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A study of the extent to which girls were included in industrial arts in grades seven through twelve in the state of Iowa

Walter Haynes
Iowa State Teachers College

A STUDY OF THE EXTENT TO WHICH GIRLS WERE INCLUDED IN INDUSTRIAL ARTS IN GRADES SEVEN THROUGH TWELVE IN THE STATE OF IOWA

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Walter Haynes

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has been approved as meeting the thesis requirement for the Degree of Master of Arts in Education.

Malcolm Price

Chairman, Thesis Committee

Howard O. Reed

Member, Thesis Committee

Gordon J. Rhum

Member, Thesis Committee

M. J. Nelson

Chairman, Graduate Council

May 28, 1958
Date

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

I. THE PROBLEM

Statement of the problem. The purpose of this study was to determine the extent to which girls were included in industrial arts in grades seven through twelve in the state of Iowa.

Importance of the study. Society is becoming more industrial and it is the concern of general education to provide a program which will aid in the understanding of this condition. Industrial arts, by definition, should contribute to the appreciation of a mechanized environment. Therefore, inasmuch as industrial arts is a part of general education, all children should be given the opportunity to benefit from instruction in industrial arts. The idea of girls being included in industrial arts programs was presented by Schmidt:

> If we believe that general education is essential for girls as well as for boys then we must in turn admit that industrial arts, being general education, is as good or worthwhile for girls as it is for boys.[1]

The role of industrial arts in education is becoming more important to the pupil because of the tremendous rate at

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[1] F. S. Schmidt, "A Point of View," Industrial Arts and Vocational Education, 27:227, June, 1938.

which science, industry, and travel are progressing. Many of the advances in the world are of a technological nature and a background of like information must be built up to enable the individual to keep pace with our changing environment. If a student does not understand these changes and their implications, his appreciation of them and his responsibility for them will be necessarily less. Therefore, industrial arts provides the natural channels for learning about materials, their technology and application. The young people of this rapidly changing world need broader areas of learning and more practical information to cope with the increasingly complex problems confronting them than they have ever needed before. Industrial arts can give these problems scope and meaning by application of a practical course of action.

With conditions around us becoming more mechanized and technical, girls should be given an opportunity to develop their abilities in such areas as home mechanics, home planning, and consumer buying. They also need to develop leisure time activities which arts and crafts can offer.

This study could be valuable to administrators, school board members, and industrial arts instructors in helping them to evaluate their own programs or in setting

up new ones. Some of the answers to the problems presented are not final and it is hoped the study will lend impetus to further research in industrial arts for girls.

II. DEFINITIONS OF TERMS USED

Industrial arts. By "industrial arts" is meant:

> ...instructional shopwork which provides for all youth sound educational experiences that contribute to the satisfaction of their purposes, needs and wants.
>
> It is an integral part of the general education program of all youth. It offers those learning experiences which assist boys and girls to understand the industrial and technical aspects of life today. It is a curriculum area that makes a realistic contribution to life adjustment education. It shares with other areas of the school, the responsibility for promoting the optimum development of the good citizen.[2]

General education. The term "general education" is to be interpreted as:

> ...a broad type of education aimed at developing attitudes, abilities, and behavior considered desirable by society but not necessarily preparing the learner for specific types of vocational or avocational pursuit.[3]

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[2]Industrial Arts Policy and Planning Committee, A Statement of the Place and Function of Industrial Arts In Education (Washington: American Vocational Association, 1955), p. 3.

[3]Carter V. Good, Dictionary of Education (New York: McGraw-Hill Book Company, Inc., 1945), p. 183.

Home mechanics. The objectives of "home mechanics" are:

> To give consumer knowledge about the selection and efficient use of the products of industry that are a part of home living.
>
> To develop handy-man abilities with the ordinary hand tools and a variety of construction materials.[4]

Exchange program. The term "exchange program" is to be interpreted as a program in which industrial arts and one or more areas of instruction, such as home economics, art, typing, and the like were rotated and shared on an equal basis with the boys.

Unit plan. The term "unit plan" will be used to designate those programs where industrial arts for girls was a portion of another course.

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[4] William H. Johnson, and Louis V. Newkirk, Home Mechanics (New York: The Macmillan Company, 1947), p. v.

CHAPTER II

THE METHOD OF PROCEDURE

Introduction. An exhaustive search of the literature pertaining to girls in industrial arts was the initial step in this study. Material relative to girls in industrial arts was not abundant, but enough was found to furnish a background of information for the study. This material will be reviewed in Chapter III, Review of Related Literature.

Method used. The questionnaire technique was used in this study because a large number of respondents could be surveyed over a wide geographical area.[1] The questionnaire also furnished a basis for the tabulation of the answers. These are discussed in Chapter IV, Presentation of the Findings.

Construction of the questionnaire. A tentative questionnaire was constructed from items suggested by an examination of the available literature. An analysis of the problem revealed that answers were needed for the

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[1]Carter V. Good, A. S. Barr, and Douglas E. Scates, *The Methodology of Educational Research* (New York: Appleton-Century-Crofts, Inc., 1941), p. 295.

following questions.[2]

1. To what extent were girls included in industrial arts programs?

2. Could industrial arts facilities be utilized more fully by the inclusion of girls?

3. What was being accomplished for girls in industrial arts?

4. How was the program being implemented?

5. How were girls being included in the program?

6. What were some criticisms of, and suggestions for, a course of study for girls?

7. What were the opinions and attitudes of industrial arts teachers toward girls in industrial arts?

8. Were exchange programs being used to present industrial arts to girls?

9. What were the future plans for girls in industrial arts?

Care was used to make the questions as easily understood as possible. Space was provided following each item for comments. Most of the items were constructed so that they could be answered by a check mark, by inserting a

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[2]Ibid., pp. 337-343.

number or numbers, by encircling a number or word, or by writing in a short answer. A few sample forms were sent to industrial arts teachers for suggestions. As a result of these suggestions, the questionnaire was again revised. This form was presented to Dr. Tom A. Lamke, Coordinator of Research at Iowa State Teachers College, for criticisms and suggestions. At his suggestion, it was decided to rearrange the questionnaire and to include a letter of transmittal. With this arrangement, any respondent not offering industrial arts to girls needed to answer only the first three questions. A copy of the questionnaire appears in Appendix A.

The sampling procedure. A list of schools offering industrial arts was compiled by using the Iowa Educational Directory.[3] As the list included over 500 schools, it was decided to employ a sample. The schools were divided into four enrollment groups as follows: 1-49 students, 50-100 students, 101-400 students, and 401 students or more. The group with an enrollment of 49 or less, comprising about 90 schools, was dropped because with the small number of students it would be difficult to offer a desirable industrial arts program.

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[3]Superintendent of Public Instruction, Iowa Educational Directory, School Year, 1955-1956 (Des Moines, Iowa: Department of Public Instruction, 1955) pp. 1-212.

To further limit the sample and hold the number of respondents to a more workable size, one-half of the remaining 406 schools were surveyed. To determine which schools would be included in the sample each school was assigned a number, and a table of random numbers was used to select one-half of the schools in each enrollment group. The questionnaire, appearing in Appendix A, was mailed April 21, 1956, to the industrial arts teacher at each school. May 22, 1956, a post card reminder, see Appendix B, was mailed to the teachers from whom no reply had been received. After that date, eighteen more questionnaires were returned for a total of 170 or 84 per cent of the 203 questionnaires mailed.

The number of schools in each group and the per cent of questionnaires returned can be determined from Table I, page 25. A map locating the schools which offered industrial arts to girls and those schools which were planning future programs will be found in Appendix C. Appendixes D, E, and F contain the lists of schools to which questionnaires were mailed.

The remainder of the thesis is arranged as follows: Chapter III, Review of Related Literature, Chapter IV, Presentation of the Findings, and Chapter V, The Summary, Conclusions, and Recommendations.

CHAPTER III

REVIEW OF RELATED LITERATURE

In checking for sources of information, the writer experienced difficulty in finding articles and direct references pertaining particularly to girls in industrial arts. There were a number of articles each year on industrial arts in general wherein the authors mentioned that industrial arts was appropriate for all children, but no specific mention of its implication for girls was made. Many authors suggested that general education should include industrial arts to make it a more completely rounded program.

There were more current articles on the inclusion of girls in industrial arts in the elementary school than in high school. This could be a desirable trend because the girls would be exposed to industrial arts early and might want to participate further in high school. They should have fewer fears of their abilities, as compared with those of the boys, because they would have worked together all the way.

