilled in making nails could produce as many as 200 nails a day.

What father today could teach his son to make nails? What son would want to make nails when industry can produce hundreds each hour of the day? What father hasn't had the experience of driving a nail which split his board, and wished that he knew more about the selection of the nail to fit the job? Where is he to learn these things? Is his son to learn these things or will he, too, suffer this frustrating experience?

The only answer he can make is that industrial understanding must be taught in the schools. This calls for an industrial arts program as an integral part of a child's general education.

Statement of the problem. Industrial arts today is taking its place as a part of general education. In the past, industrial arts (referred to as manual training, then) was thought of as an extra activity which could provide training for those unfortunate ones who were not granted the ability to think along academic lines. At times, it was thought of as being a part of the child's home training and not a part of the school program.

Today, with the status of our nation in world affairs and the great need for mass manufacturing of articles, every home can no longer provide the time and "know how" for such training. It is common practice now for both the father and mother to work in industry. It becomes obvious that the schools must provide this necessary training that has been neglected in the home.

With this knowledge in mind, educators have agreed that the school should provide training in the use, care, and maintenance of the many machines that are common in our society.

There is a strong movement throughout the United States in which administrators and citizens interested in the betterment of schools are insisting that the schools provide a well-rounded industrial arts program for the community.

Difficulties of the problem. The problems encountered in providing a well-rounded program in industrial arts are many. It is easy to say, "We are going to have an industrial

arts program in our school system next year." It is not always a simple matter to set up a new program. There must be hours and hours of pre-planning before the first class may be met.

First of all, the question, "What are we going to teach?" must be decided upon. Just as the vacationist must know where is his destination when planning a trip, so must a program for industrial arts be mapped.

Many questions are raised and must be answered before any action can be taken. Some factors to be considered are: How many students will be taught in industrial arts classes? Will all eight grades be included in the program? Will high school students be included? Should girls be permitted or required to take courses in industrial arts? Will they benefit from such training? Where could the shop be located? What tools will be needed? What about the money to finance the shop? What will the cost be?

The need for pre-planning cannot be over-emphasized. This is especially true if new facilities must be built to provide for the program.

Definitions and explanations of terms. Before much planning can be done, it is necessary that those who are planning the industrial arts program must agree upon and come to an understanding of a few terms used in the field of industrial arts.

First of all, the meaning of the term industrial arts, itself, must be understood. "Industrial arts" has evolved

the older terms "manual training" and "manual arts".
al training, as the name suggests, emphasized the
ning of the boy to be a man. This was based on the
y of formal discipline--one must do a thing because
good for his constitution. From this evolved the
ual arts" era. Manual arts still emphasized the
ning of a boy to take a man's place, but included greater
sis upon the principles of art.

Industrial arts, as it is known today, places emphasis
construction with tools and machines, understanding
ods and practices of industry, drawing and design,
tive use of leisure time, and consumer and social
ation.

The "industrial arts shop" or merely the term "shop"
sed to designate the room or laboratory in which the
strial arts courses are taught.

Unit shop may be defined as one which deals primarily
the tools, processes, materials, and information of a
le occupational area (or a limited number of areas
a are very closely related).[1]

General shop refers to a shop having a number of areas
ally 2 to 4) which are in operation simultaneously.

Layout refers to the placing of machines and equipment
tegically within a room for proper use sequentially.

Vocational education[2] trains workers in the skilled and

[1] Wilbur, Gordon O.: Industrial Arts in General Education; International Textbook Company; Scranton, Pa.; 1949; p. 101.

[2] Newkirk, Louis V. and Johnson, W. H.: The Industrial Arts Program; The Macmillan Company; New York; 1948; pp. 13-14.

-skilled occupations that are a part of the trade and
strial world. Vocational education is given as the
ent nears the time of employment or frequently on a
-time basis during the time of employment. It teaches
specific skills, information, and work habits that are
ssary for success on the job.

Building trades is usually a vocational educational
rse. It provides job training for those boys interested
ecoming carpenters.

Literature of industrial arts program for rural areas.
e was a time a few years ago when the farm child was
concerned with industry. Today, most of our farm work
one with machinery. The owning of cars, tractors,
ines, cornpickers, etc., means the need for making re-
s and understanding the care of the machines. With
high cost of skilled labor, farmers are turning more
more to doing their own repairs. Such machines as
and electric welders are becoming commonplace tools in
farm workshop.

This is a recent change. Only in the past ten years
the need become so great that the rural area has begun
eek instruction from the schools in subjects in the
re of industrial arts.

Little has been written on the ideal school shop for
rural area. A few scattered areas with special prob-
have attacked this problem.

Very recently, with the increase of production, entire
s have sprung up almost overnight in rural areas. Edu-

cators in these industrial areas have turned to the larger cities to find a pattern which they could follow. Some of these have proven satisfactory. Whether they will remain satisfactory after the war boom in industry is over remains to be seen.

To whom shall the rural schools look for guidance? Shall they follow the ideal shop layout for larger cities? The answer to this lies in pre-planning. Data must be gathered and considered pro and con. Only after the facts are in can conclusions be drawn as to the needs of the rural community.

Methods of collecting data. There are several ways of collecting data about industrial problems and procedures in a community. Most of these would involve making surveys of the community. Surveys could be taken on such factors as (1) tools and equipment sold locally which the home workman might use, (2) industrial jobs in the community in which students will one day take over, (3) what the industrialists think they would like for educators to teach their future employees, (4) the type of work done in the community and what the student should know about it, and (5) what the present program is offering.

Surveys such as these are best handled by a citizens' committee, alth ugh they may be made by an interested individual. In either case, the surveyor should make accurate tabulation of data and formulate some conclusions.

A survey on "the tools and equipment sold locally which the home workman might use" would involve visiting

all the stores which handle both hand- and power-tools. The tools available would be listed and a frequency occurrence would be formulated. In this manner, conclusions could be drawn as to the tools the man on the street was buying; it would thus give a clearer picture of what tools and machines the industrial arts program should provide training in.

A survey of the industrial jobs in a community may give a clear picture of what job opportunities will be present for the graduating student. Here again, a listing of the types of industry present and a breakdown into specific jobs within the industry will be necessary.

A personal survey with the industrial owners will point out the faults in the present program as well as point out the type of experiences which would (in their opinion) be desirable for the prospective employee to have had. It is important to remember that industrial arts is a part of general education and thus is not expected to produce a trained person for a specific job.

It is always a good idea to know where you are before thinking about where you are going. A survey of the existing programs will show what is being taught at present and to what extent the subject matter is effective.

There are other ways of collecting useful data. There are numerous volumes of written material which are full of tested ideas of the leaders in the field of industrial arts. This information is the accumulation of the exper-

iences and ideas of some of the great leaders in education. These are sound principles and should be used in any evaluation of a program for a community.

With the problems in mind and some ideas as to ways to secure data, the next step is to evaluate the needs for a program of industrial arts in the rural community.

CHAPTER II

THE NEEDS FOR A PROGRAM OF INDUSTRIAL ARTS FOR RURAL ILLINOIS

Introductory statement. What are the needs for a program of industrial arts for rural Illinois? In order to determine this, it is important to examine the past, the present, and finally, the predicted future. In the past, the industrial arts programs have been largely confined to the high school level. The emphasis was largely upon woodworking and drawing.

At the present time, the industrial arts program is being offered more and more to students on the junior high school level. Again, emphasis is upon woodworking and drawing. In several instances, the freshman courses have been stepped down and offered to the seventh and eighth grades. In more desirable programs, courses for seventh and eighth grades have been scaled down to arts and crafts. Increasing use of industrial knowledges and skills. The future outlook is for starting industrial arts in the lower grades and increasing the number of areas of experience as the child progresses to the higher levels. This need for the increase of experience areas has been brought about by the complexity of our modern rural living.

It is quite common to find the average farmer doing four or five semi-skilled jobs about his farm in a single day. He is a plumber, for he finds it more practical to pipe water to his livestock than to haul the water. He is a mechanic,

for his tractors, car, truck, and implements need constant attention. He is a carpenter, a brick mason whenever the occasion demands.

Where is he to learn about these things? Agriculture programs in the schools do not have time to give adequate training in desirable tool techniques. Even a vocational agriculture program cannot give the time to teach proper care and use of the common hand-tools available for use about the farm. Even if the time were available, it would be difficult to find a teacher who possessed the knowledge and skills needed of both industrial arts and agriculture teachers.

Basic skills in the care and use of machinery and tools are thus best left for the industrial arts program and under the guidance of a trained man.

On the market today, there are many time-saving machines and tools that can be purchased for a nominal price. With our modern habit of doing things quickly and easily, it is convenient to have machines to do the work, but they all require instruction if they are to be operated with safety. An example is the portable hand saw. This is a most useful tool, but at the same time it can be very dangerous if improperly handled.

Woodworking, especially building trades, has taken on increased importance since the Second World War. The population of the United States has increased markedly; the amount of money in circulation has also increased, making

it possible for more people to build their own homes. This increase in home building (plus the high wages one must pay for labor) has increased the need for some knowledge and skill in the industrial arts area.

Present day inadequacies. Most of the industrial arts shops in existence today are badly over-crowded. The shop which was capable of taking care of the twelve or fifteen boys in the classes ten years ago is now expected to take care of twenty to twenty-five boys.

Many of these shops are operating under great machine shortages. True, many shops were able to buy war surplus machines for a low sum, but these machines were oftentimes of the mass production size and quite large for the size of shop they were purchased for. In other shops, the machines are old and outdated. Chances are, the student trained on these old machines will find the ones used on the job will be of a newer model.

Some of the existing shops are located in a dark, dingy hole in a corner of the basement which was gladly given over to the shop because it wasn't desirable for a classroom or even for storage. Here, the ventilation is poor as well as the lighting; the atmosphere is one of depression. Yet, the student is expected to spend several hours in this room and produce beautiful, creative objects.

The crowded classroom fosters poor instruction. The nature of industrial arts presents the need for a great amount of individual instruction. Thus, the lower the ratio

of teacher to pupil, the more desirable is the situation. A ratio of about one to twenty is good. A ratio of one to twenty-five is fair and a ratio of over one to thirty is not desirable. It is ridiculous to expect one instructor to be able to individually attend thirty boys to see that their first attempts are correctly done. It is these first attempts to use a new tool that forms the habits which will later determine whether the lad will be a good workman or a poor one.

In the rural areas of the state, most of the students of high school age are sent to the nearest city attendance center. In this school, the rural child is given the same instruction as the city youngster--training which will fit him to take a place in the city's industry. For the rural boy, this training may be very impractical, for chances are, he will want to be a farmer like his dad. Why should he learn to operate a turret lathe when he will never have need for one on the farm? Thus, for boys with such different interests, a good program for some may be inadequate for others. Likewise, what may be vocational education for the city child may be adequately handled in a general industrial arts class for the rural child.

Adequate program pays for itself. An adequate program in a community will pay for itself. If the graduating student cannot take his place in the community without having to go through a long period of adjustment, something is lacking in the program. The program must be flexible. It must bend with

the society and the times. Adequate facilities must be provided in the beginning to allow for this bending.

The adequate program will provide training which will be of a practical nature for the student. In providing such training, it must be remembered that only a small per cent of the rural youth will remain on the farms of the community. This is easily seen when one recalls the number of farm people who have migrated to the cities in order to find work in industry. Thus, any program should be flexible enough so that the student will receive the basic training he might use anywhere.