The idea of girls in industrial arts in the secondary school was expressed as early as 1885 when the Scott Manual Training School at Toledo, Ohio, offered a course

for girls.[1] This was one of the earliest attempts discovered by the writer to include girls in industrial arts in the high school. At almost the same time Boston and New York City were two of the first cities to try industrial arts in the elementary curriculum. In Boston there was the feeling that industrial arts should give practical instruction.

> ...one finds the early motive behind the teaching of manual training in the elementary schools of Boston; for unquestionably, in most places, the practical or social motive preceded the pedagogical or strictly educational motive in the elementary as well as the secondary schools.[2]

The practical aspects of industrial arts were gaining favor so that about 1885 the feeling in New York was that:

> ...because sewing, cooking, and woodworking instruction were unquestionably beneficial to the few boys and girls who came to privately supported classes, there was reason to believe that it would be beneficial to all boys and girls if made a part of public school instruction.[3]

Most of the early industrial arts courses for girls were quite limited and consisted mainly of drawing.

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[1]Charles A. Bennett, History of Manual and Industrial Education 1870-1917 (Peoria: Charles A. Bennett Co., Inc., 1937), p. 376.

[2]Ibid., p. 411.

[3]Ibid., p. 411.

Some schools began offering limited woodworking programs for girls in increasing amounts until the late 1920's. About then the literature indicates that the idea of girls in industrial arts began to increase in favor. Preston noted various high schools offering industrial arts for girls as early as 1927. These included Chicago, Illinois, some time prior to 1927; Muncie, Indiana, 1929; and Lawrence and Wichita, Kansas, 1932. The number of girls involved was not given, but all were in home mechanics classes.[4]

Newkirk, in a study of 75 schools offering home mechanics in 1932, found that grades seven through nine accounted for 90 per cent of the girls involved and that the course was required in 64 per cent of the cases.[5] He presented a select list of 72 home mechanics jobs which he found to be important, based on four criteria. These criteria were social utility, content of 75 courses of study, analysis of Tustison and Bedell's job sheets, and a selection of a class of jobs rather than a single job.[6]

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[4]Harold S. Preston, "Instruction in Home Mechanics and Maintenance for Girls in the Industrial Arts Shop," Industrial Education Magazine, 39:32, January, 1937.

[5]Louis V. Newkirk, "Validating and Testing Home Mechanics Content," University of Iowa Studies in Education (Iowa City, Iowa: Published by the University, 1931), p. 5.

[6]Ibid., p. 7.

Korn, in 1932, indicated that some 4446 girls were taking industrial arts in 70 different schools throughout the Midwest.[7] In his study he found that only 27 per cent of the girls were in classes by themselves and that almost 73 per cent were in classes with boys.[8] He reported that home mechanics accounted for 31 per cent of the total courses offered.[9] Mechanical, freehand, architectural, and landscape drawing accounted for over 45 per cent of the types of work done in frequency of operation.[10] St. Paul, Minnesota, apparently had a well-organized course of industrial arts for girls by 1937. This was described in an article by Harnsberger as a program consisting mostly of woodworking for 48 eleventh and twelfth grade girls, enrolled in two classes.[11]

Proffitt indicated a reason for girls taking industrial arts when he wrote, "The nature of industrial arts makes a universal appeal, not limited by age, sex, race,

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[7]Charles E. Korn, "Industrial Arts for Girls in Secondary Schools in the Middle West" (Unpublished Master's thesis, Iowa State College, Ames, Iowa, 1932), p. 23.

[8]Ibid., p. 22. [9]Ibid., p. 16 [10]Ibid., p. 17.

[11]L. H. Harnsberger, "Girls and Their Education," Industrial Arts and Vocational Education, 26:335, October, 1937.

intelligence or aptitude."[12] Could this be reason enough, then, for setting up a course to include girls, or are there still other valid reasons?

Many writers believed girls should be included in industrial arts but did not give any substantial reasons. One of the exceptions was Arthur W. Earl who advanced the idea of the integration of industrial arts with other subjects and went on to state:

> Industrial arts should be offered to girls as well as to boys, for we are educating the entire 100 per cent and not just a limited few, to live a full life.[13]

This same view was furthered by Flaster when he wrote of the problems in mixed classes and concluded that the real problems were not due to social difficulties but rather to the varying amounts of ability and background. He advanced the idea that:

In general the objectives for both sexes are similar

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[12]Maris M. Proffitt, Industrial Arts Its Interpretation in American Schools, United States Department of the Interior, (Washington: Government Printing Office, 1937), p. 5.

[13]Arthur W. Earl, "Industrial Arts for Every Child in the Elementary School," Nation's Schools, 47:66, May, 1951.

> and the addition of shopwork to their curriculum would give them a fuller education.... All students should be permitted to take shop.[14]

Duncan advocated co-educational industrial arts and home economics because she pointed out that boys and girls are going to be living together and therefore should not be separated in these classes. She also maintained that girls need industrial arts for the knowledge of crafts, minor repairs, and the leisure time activities they can learn.[15]

Magill, in an article about shopwork in vocational education, stated:

> Most of the values are as appropriate to girls as to boys; hence, to that extent, shopwork should be made available to girls. A required course in household mechanics, automobile operation and maintenance, and consumer education should be given to all pupils in regular school periods.[16]

This presents the idea that girls need those activities

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[14]Harry Flaster, "Girls in Shop," High Points, 26:71, April, 1944.

[15]Aubrey Duncan, "Shall we Teach Co-Educational Home Economics and Industrial Arts?" Wisconsin Journal of Education, 86:8, December, 1953.

[16]Walter H. Magill, Administering Vocational Education, (Minneapolis, Minn., Education Publishers Inc., 1941). p. 7.

and learning values which are included in the industrial arts program.

Wolfe agreed and while being critical of some things, such as girls being overly cautious and afraid of getting soiled, did admit that industrial arts filled a need in education when he wrote:

> I sincerely feel that the course had an intrinsic value to the students in their general education experiences which could not have been obtained anywhere else.[17]

Browne expressed similar feelings in an article relating her experiences in industrial arts while taking some work to renew her teaching certificate. She wrote:

> I can't help but feel a little resentful toward the high school from which I graduated when I think that it gave me no opportunity to "find myself" in those earlier years....[18]

An article directed toward the college level, by Williams, advocated a need for more industrial arts for high school girls who, he felt, were lacking in hand skills when they

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[17]Jacob H. Wolfe, "An Analysis of Girls Taking Graphic Arts," Industrial Arts and Vocational Education, 41:33, December, 1952.

[18]Marion B. Browne, "What Industrial Arts Has Meant To Me," Industrial Education Magazine, 40:191, November, 1938.

got out of high school.[19]

While admitting that girls need industrial arts, as indicated by the literature, does it necessarily mean that girls will be able to acclimate themselves to the curriculum or even want to elect the subject? Leavitt indicated that they will by the following statements:

> Girls enjoy shop activities as much as boys do.... All races, colors, and creeds work together in perfect unity. Everyone helps his neighbor and assistance is never refused a fellow worker. This makes for democracy in the school.[20]

He went on to mention that girls did as well in many things as boys.[21] This same idea is advanced by Hortin in explaining a six-weeks' program where industrial arts and home economics classes were exchanged. He stated that girls enjoyed their shop work very much and seemed to derive a great deal from it.[22]

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[19]A. O. Williams, and R. O. Wagener, "Co-Educational Arts and Crafts," Industrial Arts and Vocational Education, 40:5, January, 1951.

[20]Jerome Leavitt, "Children Need Industrial Arts," Nation's Schools, 35:20, January, 1945.

[21]Ibid., p. 21.

[22]D. W. Hortin, "Where Boys Cook and Girls Do Woodworking," American Teacher, 35:11, November, 1950.

Proffitt felt much the same way when he wrote, "Girls crave and need experience with the shop tools and materials."[23] An article written during World War II, by Dewey, indicated that personal security could be one of the gains from industrial arts:

> Such courses should afford to every pupil, boy or girl, the greater security in his environment which comes from at least a minimum of appreciation and knowledge of machines, materials and manipulative processes and from skill in their control.[24]

If the girls do enjoy industrial arts and are able to gain something from it, is there any evidence as to what they actually do gain, educationally speaking? Industrial arts can and should be an educational experience as indicated by Nihart when he maintained that industrial arts was good for all youth and that through it motivation of reading and related hand work was facilitated.[25]

Hazen wrote of an experiment in the Santa Barbara schools where the print shop was used as a substitute for English and social studies for all ninth grade students.

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[23]Proffitt, op. cit., p. 97.

[24]Charles S. Dewey, "Industrial Arts: Its Contributions to the Morale of Secondary-School Youth," School Review, 51:335, June, 1943.

[25]C. E. Nihart, "Industrial Arts in the Elementary School," American School Board Journal, 125:34, September, 1952.