Status of program at present in District #4. There is no established district-wide program of industrial arts in Unit District #4. There exists one seventh and eighth grade school in the unit in which there is an organized program of arts and crafts. This program is carried on under very limited conditions. This program has been in effect for three years and has been successful; however, there are several conditions that should be remedied. This program was first put underway at the personal expense of the teacher. What tools that were used belonged to the instructor and were thus inadequate for a class of twenty. The first year that this program was carried out, there were many desirable experiences presented along with the frustrating ones created by the inadequacies. During the second year, materials were more readily available, but equipment was still scarce. The third year saw the purchase of new hand tools in a quantity large enough to care for about

ten students. The present enrollment of this school is twenty-five.

The high school students of Unit District #4 attend the Paris High School attendance center. The student here is offered training in industrial arts for three years. Drafting, woodwork, bench metal work, sheet metal work, and electricity are offered. Here again, classes are overloaded and operate under limitations of equipment and space. Preliminary planning needed for a good shop program. It becomes evident at this point that the industrial arts needs are great in this community and that an adequate program must be established in the future. This calls for much planning to be done. First, types of facilities needed in this community for the overall educational program need to be decided. Then, plans must be made for the industrial arts program to meet these needs.

It should be pointed out that, although one must have a building before he can have a shop, the building doesn't have to be erected and the shop fitted into it. This is true of other classrooms also. Preplanning of each department should be done and the specifications, as determined from a teaching angle, should be given to the architect. Though the teacher may know nothing about architecture and the architect nothing of teaching methods and techniques, together they should be able to work out suitable plans. Giving attention to the smallest of details is what makes a building suitable. For example, oftentimes in the building of a new shop there is no provision made for water facilities in

the shop area. These small details can better be taken care of while the building is in the blueprint stage than after it is erected.

Preplanning is of value to everyone; teachers, students, and principals alike benefit. It is with this in mind that the author has attempted to gather some of the data needed in the preplanning of a practicable industrial arts program.

CHAPTER III

PRESENTATION OF DATA GATHERED IN STUDIES

Community survey on educational program. The beginning of preplanning started in 1953 with the forming of a Citizens' Committee to study the educational program in Community Unit School District #4. This committee, working in conjunction with the Office of Field Services of the College of Education of the University of Illinois, published its findings in a booklet entitled "A Suggested Long-Range Educational Program for the Community Unit School District #4 of Edgar County, Illinois". Many of the findings of this committee must be stated and interpreted to give a background from which to derive an industrial arts program suitable to this particular community.

It is important in our planning to note the existence of School District #95, which the high school students of Unit School District #4 attend. This situation is best explained in Chapter I of the committee report which states:

> "The survey committee was organized November 27, 1945. One hundred school board members voted to have the survey and forty-two voted no. The survey was taken of Edgar County as a whole. A tentative report was filed November 24,1947 recommending formation of Unit School District around Paris excluding District 95 which is Special Chartered School District. The final report was adopted March 27, 1948, for the establishment of

a community unit district. Of the 711 votes cast, 591 were for formation as such a district, 120 were against it. The equalized assessed valuation of the newly created District No. 4 in 1948 was $27,147,321. The estimated population was 5371.

The election for members of the Board of Education was held April 24, 1948.

Between May 24, 1948 and July 30, 1948 numerous detachments and annexations along boundary lines were made in accordance with desires of residents living within those areas.

No description of Community Unit School District No. 4, Edgar County, would be complete without a word about Paris Union School District No. 95 which District No. 4 completely surrounds.

District No. 95 was established by a special act of the legislature in 1869. The Board of Directors as set up under this act have rather unique powers. They have the powers of the trustees and directors of the districts so embraced which included the city of Paris. They can contract and be contracted with, sue and be sued, be responsible for providing buildings and equipment, hiring teachers, maintaining all property and assessing the taxes necessary to maintain the schools.

> District No. 95 now included the city of Paris with a population of about 10,000 and some additions outside the city limits that have been added over the years."[1]

It is important that the industries in a community should be considered in the planning of any educational program. If the students who are to be under our program are to take their places in our community, we must include in our program those things which they can use. It is dangerous, however, to plan a program around this point only. It must be kept in mind that a large percentage of the students under our program today will later move to other towns and communities of varying industrial development. The committee found the following industrial activities to exist in Paris and surrounding communities of Unit #4.

> "Community Unit District No. 4 is almost exlusively a farming area, however, since the city of Paris is in the center many of the people living in the unit are employed by different firms in Paris, some of which are listed: U.O. Colson Co. employs almost 300 workers, The Mid-West-Body-and-Manufacturing Co. employs almost 300 workers, the Illinois Cereal Mills in which nearly 200 people are employed, the

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1. Citizen Survey Committee: "A Suggested Long-Range Educational Program for the Community Unit School District No. 4 of Edgar County, Illinois"; Office of Field Services, College of Education; University of Illinois; 1953.

Goding Shoe Factory employs on the average of 150 persons, the Merkle Broom Factory employs 175, the Stewart Hog Ring Co., Inc. employs nearly 100. Other factories employing from 20 to 150 are: Paris Foundry and Machine Works, The Bridgman Cigar Co., Wadley Poultry Co., Moco Inc., the Paramount Milling Co., and a few others.

In District No. 4, the following industries are found: the new R.E.A. office building, and some oil wells in the Elbridge community. In the small villages such as Elbridge, Oliver, Nevins, Horace, and Vermilion, there are stores, grain elevators, shops and garages."[2]

The U.O. Colson Company, while manufacturing a number of different items, is largely concerned with the manufacturing of calendars and advertising materials. Thus, many of its workers are engaged in the field of graphic arts. Training offered in the industrial arts field of printing and drafting would be extremely valuable. The Colson Company also has recently added a plastics department, manufacturing such things as calendar frames, key chains, and other novelties. This is a step to keep pace with our fast-growing America. Plastics are here to stay and have already become so commonplace that we scarcely

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2. Citizen Survey Committee: "A Suggested Long-Range Educational Program for the Community Unit School District No. 4 of Edgar County, Illinois"; Office of Field Services, College of Education; University of Illinois; 1953.

notice them as new today. Somewhere in our industrial arts program, some training should be given in the appreciation and use of plastics.

Other industries listed indicate training needs for:

Midwest-Body-and-Manufacturing Co.------wood and metal

Goding Shoe Company----------leatherwork

Merkle Broom Factory----------wood and metal

Stewart Hog Ring Factory----------metal, welding

It would seem that the above local industries would indicate the need for the training in the fields indicated. However, it must be remembered that only a small percentage of high school graduates can be absorbed in local industry. Community survey on needed industrial arts program. Further study must be made before a definite industrial arts program can be established. The following questionnaire sent to 200 patrons of Community Unit District #4 indicates to some degree the desires of the people in regards to present and future industrial arts programs.

Rural Route #3
Paris, Illinois
May 4, 1954

Dear Patron:

In an effort to satisfy a certain requirement for the Master of Science in Education degree and in an effort to be of service to my community, I am writing a study on the subject, "What Should be the Scope and the Nature of the Industrial Arts Program in Unit School District No. 4.

Attached to this letter, you will find a questionnaire which I would appreciate your consideration in filling out. All information will be used in such a manner that individual recognition will be impossible. You do not need to sign this questionnaire.

Thank you for your cooperation. May your time be justified in the fulfillment of that one great goal

"Better schools with better curriculum for all our children".

Yours truly,

Raymond V. Griffin

Approved for publication by:
Paul F. Keehner, Superintendent
Unit School District No. 4

DIRECTIONS

This survey is designed to sample opinions about what you, the people, feel you would like your children to study in an all rounded industrial arts program. Therefore, there are no right or wrong answers. What is wanted is your own individual feeling about each statement. Read each statement and decide how you feel about it. Then mark your reaction by circling the number of your choice:

If you strongly agree, circle the "1"----(1) 2 3 4 ?
If you agree, circle the "2"----------1 (2) 3 4 ?
If you disagree, circle the "3"----------1 2 (3) 4 ?
If you strongly disagree, circle the "4"-1 2 3 (4) ?
If you are undecided, circle the "?"-----1 2 3 4 (?)

For example:

The industrial arts teacher should be trained in that subject. (1) 2 3 4 ?

For purposes of illustration, let us say that we

strongly agree with the statement above. Therefore, the "1" is circled.

Think in terms of the situation of Unit #4 both on the grade school and high school level.

1. The present industrial arts program offered at the high school level is satisfactory for farm boys. 1 2 3 4 ?

2. I would like to see a program in industrial arts which would provide actual experiences in country life. 1 2 3 4 ?

3. As a future farmer, a child should have training in these fields of industrial arts:

Woodworking	1	2	3	4	?
Sheet metal	1	2	3	4	?
Drawing and drafting	1	2	3	4	?
Machine shop	1	2	3	4	?
Auto mechanics	1	2	3	4	?
Welding	1	2	3	4	?
Electricity	1	2	3	4	?

4. Industrial arts should be given as much time each day as any other school subject. 1 2 3 4 ?

5. At least one class in basic hand woodwork should be required before a child is allowed to handle hazardous power-driven machines. 1 2 3 4 ?

6. A basic course in industrial arts should be required of all freshman boys. 1 2 3 4 ?

7. Arts and crafts should be offered at the 7th and 8th grade levels covering such subjects as woodcraft, metalcraft, basketry, keene cement craft, plastics, leatherwork, etc. to both boys and girls. 1 2 3 4 ?

8. I would like a child of mine to have the opportunity for craft work (a part of industrial arts) on the 7th and 8th grade levels. 1 2 3 4 ?

9. A course in home mechanics for both boys and girls should be offered at the 7th and 8th grade levels. 1 2 3 4 ?

10. All materials for projects made by the student in advanced courses should be paid for by the student if he is able financially. 1 2 3 4 ?

11. All materials for required courses should be paid for by the school from tax money. 1 2 3 4 ?

12. I would like to see a program in industrial education varied enough that my child could take his place in local industry later in life. 1 2 3 4 ?

13. I would like to see vocational classes offered at the senior high school level. 1 2 3 4 ?

14. I would like to see night classes offered for adults in Unit #4 in such subjects as welding, sheetmetal, etc. 1 2 3 4 ?

The results as indicated in chart form on the following age are based on 125 returns of the 200 questionnaires sent ut. Failure of all results to add up to 125 is the result f the failure to complete all blanks by the patron. This ould indicate the lack of understanding of the question or eglect on the part of the patron.

Questions 1, 2, and 12 were included in this question- aire to indicate the feeling of the people for the existing rogram and the feeling about the desirability of an indus- rial arts program. The results of question one indicate hat while there were more in favor than not in favor of he existing program at Paris High School, some doubt as o whether it is satisfactory or not is indicated by the 49 ho circled the question mark. This large number is prob- bly due to the uncooperative attitudes of the patrons of he two school units.

Questions 2 and 12 indicate quite strongly that the

SENT TO PATRONS OF UNIT DISTRICT #4

EDGAR COUNTY, ILLINOIS

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14
If you strongly agree	13	41	-	52	75	26	49	61	36	31	45	58	39	40
If you agree	35	62	-	52	34	52	58	46	55	40	42	56	45	33
If you disagree	13	3	-	6	4	18	5	6	11	22	11	3	5	7
If you strongly disagree	11	2	-	1	1	4	4	2	4	7	3	0	4	10
If you are undecided	49	9	-	10	6	19	8	10	16	22	19	5	25	30

TABULATION OF QUESTION 3 ON QUESTIONNAIRE

	wood working	sheet metal	drafting	machine shop	auto mechanics	welding	elec-tricity
If you strongly agree	52	58	45	58	47	58	53
If you agree	50	46	39	47	46	43	46
If you disagree	4	4	6	4	3	6	5
If you strongly disagree	2	3	8	2	8	4	4
If you are undecided	10	14	13	7	7	10	8

people desire an industrial arts program for their children.