He felt the shop activities stimulated learning in the other two subjects and gave more meaning to each of them for all of the students.[26] Browne declared that industrial arts opened a whole new field to her. She maintained that all youth should be allowed to explore and felt that there was no better place than the industrial arts shops. She believed that without industrial arts the school was depriving the youngster of something he could get nowhere else. The values of activity and the opportunity to be constructive as well as creative were embodied in her ideas.[27]

These, then, are other phases of child development which industrial arts can promote. Preston indicated this in his writings:

> ...there are many times in the lives of girls and women when they appreciate and wish they had the ability to do certain things with tools and mechanical appliances that are usually done by the boys and men of the family.[28]

Glick and Bonsey described an industrial arts and home economics exchange program in Hawaii, which the girls seemed to enjoy very much. They went on to say: "The girls,

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[26]Myron A. Hesse, "Shop Activities Initiate Social-Science Learning," Industrial Education Magazine, 40:193, November, 1938.

[27]Browne, op. cit., p. 193.

[28]Preston, op. cit., p. 34.

likewise, learned to appreciate man's manual contribution to the home."[29] While the manual part must not be overdone, Proffitt pointed out that it was important and that it also led to the other areas mentioned:

> Experience shows that many girls do not confine their manipulative activities and their interests in the study of industrial products and services to things of the home, but are eager to express themselves through a variety of material media included in industrial arts work.[30]

This statement brings out another area, home mechanics, which probably can best be offered as an area in industrial arts. Many writers felt that this area was important enough to justify inclusion of girls in industrial arts.

According to the National Association of Manufacturers, women influence 85 per cent of the consumer buying.[31] As this would involve articles in the home, girls should be taught the correct use of as many of the objects of the home as possible. This idea was upheld by Proffitt when he

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[29]Dorthy R. Glick, and Hannah E. Bonsey, "In the Territory of Hawaii," Practical Home Economics, 22:420, October, 1944.

[30]Proffitt, op. cit., p. 48.

[31]The National Association of Manufacturers, "Never Underestimate the Power...." The Waterloo Daily Courier, March 12, 1957, p. 9.

gave reasons why girls should have household mechanics:

> Girls and women in their work in the home use as many, if not more, of the mechanical products of industry than the men. Not only do they usually buy them but they also are responsible for their proper use, care and repairs.[32]

Hernsberger maintained the same idea in a statement relating to industrial arts objectives:

> The primary object of the course is to teach the girls to be better homemakers.... The upkeep of a home makes many demands, and with the knowledge gained from this course, these girls are better fitted to supervise, if not to actually do the work themselves.[33]

While Hall felt that home experiences were important, he also brought in another factor when he wrote:

> The interests of girls in shop work are different from those of boys, in that the experiences of girls should enable them to become more effective in the modern home.[34]

This would seem important with our growing technological advances. Most of the references indicated that this is one of the main reasons for industrial arts. The writers

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[32]Proffitt, op. cit., p. 100.

[33]Hernsberger, op. cit., p. 335.

[34]Samuel F. Hall, "Practical Mechanics for Girls," Industrial Education Magazine, 38:159, May, 1936.

mentioned that planning and drawing, and household mechanics seemed to be the most worthwhile areas for girls. Harris included five units in a course set up for girls. These were drawing and sketching, design and refinishing of furniture, household mechanical appliances, various projects of wood and metal, and problems of planning and building a house.[35] He concluded that "girls are receiving some industrial arts training, but only a beginning has been made in this field."[36] Preston stated that home mechanics and maintenance were important and offered the content for a course similar to the one set up by Harris.[37] Proffitt summed this up very well:

> The great increase in commercially manufactured products is depriving boys and girls of the opportunity to create and manufacture articles for their own use, and at the same time it is crowding into their lives a vast number of mechanical contrivances and products which must be selected and used with intelligence.[38]

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[35] F. H. Harris, "An Industrial Arts Course for Girls," Industrial Arts and Vocational Education, 30:43, February, 1941.

[36] Ibid., p. 44.

[37] Preston, op. cit., p. 34.

[38] Proffitt, op. cit., p. 97.

Another factor which was brought out by many of the writers was that offering industrial arts to girls should be a wide open field of service. Preston maintained that this is a good way to serve the community.[39] Harris concluded his article with much the same idea:

> This is an unexplored field of education; [sic] the potentialities of which are yet unfathomed, inviting the careful study of schoolmen and challenging the industrial-arts teachers to meet the needs of our modern social and economic order.[40]

The above statement includes the main purpose of this study. The reasons and opinions related in the literature surveyed should enable the reader to see how industrial arts can help girls in their everyday living. It is hoped that this chapter has laid a groundwork of ideas for this study.

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[39] Preston, op. cit., p. 34.

[40] Harris, op. cit., p. 44.

CHAPTER IV

PRESENTATION OF THE FINDINGS

The purpose of this chapter is to present the findings of the study regarding what was being done in the public schools of Iowa in the area of industrial arts for girls. A copy of the questionnaire appears in Appendix A, and the present discussion will follow the sequence of questions in the questionnaire. A number of respondents did not answer some of the questions completely, omitted one or more, or gave multiple answers so that in a few cases the totals may appear to be incorrect. These questionnaires were used even though some of the responses could not be included in the tabulations.

The method of procedure was explained in Chapter II. For clarity in referring to the various enrollment groups, each was assigned a letter. Those schools with an enrollment of 50 to 100 pupils in grades nine through twelve have been designated as Group A. Group B includes those schools with an enrollment of 101 to 400 pupils, while the schools with 401 or more pupils constitutes Group C.

The data will usually be given in the actual numbers asked for in the question; when percentages are employed they will be rounded to the nearest whole number.

A total of 203 questionnaires were mailed and 170 usable questionnaires were received for an 84 per cent return. As shown in Table I, the various enrollment groups followed about the same pattern: Group A returned 76 questionnaires or 84 per cent, Group B returned 75 questionnaires or 83 per cent, and Group C returned 19 or 83 per cent.

Five respondents stated that industrial arts had been offered to girls in previous years but gave no other information. In two schools girls were welcome to take any industrial arts course offered to the boys, but no mention was made of girls participating in any classes. Fourteen respondents stated that girls could not be included in the industrial arts program because of lack of facilities or scheduling difficulties.

How girls were offered industrial arts. To determine how many schools offered industrial arts to girls, the following question was asked: "Are girls offered industrial arts, in any grades 7-12 in your school as a course, unit, or on an exchange basis?"

The number and per cent of schools offering industrial arts to girls are presented in Table II. A total of 28, or sixteen per cent of the 170 respondents, indicated

TABLE I

TOTAL NUMBER OF SCHOOLS IN IOWA OFFERING INDUSTRIAL ARTS, NUMBER SURVEYED, AND NUMBER AND PER CENT OF QUESTIONNAIRES RETURNED

Enrollment Group	Total Number of Schools Offering Industrial Arts	Number of Schools Surveyed	Number of Questionnaires Returned	Per cent of Questionnaires Returned
"A" 50-100	180	90	76	84
"B" 101-400	180	90	75	83
"C" 401-up	46	23	19	83
Total	406	203	170	84

TABLE II

NUMBER AND PERCENTAGE OF RESPONDENTS WHO REPORTED THAT THEIR SCHOOLS OFFERED INDUSTRIAL ARTS TO GIRLS

Enrollment Group	Number of Respondents	Number of Respondents Who Offered Industrial Arts to Girls	Per cent of Respondents Who Offered Industrial Arts to Girls
"A" 50-100	76	9	12
"B" 101-400	75	15	20
"C" 401-up	19	4	21
Total	170	28	16

industrial arts was offered in some manner for girls. Group A had 9 schools, for twelve per cent of the respondents offering industrial arts to girls. Group B had 15 schools or twenty per cent, and Group C had 4 schools or twenty-one per cent.

The data for the second part of the question, the manner of scheduling industrial arts for girls, are presented in Figure 1. Since some schools had more than one method, this is shown only as a per cent of the total number of methods. Of the total offerings, 40 per cent were listed as a course, 20 per cent as a unit, and 40 per cent on an exchange basis of some kind. The exchange programs are explained more fully on page 50.