In question 3, the indication is strongly in favor with all the areas indicated. The somewhat weaker results shown for sheet metal and drafting are probably due to the lack of understanding of the content of the two subjects.

Industrial arts is truly a subject of equal value with any subject in the educational curriculum. This is indicated in the results to question 4 showing 104 for and only 7 against. Thus, if for example, science gets 40 minutes per day five days per weeks, so should industrial arts get 40 minutes per day five days per week.

Safety in the use of power tools both in the shop and at home cannot be stressed too much. For this reason it is wise to offer a course in handwork before using machines. This exploratory course allows the student to adjust to the shop atmosphere and develop an understanding of safety for his fellow worker as well as for himself. With this training behind him, he will thus be more wide awake and better able to handle power machinery safely. The recognition of this point by the patrons is indicated by the 109 for to only 5 against.

There are many factors which must be weighed carefully before any course can be required of all students. Although the questionnaire shows 78 in favor of making industrial arts a requirement of all freshmen, it is important that we should consider the possibility that there will be those students who know that they will be going on to college and will not need or use those things in the industrial arts program. For example, it would be very unwise to require a gifted child of

music who will go on to college and follow his chosen career to take a course of industrial arts. Yes, it must be the child's interest and ability which must be the final basis for choosing what subjects he should take in school. Therefore, it is very undesirable to make industrial arts a required subject.

Questions 7, 8, and 9 indicate a strong need for a craft program on the seventh and eighth grade levels. Children of this age group are thinking of the subjects they will want to take in high school to best fit them for the life they wish to live. A well developed craft program covering many areas on the exploratory basis will give the child an indication of the many, many fields of work he can do later in school and in life.

Who will pay for materials used in the making of projects in industrial arts? This is always a main question. This questionnaire, showed by question 11, that if it was a required course or a required project the school should pay. Question 10 shows a number desiring to pay for advanced courses, a substantial number objecting to paying, while another sizeable group was undecided. This existing condition is probably typical of a great percentage of Americans. Their motto seems to be "get all you can get for nothing". It is felt, however, that without some support in the purchasing of supplies, the cost of a good program would soon become such that the school budget of the tampayer's dollar would not be able to support a program at all.

The significance of the remaining two questions on this questionnaire will be discussed in Chapter 4 under "vocational

Education in the High School".

State recommended program. One of the most reliable sources of information as to what should be included in an industrial arts program are the bulletins published by the Board for Vocational Education in the state of Illinois. The program, as outlined in this bulletin, is a recommended program. There is no requirement by the state that a school system must adopt this program. It does, however, give a general picture of what industrial arts programs in the state contain.

The authors of the bulletin give two plans.[1] The first of these is set up for a program starting on the seventh grade level. This would most likely fit the situation in Unit #4. It suggests that on the seventh grade level, model craft, cement craft, leather craft, metal craft, plastics, and wood craft would offer exploratory areas. It is suggested that only four areas should be taught by one instructor in any one year. On the eighth grade level, it is suggested that exploratory work in electricity, drawing, metal craft, graphic arts, transportation or wood should be offered.

On the ninth grade level, electricity, wood, metal, drawing, transportation, and graphic arts are suggested

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1. Board for Vocational Education; State of Illinois: Industrial Arts in the Modern School; Series A+ Bulletin #94; pp. 20-21.

with a choice of two areas of one semester each being offered.

In the tenth year the student may elect another two areas given under the ninth year, or he may elect to take a year's work in any one area.

The eleventh and twelfth grades would offer the student a chance to do thirty-six weeks of work in any one field not already taken.

The second plan gives the basic offerings for a four year high school program which does not have industrial arts on the seventh and eighth grade levels.

Grade nine offers exploratory classes in metal, graphic arts, wood, and transportation. Grade ten offers tryout choices of two areas, one semester each of general electricity, wood, general drawing, metal, auto mechanics, and graphic arts. Grades eleven and twelve offer the student a chance to elect another two years in tryout courses or elect one thirty-six week's course.

CHAPTER IV

RECOMMENDED PROGRAM

Background for industrial arts in lower grades. Industrial arts, as we usually think of it, is readily accepted on the high school level. Today, greater emphasis is being placed upon industrial arts at the seventh and eighth grade levels.

In the future we will see industrial arts in the lower grades. Yes, we may see industrial arts in the first and second grades. This is not as far wrong as it may sound at first. Is it not true that the basic habits of learning are pretty well set in the grades one to five? Why, then, would it not be advisable to include the understandings of industry at this lower level? Of course, the subject matter included in this field would have to be on the level of manipulative abilities and learning abilities of the child.

In the first three grades, we find the child's natural interests centering around the home, the grocery, and the buildings around him. It is reasonable to find the child of six interested in the home in which he has spent those first six years of his life. It is the wise teacher who recognizes this and is able to create a homelike atmosphere in her classroom.

The use of industrial arts materials can do much to help the teacher create this atmosphere. It would be very effective teaching if the room could include such a child- and teacher-made project as a child-size playhouse with furniture and decorations. Curtains for the windows could be painted. Mats for the floors could be woven of

paper or cloth. Clay dishes could be made. All sorts of objects could be made for the playhouse. Here, the child would be using what he is acquainted with while using new materials in their construction. Here too, he gets a beginning in the manipulative skill which he will use throughout his life.

Likewise, a play grocery story could be constructed in the room. What small child is not interested in eating? What small child could not be helped in his learning the value of money by trading at a play store? Here again, all the furnishings, even the money, could be made in class projects from the industrial arts media. Thus, a lasting learning experience is gained.

"Well", you say, "Aren't these things being made in our schools?" Yes, they are being made by the better classroom teachers. The idea of making these lifelike models is not a new one. In most cases, the need is great for the floor space and the materials. In most cases, the know-how is there in the classroom teacher if the space and materials were available.

It is easily seen that at the one, two, and three grade levels, the industrial arts program can best be handled by the classroom teacher. It can be integrated into the regular subject matter in such a way that it is almost impossible to tell where industrial arts stops and where reading, writing, and arithmetic begins. It is important, however, that we recognize that a program does exist and that the learnings and skills developed should be correct. It is,

for example, surprising how destructive a child of 8 years can be with a hammer, but it is equally surprising how constructive the same child could be if shown the proper use of a hammer and given some direction.

In the fourth, fifth, and sixth grades, the child becomes more skilled in his muscular coordination and is thus able to attack more difficult projects. At this age, too, he is beginning to take a critical look at the many machines which exist in our world today. Here, the classroom teacher has the key to a wonderful learning situation. Through the use of industrial media, she can make the wonderful accounts of pioneering and invention of the industrial revolution come alive in the minds of the youngsters. For example, the teacher could use hours explaining the activities about an airport, while a carefully constructed model airport with a few model planes built by the pupils as a classroom project will impart a lasting understanding of an airport. The pupils will show great interest in this sort of project. At the same time, with the proper instruction they will learn to use properly many of the common hand-tools. Boys and girls of the fourth, fifth, and sixth grade levels can achieve good results with media such as thin, soft wood, thin metals, textiles, plastics, paper, cardboard, and ceramics.

Here, as with the lower grades, it seems best to incorporate the industrial arts program into the classroom situation. With space and materials provided, a well planned program can be carried on in the classroom. The classroom

teacher, with the counceling of a trained industrial arts teacher, can provide wholesome learning situations far more meaningful than those which might be had in a separate program.

In summing up the industrial arts program in the first six grades, we might conclude that the recommended program for the first six grades in Unit District #4 should be one of the classroom situation. This should be supplemented with the provision for adequate space and materials. The projects should be on the class basis with each member of the class contributing his part. Emphasis should be placed on cooperation and the understanding of this industrial world of today. Industrial arts on the seventh and eighth grade levels. It is with the seventh and eighth grade levels that we in Unit District #4 are probably the most concerned. The program for the high school level is already in practice at the Paris High School, which the high school pupils of our unit attend. A discussion of this program will follow in a later section.

In their study, the Citizen Survey Committee states, "A shop to provide exploratory experiences in woodworking and home appliance repairing for the seventh and eighth graders should be provided."[1]

Further, under the section dealing with future building

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1. Citizen Survey Committee: "A Suggested Long-Range Educational Program for the Community Unit School District No. 4 of Edgar County, Illinois"; Office of Field Services, College of Education; University of Illinois; 1953.

plans, this committee provides that "either a combination wood-metal workshop with adjoining lecture facilities or two separate shops with a classroom adjacent would be provided".

It is with these two general provisions in mind that we should start our detailed study of the best program for our unit. In Chapter V of the Citizens' Committee Study, they have stated what they believe our school's philosophy should be. The following pages of the Committee's study are included that we may have clear in mind the overall school philosophy of our unit.

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CHAPTER V

THE EDUCATIONAL PROGRAM

Probably the main purpose of the whole educational survey of a school district is to find out what the people and their children want and need in the way of an educational program. It is not a simple matter to catch the ideas of many different people and from them form any accurate conclusions, but the curriculum committee attempted to do this through questionnaires which would answer the following broad questions:

I. What should our school's philosophy be?

II. What should be the depth of our educational program?

III. How broad should our educational program be?

IV. What provisions should we make for our exceptional children?

The following report then is composed of the answers of the citizens of Unit 4 to many questions or topics.

I. What should our school's philosophy be?

We believe that education should be education for life. It should be experience-centered since we learn by doing. The educational program should train the student in the physical, mental, moral, spiritual, emotional, and social phases of life.

We believe that we should strive toward the discovery and full development of all the humane and constructive talents of each individual.

We believe that the attainment of social adjustment and emotional maturity are as important as factual knowledge. Therefore, the educational program should provide adequate opportunities for emotional and social growth.

II. What should be the depth of our educational program?

The curriculum committee, in view of the findings of our questionnaire, expresses the strong desire of the citizens of the community that the educational program shall extend from the first grade through the 12th grade as is at present.

However, 60 per cent of the citizens were in favor of some provision for a period of adjust-

ment before regular training starts such as might be provided by a kindergarten.

At present there seems to be no interest in an adult education program after school hours. This lack of interest may or may not be due to inadequate information about the program. At any rate 55 per cent were opposed to such.

III. How broad should our educational program be?

The breadth of the program refers to the extent to which the various types of educational needs are provided for. We will consider those needs under the headings of vocational, academic, life problems, creative arts, physical and extra-curricular education.

Approximately 500 questionnaires were sent to parents and high school students to determine attitudes toward their educational program. Almost 100 per cent of these were returned. A questionnaire was also sent to 7th and 8th grade pupils. Approximately 130 were sent and 126 returned.

The results of these questionnaires were tabulated, estimated in percentages, and are the basis of these statements.

A. Vocational Education

Planning a curriculum around the vocational fields has already become a generally ac-

cepted practice at the secondary level, particularly in the agricultural or industrial communities. Almost 90 per cent of the parents and students questioned felt that there should be an adequate vocational program for those who will not go to college.

Our community is predominantly agricultural. In our group of seventh and eighth graders, for example, the parents of 70 of the students are farmers. Fifteen are laborers--skilled and unskilled, and seventeen are of miscellaneous occupation. Fourteen per cent of the 7th and 8th graders plan to go to college after graduation. Sixty per cent plan to go to work and the remainder to trade school, into service, or are uncertain.

Of these pupils almost 73 per cent have decided what occupations they would like to enter when they grow up. Thirty-three per cent hope to enter the business world; 33 per cent wish to become farmers; 22 per cent intend to enter such professions as medicine, teaching, or engineering; 2 per cent hope to become housewives, and 7 per cent wish to enter miscellaneous fields.

These ambitions, while necessarily uncertain,

would indicate the various fields for which there would be a demand. We also suggest that there might be a need for vocational guidance to care for those who are undecided or to assist those who have some idea of their future plans.