The individual groups differed considerably in the use of the various methods of presenting industrial arts to girls. Group A included the course method 30 per cent of the time, the unit method 10 per cent, and the exchange program 60 per cent of the time. While Group B had the most classes involved, there was less variation than in any of the other groups. The course method was used for 40 per cent of the offerings, while the unit plan comprised 25 per cent, and the exchange program 35 per cent. Group C utilized the course method the most of any of the groups for 60 per cent of its offerings, the unit method

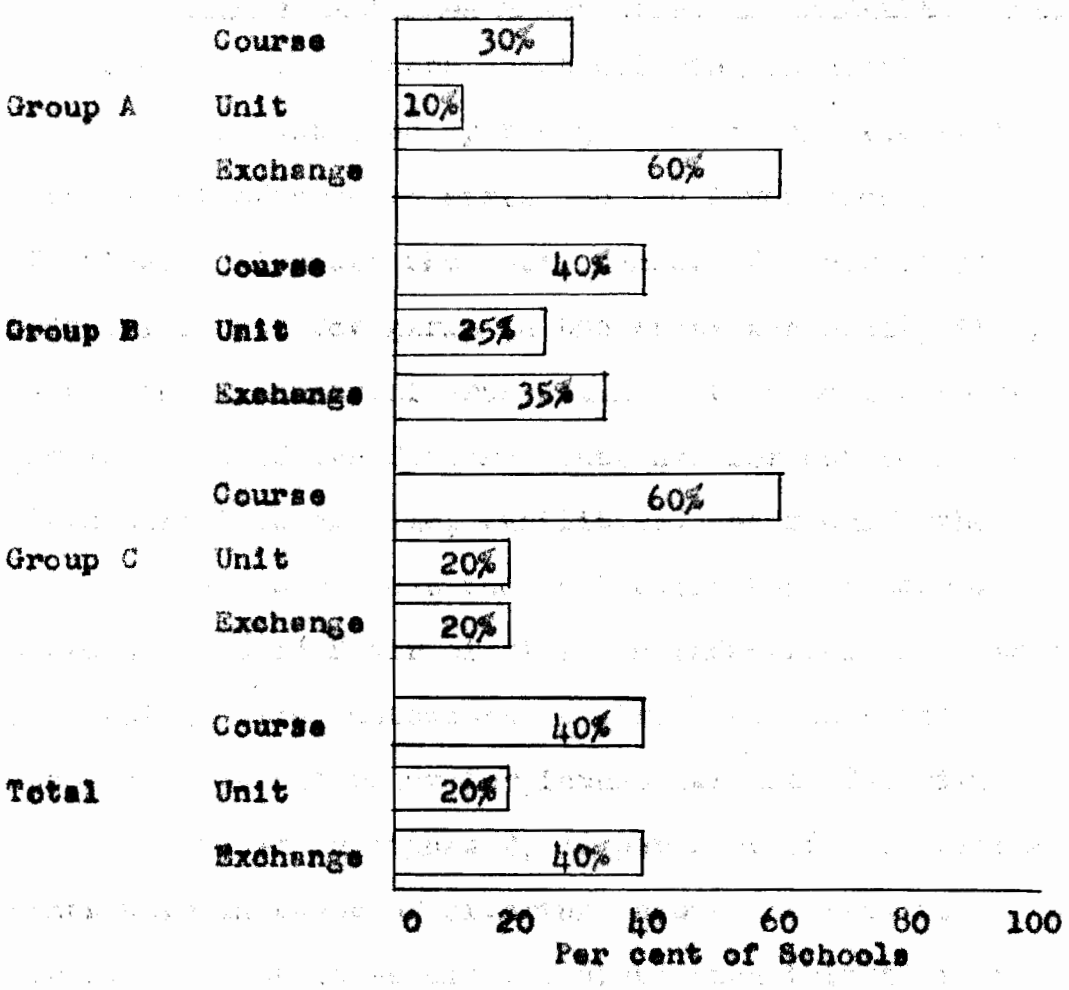

FIGURE 1

A COMPARISON OF THE METHODS OF SCHEDULING INDUSTRIAL ARTS FOR GIRLS

for 20 per cent, and the exchange plan for 20 per cent.

Teachers' opinions about girls in industrial arts. The opinions of teachers about offering industrial arts to girls were obtained by the question: "If industrial arts is not offered to girls, do you favor such an offering?" Although the total number of programs of industrial arts for girls in the state was small, it appeared that industrial arts teachers favored including girls. Some of the factors mentioned for not including girls were lack of time, facilities, and room. Other reasons given were that the administration or school board was not in favor of girls in industrial arts, that such things were "unbecoming a girl," and that the "people" were not ready for industrial arts for girls.

As shown in Figure 2, 80 per cent of the respondents were in favor of offering industrial arts to girls. Some of these did stipulate such things as "to be offered only for one year," "on exchange or part-time basis," "girls only in separate classes," and "at least a crafts course." The various groups followed much the same pattern with Group C being least in favor with only 73 per cent marking "yes." Group B was the highest with 86 per cent in favor of offering industrial

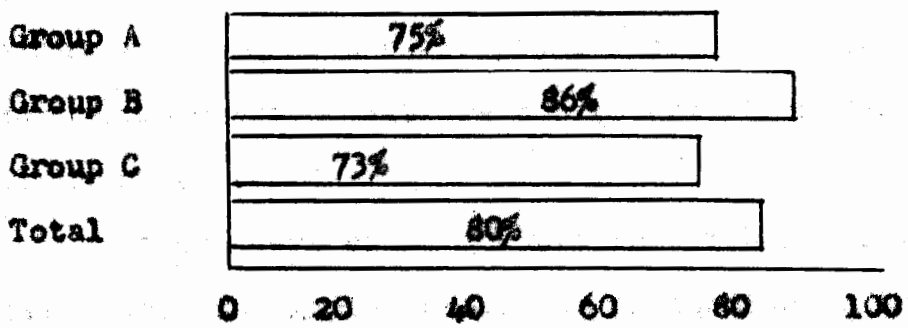

FIGURE 2

PER CENT OF RESPONDENTS WHO FAVORED OFFERING INDUSTRIAL ARTS TO GIRLS BY ENROLLMENT GROUPS AND TOTAL

Note: Not included in Figure 2 were two Group A teachers and one Group B teacher who were undecided.

arts to girls and Group A had 75 per cent marking "yes." Group A included two teachers who were undecided and Group B one.

Future plans for girls in industrial arts. To determine if any plans were being made for girls in industrial arts and what those plans were, the following question was asked: "What are the future plans for girls in industrial arts?"

There were eight schools in which programs of industrial arts for girls were under discussion as indicated in Table III. These included schools where there was some possibility of instituting a program for girls but some factor was still to be overcome or decided upon. These varied from a decision by the board, to scheduling difficulties, administrative hesitancy, or teacher indecision.

As indicated in Table III, the number of new or additional plans for girls in industrial arts was about equal to those in existence, with 27 being contemplated for the school year of 1956-57. This amounted to 16 per cent of the respondents. Some of these, of course, included new or different offerings in schools which already had some girls in industrial arts. Group A, with nine new plans for 12 per cent of its respondents, was planning the

TABLE LII

NUMBER OF PROGRAMS OF INDUSTRIAL ARTS FOR GIRLS UNDER DISCUSSION AND THOSE BEING PLANNED FOR THE 1956-57 SCHOOL YEAR BY THE RESPONDENTS

Group	No. of Respondents	Programs under Discussion	Future Programs Planned	Per cent of Future Programs
"A" 50-100	76	1	9	12
"B" 101-400	75	4	14	19
"C" 401-up	19	3	4	21
Total	170	8	27	16

TABLE IV

NUMBER OF SCHOOLS, BY GRADE, IN WHICH GIRLS COULD ENROLL IN INDUSTRIAL ARTS

Groups	Grades					
	7	8	9	10	11	12
"A" 50-100		1	4	3	6	5
"B" 101-400	6	10	3	5	6	7
"C" 401-up	1	2	1	2	3	3
Total	7	13	8	10	15	15

to girls. The grades in which the most industrial arts for girls was offered were in the senior high school. Eleventh and twelfth grades each included fifteen schools where girls could enroll in classes in industrial arts. Ninth and tenth grades were not far behind with eight and ten programs, respectively. The junior high school was represented by seven programe in seventh grade and thirteen in eighth grade.

The groups presented quite a variation in the grades in which industrial arts was offered to girls as compared to the totals. Group C did not vary greatly from grade to grade with seventh and ninth grades each having one school where classes of industrial arts for girls were available, while eleventh and twelfth grades included two and three schools, respectively.

Group B was the most frequently represented with six schools where classes were offered in each of seventh and eleventh grades. Eighth grade, with ten schools, was included the most of any of the grades of all the groups. Ninth grade seemed the least popular with only three schools where girls were offered industrial arts. Tenth and twelfth grades, with five and seven schools, respectively, were also well represented.