B. Academic Education

This field includes such areas as foreign language, mathematics, science, social science, and English. Most of the required courses for college entrance would be in this field, and such courses as are generally considered the fundamentals in general education are certainly included.

Seventy per cent of those questioned are in favor of maintaining an adequate basic program for college entrance. Despite the fact that only 14 per cent stated plans for entering college, and this figure is a fairly normal percentage in any community, there continues to be a strong interest in maintaining the standards of our schools on a level acceptable to college entrance boards.

That our schools might carry out their functions, adequate library and audio-visual aids materials should be provided. Eighty-eight per cent of the citizens favored adequate library facilities in all schools.

Only 32 per cent of the 7th and 8th graders felt that the grade school libraries offer sufficient reading material, both leisure and reference, at present.

Eighty-six per cent are in favor of audio-visual aids materials including radio, phonograph, and movies, in the school.

C. Life Problem Experiences

The citizens of Unit 4 indicated a fairly strong interest in having our school provide life problem experiences. Ninety-four per cent favored instruction in such real life problems as driving an automobile, budgeting an income, or buying life insurance. Seventy-six per cent are in favor of instruction in family living problems such as buying food and clothing, wholesome courship, marriage, family rearing, etc.

Well over 85 per cent of the people feel that our students should be provided with help in understanding the rights and duties of citizenship in our country and in developing sound ethical and moral values."[1]

From the general philosophy of our schools, as now

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1. Citizen Survey Committee: Ibid.; pp. 28-30.

established by the Citizens Survey Committee, it is important that specific objectives be established. It is suggested that these objectives should follow those accepted in most of the present schools. These objectives are the outgrowth of many years of experience.

Many industrial arts educators have set up objectives which they feel are good for this grade level. Probably the best summation of these objectives can be found in the bulletin No. 140 as published by the State of Illinois Board of Vocational Education entitled "Industrial Arts in Grades 7 and 8". They are stated thus:

1. Develop Orderly Procedure
   a. Know the limitations and capacities of themselves and of the tools and materials
   b. Develop and use self-discipline
   c. Appreciate and use pre-planning
   d. Follow directions

2. Recognize Good Design and Good Workmanship
   a. Develop an appreciation of the aesthetic
   b. Develop a creative ability
   c. Develop an understanding of functional construction
   d. Develop an appreciation of final detail finishing

3. Acquire Safe Practices and Procedures
   a. Recognize and practice safety procedures
   b. Acquire orderly habits
   c. Develop a concern for the safety of others

4. Develop an Understanding of Representative Tools, Materials and Processes of Industry
   a. Use and care for tools properly
   b. Develop an understanding of how common goods are made, transported and distributed
   c. Realize the occupational opportunities afforded by the various fields of industries
   d. Become familiar with the characteristics of various materials

5. Work Effectively and Pleasantly with Others

   a. Develop a willingness to share responsibilities
   b. Develop a willingness to share equipment and supplies
   c. Develop a pleasing personality

6. Develop Elementary Skill in the Use of Tools and Materials

   a. Use tools correctly
   b. Develop accuracy in using tools
   c. Develop accuracy in performing processes upon materials

7. Develop Initiative and Resourcefulness in Recognizing and Solving Common Problems

   a. Develop the ability to think and plan for oneself
   b. Develop the habit of critical analysis of one's thinking
   c. Develop the curiosity to explore

8. Make Worthy Use of Leisure Time

   a. Engage in a hobby
   b. Participate in home services

With our philosophy established and our objectives in mind, we come to the point where we must answer the question "What shall we teach?" In the past, when it cam time to establish a seventh and eighth grade program, it seemed the policy to shove some of the over-crowded high school programs down to the grades. Thus, we find such subjects as mechanical drafting, cabinet-making and others appearing as subject areas. Today, however, we realize that this situation is not good. We do believe that there exists a number of craft areas which are appropriate for the seventh and eighth grade levels. Some of these areas are: woodcraft, keene cement craft, metal craft, plastic craft, sketching and planning, leather craft, basketry, and model building.

It is suggested that Community Unit #4 adopt a plan whereby there would be a grouping of the seventh and eighth grades together for the first year, and providing instruction in four areas for a period of nine weeks each. Thus, the school year would be:

Sketching and planning integrated in all areas

Woodcraft--first nine weeks

Keene cement craft--second nine weeks

Basketry--third nine weeks

Model Building--fourth nine weeks

Now, the seventh grade student has received training in four areas. In the second year, or now that the seventh grader is an eighth grader, four other areas are given. In this way, with the exception of the first class, all pupils receive training in eight areas.

The second school year schedule would look thus:

Sketching and planning integrated in all areas

Metal craft--first nine weeks

Leather craft--second nine weeks

Electricity--third nine weeks

Plastics--fourth nine weeks

The above schedule can be effective only if the time allotted is three one-hour class periods per week. If the time allotment should be less than three one-hour periods per week, it is suggested that the number of areas offered should be cut down accordingly.

It is to be noted here that a class in home mechanics

as a special area has not been included, as was suggested by the community survey. It is felt that the desired learnings in this area can best be integrated into the areas of metal craft, woodcraft, and electricity.

With the areas now chosen, it is suggested that time should be provided for the writing of a course syllabus for each of the areas. The writing of such syllabi should be done by the instructor prior to the beginning of each nine weeks period. Thus, the instructor knows where he is going and the children have something with which to start their learning situation on the very first day.

In view of the fact that there is no existing shop to house this program, it is important that we should stop at this point to consider what space and equipment will be necessary to carry out the program we have planned. Let us first consider the equipment needed and then provide the space to house this equipment. We are lucky in Unit District #4 to be able to pre-plan our program and equipment and then think of the space. In many school systems where buildings already exist, the problem becomes "What can we provide with the space we now have available?" rather than "What should we provide for a well-rounded program?"