Group A had little participation in junior high with

TABLE V

THE NUMBER OF GIRLS IN INDUSTRIAL ARTS CLASSES IN THE SCHOOLS OFFERING INDUSTRIAL ARTS FOR GIRLS

Enrollment Group	Grades						
	7	8	9	10	11	12	Total
"A" 50-100			19	6	18	16	59
"B" 101-400	116	191	21	13	7	22	370
"C" 401-up	405	497		8	8	11	927
Total	521	688	40	27	33	49	1358

difficulties, lack of interest of both the teacher and pupils, or a program which was not adaptable to the needs of girls.

While the number of girls in the various grades was for the most part fairly equal, it will be noted that the junior high is an exception because of the enrollments in Group C. One school in Group C had over 400 girls in seventh grade and in eighth grade. Group B had a comparatively large representation in the junior high with 116 and 191 in seventh and eighth grades, respectively, whereas Group A had no enrollment in these grades.

The senior high school enrollment in the various grades was quite even with the exception of grade nine in Group C where there were no girls. Grades ten and eleven of Group C each had eight girls while grade twelve had eleven. Group B had the most girls enrolled in industrial arts in high school with twenty-one, thirteen, seven, and twenty-two girls in grades nine through twelve. Group A listed nineteen, six, eighteen, and sixteen girls in grades nine through twelve, respectively.

As indicated in the totals of Table V, over 1300 girls were enrolled in industrial arts in sixteen per cent of the 170 schools responding. One school accounted for over 800 of these girls. The junior high had the highest enrollment with

521 girls in seventh grade and 683 girls in eighth grade. The senior high school enrollment was fairly evenly divided with 40, 27, 33, and 49 girls in grades nine through twelve, respectively.

Length of time industrial arts was offered to girls. The question, "How many years has industrial arts been offered to girls?" was asked with two ideas in mind. First, to determine which grade levels had been included longest in any program for girls, and second, to determine if there was a trend toward any particular grade or grades. Again, some respondents failed to answer the question or gave no definite number of years which leaves an incomplete picture of what had been done.

Presented in Table VI is the distribution of the various programs and the number of years each had been offered. It must be realized that some schools may be entered twice while some respondents were not included. This could be because a school had been offering industrial arts to girls in the senior high school and just started another program in its junior high school. Because of this, the totals in Table VI do not equal the individual entries for the grades, but present the picture of the various schools while the remainder of Table VI presents an idea of what has taken place with respect to the various grades.

TABLE VI

NUMBER OF SCHOOLS, BY GRADE LEVELS AND YEARS, THAT HAD OFFERED INDUSTRIAL ARTS TO GIRLS

Grade	Enrollment Group	Years Offered							
		1	2	3	4	5	6	7	10
7	"A"								
	"B"	1	2		1	1		1	
	"C"								1
8	"A"								
	"B"	2	3	1	2			1	
	"C"			1					1
9	"A"	2							
	"B"			1	1				
	"C"								1
10	"A"	1							
	"B"		1		1				
	"C"						1		1
11	"A"	2	1						
	"B"	1		1	1				
	"C"						1		1
12	"A"	1	1						
	"B"	2		1	1				
	"C"						1		1
Total	"A"	5	1						
	"B"*	3	4	4	3	1		1	
	"C"			1			1		1
	Total	8	5	5	3	1	1	1	1

*One respondent stated, "Has been offered for quite some time."

NOTE: This table should be read as follows: At grade eleven Group A included two schools with new programs and one school with a two-year-old program. Group B included three schools with programs one, three, and four years old, respectively. To read the totals, Group A included five schools with programs at various grade levels which were one year old and one program two years old for the eleventh and twelfth grades.

As indicated in the totals of Table VI, two-thirds of the programs of industrial arts for girls had been in existence less than four years. All of the programs in Group A and two-thirds of those in Group B fell in this category. This would indicate that industrial arts for girls is relatively new in schools with an enrollment of less than one hundred.

Group A contained six programs, five of them one year old and one two years old. The sixteen programs in Group B varied considerably more with three of them being new programs. There were four programs two years old, four three years old, and three four years old. Of the remaining two programs there was one five years old and one seven years old. Group C included only three programs, as one respondent did not indicate how long the program had been going. These were three, six, and ten years old, respectively.

The above data indicate a growing concern for girls in industrial arts. They also point out that industrial arts for girls had been utilized very little previously.

Presented in the rest of Table VI is a breakdown of the number of years industrial arts for girls had been offered in the various grades and the number of programs involved. The distribution was fairly even with the junior high and grades eleven and twelve being the most favored.

Group A was only included for the first two years with grades nine through twelve represented by two, one, two, and one new program, respectively. Listed at the two-year level were grades eleven and twelve with one class each.

Group B included one program in each of seventh and eleventh and two in each of eighth and twelfth grades which were one year old. The number of programs two years old were two, three, and one in grades seven, eight, and ten, respectively. Eighth, ninth, eleventh, and twelfth grades each had one program three years old. Programs four years old were the most prevalent with Group B having one class in each grade and two classes in eighth grade. A five-year-old program in seventh grade and a seven-year-old program in each of seventh and eighth grades completed the offerings of Group B.

Group C had no new programs and only one school with a class in seventh grade where the program was three years old. A six-year-old program in grades ten through twelve, and a program in each grade seven through twelve which was ten years old completed the offerings in Group C.

Industrial arts for girls required or elective. To find out if industrial arts for girls was being required or offered as an elective course, the following question was asked: "Is industrial arts for girls required or elective?"

In tabulating the answers to this question in Table VII it was found that more schools offered industrial arts to girls as an elective than as a required subject. Group A included one school in each of grades nine, ten, and twelve where industrial arts for girls was required. In the seven schools where industrial arts was offered as an elective, five of the programs were in eleventh grade.

Group B had sixteen required programs. Five of these were in grade seven, ten in grade eight, and one in grade nine. There were 21 elective programs with all grades represented except the eighth. These included one in seventh, two in ninth, and five, six, and seven in grades ten, eleven, and twelve, respectively.

The required group was again in the minority in Group C with only grades seven and eight having one and two programs, respectively. Industrial arts as an elective had one program in ninth grade and three in each of tenth, eleventh, and twelfth grades.

As indicated by the totals in Table VII, grades seven and eight led in the number of required classes with six and twelve programs each, while grade nine had two and grades ten and twelve each included one required class.

The totals for the elective classes were one for seventh grade, four for ninth grade, and eight, fourteen,

TABLE VII

NUMBER OF SCHOOLS IN WHICH INDUSTRIAL ARTS FOR GIRLS WAS REQUIRED OR ELECTIVE, BY GRADES

Enrollment Group	Grades where Required						Grades where Elective					
	7	8	9	10	11	12	7	8	9	10	11	12
"A" 50-100			1	1		1			1		5	1
"B" 101-400	5	10	1				1		2	5	6	7
"C" 401-up	1	2							1	3	3	3
Total	6	12	2	1		1	1		4	8	14	11

TABLE VIII

NUMBER OF SCHOOLS WHERE GIRLS AND BOYS WERE IN MIXED OR SEPARATE CLASSES OF INDUSTRIAL ARTS, BY GRADES

Enrollment Group	Grades of Mixed Classes						Grades of Separate Classes					
	7	8	9	10	11	12	7	8	9	10	11	12
"A" 50-100					2	1			2	1	3	1
"B" 101-400	5	5	1	3	6	6	2	4	3	2	1	2
"C"* 401-up	1	1	1	2	2	2		1		1	1	1
Total	6	6	2	5	10	9	2	5	5	4	5	3

*One school indicated both, as determined by the need, for grades ten, eleven, and twelve.

Group C had mostly mixed classes with one class or more in each grade while there was only one separate class in each grade except seventh and ninth where there was none. One school noted that it used both methods, as determined by the need, for the tenth, eleventh, and twelfth grades.

Industrial arts class frequency. To find out how many times industrial arts classes for girls met per week the following question was asked: "What is the number of times industrial arts classes meet per week?" These data are presented in Table IX. The scheduling of five classes per week was by far the most popular arrangement as only five programs varied from this plan. These were two classes meeting once a week, and three classes meeting twice a week in Group B. All the respondents for the schools in Groups A and C indicated five class periods a week. There was no distinction as to which grades these were and some respondents failed to answer the question.

Industrial arts class length. To determine the amount of time girls spend in industrial arts the following question was asked: "What is the length of industrial arts classes, in minutes?" Upon tabulating the responses to this question it was found that a fifty-five minute period was the most popular as about forty-three per cent of the schools

TABLE IX

FREQUENCY OF CLASS MEETINGS PER WEEK OF INDUSTRIAL ARTS FOR GIRLS

Enrollment Group	Frequency				
	1	2	3	4	5
"A" 50-100					8
"B" 101-400	2	3			14
"C" 401-up					3
Total	2	3			25

NOTE: There was no distinction as to grades. Some schools indicated more than one arrangement while some failed to answer the question.

used that class time. The rest varied from six, forty-minute classes to one of ninety minutes. Illustrated in Table X are the variations in the length of class periods for girls.

Group A varied considerably from two classes of forty minutes to one of ninety minutes. Group B varied from four, forty-minute classes to two of eighty minutes, while Group C had three classes of fifty-five minutes each.

Exchange programs. To determine if industrial arts facilities were being utilized fully, to investigate a possibility of a trend in subject combination with industrial arts, and to find out actually what subjects were being exchanged with industrial arts, the following question was asked: "Have you ever exchanged students with any other class, such as home economics, so that girls could take industrial arts?" As illustrated in the totals of Table XI, forty per cent of the programs which included girls were on an exchange basis with some other subject or subjects. The various groups had almost the same pattern.

Group A had six programs in which the boys and girls exchanged home economics and industrial arts. Group B had four home economics and industrial arts exchange programs and three programs where other combinations were used.

TABLE X

NUMBER OF RESPONDENTS INDICATING VARIOUS LENGTHS OF CLASS PERIODS FOR INDUSTRIAL ARTS FOR GIRLS

Enrollment Group	Time in Minutes						
	40	45	50	55	60	80	90
"A"* 50-100	2	2		1	2		1
"B" 101-400	4		1	8	2	2	
"C" 401-up				3			
Total	6	2	1	12	4	2	1

*One school failed to answer the question.

TABLE XI

A COMPARISON OF THE NUMBER OF EXCHANGE PROGRAMS TO OTHER METHODS OF OFFERING INDUSTRIAL ARTS TO GIRLS

Enrollment Group	Exchange Programs	Other Methods
"A" 50-100	6	4
"B"* 101-400	7	13
"C"# 401-up	1	4
Total	14	21

*Two respondents listed a three-way exchange program of industrial arts, home economics, and typing. One listed industrial arts, home economics, and art. All were at the eighth grade level.

#One school listed a three-way exchange program of industrial arts, home economics, and art for both the seventh and eighth grades.

Two of these consisted of industrial arts, home economics, and typing at the eighth grade level. The other program, on the same grade level, included art instead of typing. Group C had one exchange program of industrial arts, home economics, and art in the seventh and eighth grades.

Areas offered in industrial arts for girls. To determine the areas of work being offered to girls in industrial arts the following question was asked: "What areas of industrial arts are being offered to girls?"

The various enrollment groups presented quite a variation in the areas offered, as illustrated in Table XII. There was no attempt to tabulate the areas by grade levels because of the manner in which the question was answered. In the total picture, woodworking was the most popular, with crafts and leather rating next. Plastics, home mechanics, and drawing followed very closely with art metals, photography, electricity, and upholstery coming next in that order.

It would seem likely that if one could look more closely at the programs, quite an overlap in offerings would be found, such as leather and plastics in the crafts area and electricity and drawing in the home mechanics area.

Favorite areas of girls in industrial arts. To

TABLE XII

NUMBER OF SCHOOLS THAT OFFERED VARIOUS AREAS OF INDUSTRIAL ARTS FOR GIRLS

Area	Schools in Group A	Schools in Group B	Schools in Group C	Total
Woods	5	11	3	19
Crafts	4	11	2	17
Leather	3	11	2	16
Home Mechanics	5	5	3	13
Plastics	2	10	1	13
Drawing	1	8	3	12
Art Metals	1	3	1	5
Photography		2	1	3
Electricity		1	1	2
Upholstery	1			1

determine the areas of industrial arts where girls demonstrated the most interest, the following question was asked: "In what areas do girls show the most interest?"

The areas of industrial arts in which the girls manifested the most interest are presented in Table XIII. These varied considerably from the offerings listed in Table XII and would likely be influenced by various things such as the teacher's ability and interest, facilities, and scope of the program. When interest was the prime factor, only five areas were reported. In descending order of popularity they were woodworking, leather, plastics, home mechanics, and crafts.

While woods ranked first for Groups B and C, Group A seemed to prefer leather. The other areas were grouped close together. All of the home mechanics were in the high school while the rest of the areas were fairly equally distributed.

A few of the respondents made remarks such as, "The interest seemed the best over-all in grade ten." Another mentioned, "Grades ten and eleven showed the most interest," but no areas were listed. Many of the respondents failed to answer the question, while some answered with a first, second, and third choice of interest.

TABLE XIII

GRADES IN WHICH GIRLS SHOWED THE MOST INTEREST IN VARIOUS AREAS OF INDUSTRIAL ARTS AS JUDGED BY THE RESPONDENTS

Area	Enrollment Group	Grades						
		7	8	9	10	11	12	Total
Woods	"A"			1		1		2
	"B"	5	5	2	2	2	4	20
	"C"	1	2		1			4
Leather	"A"					2	1	3
	"B"	1	4	1				6
	"C"		2					2
Plastics	"A"					1	1	2
	"B"	2	4	1				7
	"C"	1	1					2
Home Mechanics	"A"					2		2
	"B"				1	1	2	4
	"C"				1			1
Crafts	"A"						1	1
	"B"	2	1		1		1	5
	"C"		1					1

NOTE: In Group A one respondent said the most interest was shown in grades ten and eleven with no areas mentioned. In Group C one respondent said the most interest was shown in tenth grade with no areas given.

Interest of girls toward industrial arts. In an attempt to find the degree of interest of girls toward industrial arts, the following question was asked: "Is the interest of girls toward industrial arts excellent, good, fair, or poor?"

As indicated in Table XIV, the respondents felt the interest of girls toward industrial arts was "good." No respondent expressed a feeling of "poor" interest and about one-third felt that the girls' interest was "excellent." Only three respondents marked "fair" as their indication of interest.

There was no significant difference as to grade level with the exception of six respondents in Group B indicating an "excellent" rating for the eighth grade and five choices of "good" for grade twelve.

Quality of work by girls in industrial arts. "Is the general quality of work excellent, good, fair, or poor?" was the question asked to determine the quality of work being done by girls in industrial arts.

The quality of work by girls in industrial arts followed much the same pattern as their interest. Again, there were no reports of "poor" quality in any of the groups and only two reports of "fair" in Group B, as illustrated in Table XV, page 59.

TABLE XIV

THE OPINIONS OF THE RESPONDENTS AS TO THE INTEREST OF GIRLS TOWARD INDUSTRIAL ARTS

Interest	Enrollment Group	Grades 7	8	9	10	11	12	Total
Excellent	"A"					2	1	3
	"B"	2	6	1	1	1	1	12
	"C"							0
Good	"A"			2	1	1		4
	"B"	4	3		3	3	5	18
	"C"	1	2		1	1	1	6
Fair	"A"				1	1		2
	"B"		1					1
	"C"							0
Poor	"A"							0
	"B"							0
	"C"							0

There were three responses of "excellent" and seven responses of "good" in Group A, at the high school level. Included in Group B were eleven reports of "excellent," with five of them in eighth grade and sixteen reports of "good," all fairly equally distributed. All of the six responses made by Group C were "good," and were equally distributed as to grade.

One teacher in Group B commented that he had found the work of the girls to be superior to that of the boys in the twelfth grade. Another teacher indicated the same thing but it was not included in the tabulations as his experience had been at another school.

Credit allowed girls for industrial arts. To determine if full credit was being given girls for participation in industrial arts, the following question was asked: "Is full academic credit allowed for the course?" This question was also asked to determine if girls in industrial arts were being discriminated against in not being allowed full credit.

It was found that for all regular courses the girls were allowed full academic credit. This included the exchange programs as indicated in Table XVI.

The only exceptions were in Group B where one

TABLE XV

THE OPINIONS OF THE RESPONDENTS AS TO THE GENERAL QUALITY OF WORK PERFORMED BY GIRLS IN INDUSTRIAL ARTS

Quality	Enrollment Group	Grades						
		7	8	9	10	11	12	Total
Excellent	"A"					2	1	3
	"B"	2	5	1	1	1	1*	11
	"C"							0
Good	"A"			2	2	2	1	7
	"B"	3	4	1	2	2	4	16
	"C"	1	2		1	1	1	6
Fair	"A"							0
	"B"	1	1					2
	"C"							0
Poor	"A"							0
	"B"							0
	"C"							0

*One teacher indicated that the girls' work in twelfth grade industrial arts was superior to that of the boys.

TABLE XVI

NUMBER OF SCHOOLS WHERE CREDIT WAS GRANTED IN INDUSTRIAL ARTS FOR GIRLS

	Group "A"	Group "B"	Group "C"
Credit Allowed	7	12	3
No Credit		2*	

NOTE: The above answers included the exchange programs although some schools failed to answer the question.