In the areas which we have suggested for this program, we will find upon close examination a wide overlapping of tool usage. For example, most of the tools used in wood craft can also be used in plastics. For this reason, it is suggested that a multiple-purpose type work station be pro-

vided. Such a work station provides four working stations with all the commonly used craft tools included in a convenient storage space within the bench. Six such tables would provide tools and working stations for twenty-four students. For a class of twenty or more, two jig-saws should be provided. These machines have a wide use in many crafts. For this reason, they should be of a sturdy make and be of the twenty-four-inch size.

It is suggested that two buffing machines be provided for use in the plastics and art metal areas. These could well be of the bench variety and should have a speed of 1750 RPM.

A fifteen-inch table model drill press should be provided. The drill press is a multiple-purpose tool with a wide range of uses. It is highly valuable as a maintenance machine for the shop teacher. It also could be used as a third buffer to relieve the over-crowding of the two buffing machines.

A table saw is extremely valuable to the instructor in the getting out of stock for the students' use. This machine would only be used by the instructor and not by the students at this age level. Its aid to the instructor and the time saved by its use more than justify its place in the craft shop. The eight-inch diameter saw should be sufficient.

A bench grinder should be provided for the sharpening of handtools such as plane irons, chisels, drill bits, etc. A dual-arbor grinder with tool rests and eye shields should be selected.

A number of small handtools of a special nature which are peculiar to each craft would need to be selected; in addition, a tool cabinet must be provided.

Storage is a big problem--both the storage of supplies and materials and the storage of student projects. A storage supply room is desirable for the many consumable supplies. Lockers should be provided for student projects. These could well be of the metal variety with compartments measuring 12" x 12" x 16".

Washing facilities sufficient to handle twenty-four students in the short time given at the close of each class period should be provided.

These are a few of the more space consuming furnishings of the well-equipped craft shop. Thus, we can see that space must be supplied to take care of all these tools and furnishings. It is suggested in the bulletin, "School Shop Planning", published by the Illinois State Board of Vocational Education, that from fifty to seventy-four square feet of floor space per student plus auxiliary areas of storage and planning rooms be provided.

Through a little simple arithmetic we find that the space needed to house our program would be between 1200 square feet and 1800 square feet. Thus, an area of 30 feet by 45 feet for the main shop area should be suitable.

The above outlined program, plus the desired equipment and space, will provide the future students with meaningful learning experiences and will more than justify themselves in the molding of better citizens for our community.

Industrial arts in high school. The industrial arts program offered to the pupils of Community Unit School District #4 by the Paris High School is of the standard variety for a rural agricultural center. This program is planned to offer the student three years of industrial arts work. The first year, Industrial Arts I, offers instruction in four areas. Each of these areas is on nine weeks duration. Under this first year's work, the student develops an understanding of the basic tools and acquires a measure of skill in fields of woodworking, electricity, metal work, and mechanical drawing.

The second year's work (Industrial Arts II) is of a more advanced nature with the use of the common power tools being introduced. Here, advanced training in the four areas started in the freshman year is given.

Industrial Arts III is offered as a third year's work to those who have completed the first two years of industrial arts and show aptitude and a desire to continue with industrial arts training. Here, the student is encouraged to make a large project in the areas of wood or metal. In some cases where it is advisable, the project may contain both wood and metal.

In addition to this, a third year of mechanical drawing is offered to those who desire it.

This program is well planned and supervised. It is somewhat limited in the number of areas for instruction. Other fields such as auto mechanics and graphic arts would

be desirable. Space and equipment are probably holding back expansion of the program.

In summary of the existing high school program, it can be said that it is satisfactory but leaves much to be desired because of the problem of space.

Vocational education in the high school. Vocational education is offered in the form of "distributive occupation classes" in the commercial fields, but it is not being offered in the industrial arts field. In a questionnaire sent to the parents of the fifth, sixth, seventh, and eighth grades, it was shown that eighty-four people out of one hundred and twenty desired their children to have vocational education. The remaining thirty-six people voiced the feeling of uncertainty which is probably due to the lack of understanding of the true meaning of vocational education.

As desirable as vocational education is, the lack of adequate space makes such a program impossible for the Paris High School to offer. Perhaps, future development involving a building program to enlarge existing shop conditions will allow the desirable vocational education program to be offered to the students of Unit #4.

CHAPTER V

GENERAL CONCLUSION

With the foregoing information in mind, we are able to reach a few conclusions. First of all, the results of the survey made of the people in Unit #4 indicate a definite need and desire for an industrial arts program in the schools. This is a very interesting indication, for there are at present no facilities to provide this training. It is reasonable to conclude, then, that the people are going to make a serious effort to provide the needed buildings. The Citizens Survey Committee has suggested the following building plans:

"It is suggested that an attendance center, housing grades one through eight, be constructed. Creation of an eight-year elementary center should be planned for a peak load of 660 pupils in the next three years. The elementary attendance center should provide the following facilities:

Classrooms--A minimum of twenty-three classrooms should be provided in the proposed new elementary unit. These rooms should be large enough to carry on a modern elementary educational program.

Science--A room furnished as a general science room should be provided.

Home Economics--A home economics room to provide exploratory experiences in homemaking for seventh and eighth graders should be provided.

Industrial Arts--A shop to provide exploratory experiences in woodworking and home appliance repairing for seventh and eighth graders should be provided."[1]

The administration of Unit #4 has adopted this suggestion and is proceeding in this direction.

In the proposed building, as drawn by the architect hired by the Board of Education, there is adequate space provided for an industrial arts shop. Thus, it can be concluded that the future will see a building program and that industrial arts will be provided as part of the general education program.

The program outlined in Chapter IV will provide the desired learning situations for a well-rounded industrial arts program.

Unit #4 should have a program to be proud of, for it has all the desired qualities. A new building program, a preplanned program, an interested and trained instructor, and a sympathetic administration will make a sound educational program befitting the needs of future citizens of the community.

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1. Citizen Survey Committee: Ibid.; pp. 32-33.

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