*One school offered industrial arts as an extra subject for one semester for no credit while one school offered a hobby class which was attended in an extra period.

course was offered on a one-semester basis as an extra subject, and the other was a hobby class which had to be attended during an extra period.

Presentation of projects to girls in industrial arts. "Are projects required, elective, or a combination of both?" was the question asked to determine how project selection was being implemented in industrial arts programs where girls were involved.

As illustrated in Table XVII, no one method had a majority. Projects were required in nine schools and were elective in seven schools. Twelve schools reported combination programs of project selection. It might be interpreted that some form of the required method was somewhat in favor as explained below.

Group A, with five combination programs of project selection, two elective ones, and one required, was the only group with a majority in any one type of project selection. Seven required programs and five each of elective and combination comprised the Group B selections. Group C included one required and two combination programs as one school did not answer the question.

Most of the respondents explained their choice

TABLE XVII

NUMBER OF SCHOOLS INDICATING VARIOUS METHODS OF PRESENTING PROJECTS IN INDUSTRIAL ARTS FOR GIRLS

Enrollment Group	Project Required	Project Elective	A Combination of Required and Elective*
"A" 50-100	1	2	5
"B" 101-400	7	5	5
"C" 401-up	1		2
Total	9	7	12

*A few of the respondents indicated that the areas were required with the projects elective while others required beginning projects and allowed more advanced projects to be elective.

TABLE XVIII

NUMBER OF SCHOOLS WHERE TESTS WERE INCLUDED AS A REGULAR PART OF THE COURSE OF INDUSTRIAL ARTS FOR GIRLS

Enrollment Group	Included Regular Tests	No Regular Tests
"A" 50-100	4	3
"B" 101-400	6	7
"C" 401-up	1	2
Total	11	12

NOTE: Some of the respondents did not answer the question.

TABLE XIX

NUMBER OF SCHOOLS WHERE TESTS WERE USED OCCASIONALLY

Enrollment Group	Occasional Tests	No Tests
"A" 50-100	1	2
"B" 101-400	5	3
"C" 401-up	1	1
Total	7	6

*One respondent indicated that some tests were part of the course while others were used occasionally.

evenly divided in their use of tests either occasionally or not at all. Group A had one program where tests were used occasionally and two where they were not used at all. Group B had five programs with occasional use of tests and three with none while Group C listed one of each. One respondent in Group B indicated that some tests were a regular part of the course while others were used only occasionally.

In analyzing the results of these two questions dealing with tests, it might be noted that only about three-fourths of the teachers used some form of testing.

Types of tests used in industrial arts for girls. In order to determine the types of tests being used in industrial arts programs for girls, the following statement was used: "Please explain the types of tests used."

Because of the manner in which the question was answered, no attempt was made to compile a total picture of the three groups. Table XX lists the various ways of testing and types of tests being used by the three individual groups.

Group A included all written type tests with the essay being used by two different schools. Multiple choice, completion, and "comprehensive" examinations were

TABLE XX

NUMBER OF RESPONDENTS INDICATING EACH OF VARIOUS TYPES OF TESTS USED IN INDUSTRIAL ARTS FOR GIRLS

Enrollment Group	Number of Respondents	Types of Tests
"A"		
50-100	3	Objective
	2	Essay
"B"*		
101-400	5	Objective
	4	Tool identification
	3	Drawing
	3	Performance or practical application
	2	Safety
	1	Essay
	1	Problem type
"C"		
401-up	1	Informational
	1	Spot check
	1	"Subjective"

NOTE: Some of the respondents did not answer the question, while others indicated more than one type of test.

*One Group B respondent indicated the use of a term paper as a method of evaluation.

each used by one school for a total of three objective type tests.

Group B had a much wider range of types and ways of testing. These varied from five schools where various forms of objective type tests were used to one where a term paper was used. Between these were drawing, performance, safety, essay, and problem type tests with tool identification having the second greatest usage.

The answers in Group C varied somewhat from the pattern set in the other two groups. The schools in this group used the spot check, the "informational," and the subjective type tests.

Projects of girls in industrial arts. To determine the types of projects being made by girls and the types of things in which girls were most interested, the following request was made: "List a few of the girls' favorite projects."

A survey of Table XXI shows the reader the variation of projects being made. No attempt will be made to itemize the list here but a general summary will be given. It will be noticed that for all groups leather projects seemed to be one of the first choices with woodworking projects of all kinds next. Metal working, such as aluminum trays and enameling, and plastic projects seemed to be fairly popular.

TABLE XXI

FAVORITE PROJECTS OF GIRLS IN INDUSTRIAL ARTS AS INDICATED BY THE RESPONDENTS

Enrollment Group	Number of Schools	Type of Project
"A"		
50-100	3	Etching aluminum trays
	2	Leather purses
	1	Copper enameling
	1	Lamps
	1	Leather billfolds
	1	Leather key cases
	1	Plastic letter openers
	1	Plastic paper weights
"B"		
101-400	3	Coffee tables
	3	End tables
	3	Leather purses
	3	Wall shelves
	2	Book cases
	2	Bracelets
	2	Jewelry
	2	Leather billfolds
	2	Leather craft of all kinds
	2	Metal foil tooling
	2	Wood lawn ornaments
	1	Copper enameling
	1	Cuff links
	1	Door stops
	1	Ear rings
	1	Etched trays
	1	Leather coin purses
	1	Letter openers
	1	Plastic bud vases
	1	Shadow boxes
	1	Stools
	1	T V tables
	1	Wall brackets
	1	Wastebaskets
	1	Wood lamps
	1	Wood serving trays

TABLE XXI (continued)

Enrollment Group	Number of Schools	Type of Project
"C"		
401-up	2	Leather purses
	1	Bulletin boards
	1	Copper tooling
	1	Lamps
	1	Leather coin purses
	1	Leather key cases
	1	Leather belts
	1	Wall shelves

NOTE: Some of the respondents failed to answer the question while others indicated more than one project.

As to individual projects, leather purses led with seven schools indicating them as favorites. Group B seemed to have about as much interest in wood projects as leather projects with wooden tables of various kinds leading the list of wood projects. Group A indicated no definite wood projects except the possibility of lamps.

A check of the list of favorite projects being constructed indicates that while girls were dealing with many of the products and materials of our modern era, there were other areas which should have been included. Some of these could be electricity, electronics, printing, and ceramics.

Curriculum items for an industrial arts course of study for girls. "List a few important things you would include in an industrial arts curriculum for girls," was the request used in an attempt to determine the feelings of industrial arts teachers as to their ideas for a curriculum of industrial arts for girls.

There was a great variety of answers to the question so that it was difficult to tabulate. A complete list of the responses appears in Appendix G while a combined list of the items can be found in Table XXII. A few of the items overlapped somewhat but were still included in only

TABLE XXII

A COMBINED LIST OF IMPORTANT CURRICULUM ITEMS IN INDUSTRIAL ARTS FOR GIRLS BASED ON SUGGESTIONS MADE BY THE RESPONDENTS.

Number of Schools	Item
11	Home mechanics
10	Metal work and jewelry
9	Hand tool instruction
8	Woodworking
7	Crafts
7	Planning and drawing
7	Electrical instruction of all kinds
7	Wood finishing
5	Leather work
4	All items in question twelve or the same as for boys
4	Consumer information
3	Plastics and synthetics

NOTE: A complete list of items will be found in Appendix G.

one category.

Home mechanics, metal work and jewelry, hand tool instruction, and woodworking were all closely grouped. Crafts, planning and drawing, electrical instruction, and wood finishing all tied with seven responses each. The remaining four groups were leather work, all items listed in question twelve, consumer information, and plastics and synthetics in descending order of frequency.

Groups A and B each included two items which could change the count of the previous listing. Those in Group A were "all items in question twelve." As this included six areas which also appeared in the list of curriculum items, each of them would be increased by two items. The entries for Group B were, "same as for boys." This could mean that at least some items would be increased by two. In either case, the over-all picture is not affected.

It may be noted that the items listed could be used to construct a fairly well-rounded curriculum. Consumer literacy, home proficiency, avocational interests, and vocational experiences are a few of the accepted objectives of industrial arts in which many of the items could be included. The amount of instruction and type of program would, of course, be determined by the time allowed,

facilities, and teacher competency. Considerable more detailed study needs to be made before a curriculum fulfilling the needs of girls could be set up. The previous discussion and the list of items in Table XXII only serve to give an indication of what some teachers think should be done.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

The purpose of this study was to determine the extent to which girls were included in industrial arts in grades seven through twelve in the state of Iowa. Since the information was obtained from an 84 per cent return of a representative sample of teachers of industrial arts, what was true for the respondents would likely be true for those schools not surveyed. To summarize:

1. Approximately 16 per cent of 170 schools in Iowa from which questionnaires were received offered some form of industrial arts to girls.

2. Of the 16 per cent, the larger schools included more girls in industrial arts than did the smaller ones.

3. Of the programs surveyed the course method and the exchange plan each accounted for 40 per cent of the offerings, while the unit plan accounted for 20 per cent of the offerings.

4. The larger schools favored the course method, while the smaller schools favored the exchange programs.

5. Some form of industrial arts for girls would be favored by 80 per cent of the respondents in the schools surveyed.

6. Approximately 27 respondents were considering inaugurating a program of industrial arts for girls.

7. Eleventh and twelfth were the grades where industrial arts was most frequently offered to girls.

8. The junior high included the most girls, with the enrollment in the senior high fairly evenly divided among the four grades.

9. Ten years was the longest time industrial arts had been offered to girls by any of the schools surveyed. Over one-half of the programs were less than three years old, with about one-fourth of the programs for girls being only one year old.

10. Industrial arts for girls was offered on an elective basis in about 60 per cent of the schools, although in the junior high it was more often required than elective.

11. Boys and girls were in classes together in industrial arts more often than in separate classes.

12. More than 83 per cent of the classes of industrial arts for girls met five times a week.

13. About 43 per cent of the classes were 55

minutes in length, while the rest of the class periods varied from one of 40 minutes to one of 90 minutes in length.

14. Forty per cent of the programs were on an exchange basis with home economics and/or some other subject. Typing or art was also used on a three-way exchange with home economics and industrial arts.

15. Woodworking, crafts, and leather appeared to be the areas of industrial arts offered most frequently to girls.

16. Woods, leather, and plastics were the areas in which girls showed the most interest.

17. In about 90 per cent of the programs of industrial arts for girls the instructors felt that the interest of girls in industrial arts was at least "good" or "excellent."

18. Over 30 per cent of the instructors rated the work performed by girls in industrial arts as "excellent," while 60 per cent felt that it was "good."

19. Full academic credit was allowed for all regular industrial arts offerings.

20. Approximately 40 per cent of the instructors used a combination of required and elective project selection, with all required or all elective project selection

almost evenly divided.

21. Tests were used regularly in about one-half of the programs of industrial arts for girls.

22. In about one-fourth of the programs of industrial arts for girls, the instructors used tests only occasionally.

23. Objective type tests were the most popular with tool identification tests being the second choice, although a wide variety of both written and performance tests were used.

24. Leather projects of various kinds headed the list of favorite projects with woodworking projects almost as popular.

25. Home mechanics, metal work and jewelry, and hand tool instruction were recommended most frequently by the respondents for an industrial arts program for girls.

II. CONCLUSIONS

The findings of the study seem to lead to the following conclusions:

1. The fact that only 16 per cent of the industrial arts programs in the state were co-educational indicates that very few of the total number of girls available were

able to participate in industrial arts.

2. It would seem the present facilities of industrial arts are being utilized fairly well, as lack of facilities was the factor most often mentioned by the respondents as deterring the inclusion of girls in industrial arts.

3. Very few of the respondents indicated that the programs of industrial arts for girls utilized enough of the areas available in industrial arts to make it the well rounded curriculum area it should be.

4. In implementing the program of industrial arts for girls the respondents favored five 55 minute periods weekly. Project selection was most often required and while almost one-half of the instructors used various forms of tests there were one-fourth who used no tests at all.

5. Although girls were in mixed classes more often than in separate classes and industrial arts for girls was more often elective than required, many of the respondents did state that girls should be in separate classes.

6. There seemed to be little agreement among the respondents as to what should constitute a curriculum for girls but home mechanics, metal working and jewelry, and hand tool instruction were the items most often mentioned.

7. While it was the opinion of 80 per cent of the total respondents that girls should be offered some form of industrial arts it should be noted that one-third of the instructors teaching girls felt the girls' interest and ability was "excellent" while none of the instructors rated the girls "poor."

8. Although the exchange program was being utilized in only 40 per cent of the total offerings, it was in favor in the smaller schools. Home economics was the most frequently used subject for exchange but a few schools found art, health, and typing worked out well as another area or areas. Too often the exchange was for only from two to six weeks.

9. With more than one-half of the programs for girls in industrial arts being less than three years old and with as many new programs being planned as were already in existance, it would seem the trend is toward more girls in industrial arts.

RECOMMENDATIONS

Since industrial arts should contribute to the understanding of the industrial and technical aspects of life for both boys and girls, and because industrial arts should be an integral part of general education, the follow-

ing recommendations seem to be warranted:

1. In view of the fact that only sixteen per cent of the respondents offered industrial arts to girls, it might be desirable to give more consideration to the inclusion of girls in industrial arts. This could possibly be accomplished by more promotional work directed toward a better public relations program to inform the public and school personnel of the possibilities of industrial arts for girls.

2. In smaller schools where facilities seem limited, more use of the exchange program might be feasible. Research and experimentation should lead to further expansion of the use of the exchange program by the use of other subjects than those being utilized.

3. It might be desirable to recommend that some form of industrial arts for both boys and girls be required in the junior high school.

4. More research is needed for the development of an industrial arts curriculum, such as the use of a wider range of areas and activities and special facilities and equipment essential to girls in industrial arts.

5. The opinions of administrators, school board members, housewives, the lay public, and students might prove helpful in setting up a program for girls in industrial arts.

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E. NEWSPAPER

Waterloo Daily Courier, March 12, 1957. The National Association Of Manufacturers, Never Underestimate The Power....

APPENDIXES

APPENDIX A - Questionnaire

April 21, 1956

Dear Industrial Arts Teacher:

Following is a questionnaire which will be used in compiling data for a thesis entitled The Status of Girls in Industrial Arts in Grades 7-12 in the State of Iowa. The first three questions below should be answered whether you have girls in Industrial Arts or not. You need to answer the remaining questions only if you do have a program of Industrial Arts for girls.

Your cooperation, in filling this out, will be greatly appreciated as the study should lend impetus to further research in Industrial Arts, but more specifically to curriculum development for girls in Industrial Arts. As the school year is near an end, I would appreciate your returning this as soon as possible. Please find a self-addressed, stamped envelope enclosed for your convenience.

Sincerely,

Walter Haynes

Walter Haynes
Keystone, Iowa

Name_____ City_____

School_____ Enrollment_____

Please circle, underline or fill in the appropriate answer in each of the following questions.

1. Are girls offered Industrial Arts, in any grades 7-12 in your school, as a course, unit or on an exchange basis?

2. If Industrial Arts is not offered to girls, do you favor such an offering? Yes No

3. Are there any future plans for girls in Industrial Arts? Yes No
If yes, explain.

4. Circle grades in which girls are offered Industrial Arts. 7 8 9 10 11 12

5. Number of girls enrolled in Industrial Arts by grade. __ __ __ __ __ __
7 8 9 10 11 12

6. How many years has Industrial Arts been offered to girls? __ __ __ __ __ __
7 8 9 10 11 12

7. Is Industrial Arts for girls required or elective? __ __ __ __ __ __
Use R and E 7 8 9 10 11 12

8. Are boys and girls in mixed Industrial Arts classes or are they separated?
__ __ __ __ __ __
Use M and S 7 8 9 10 11 12

9. Number of times Industrial Arts classes meet per week? 1 2 3 4 5 Other____

10. Length of Industrial Art classes, in minutes. 40,50,55,60,80,90, Other____

11. Have you ever exchanged students with any other class, such as Home Economics, so that girls could take Industrial Arts? Yes No
If yes, explain.

12. Circle areas which are offered to girls. 1. Leather, 2. Plastics, 3. Woods, 4. Home Mechanics, 5. Drawing, 6. Photography, 7. Crafts, 8. Others.

13. In what areas do girls show the most interest by grades? Use numbers from question 12.
___ ___ ___ ___ ___ ___
7 8 9 10 11 12

14. Is the interest of girls toward Industrial Arts excellent, good, fair, poor? Use E, G, F, P.
7 8 9 10 11 12

15. Is the general quality of work excellent, good, fair, or poor? Use E, G, F, P.
7 8 9 10 11 12

16. Is full academic credit allowed for the course? Yes, No
If no, explain.

17. Circle if projects are required, elective or a combination of both.
If the later, explain briefly.

18. Are tests a regular part of the course? Yes No

19. If tests are not a regular part of the course, do you occasionally use them? Yes No

20. Please explain types of tests used.

21. List a few of the girls' favorite projects.

22. List a few important things you would include in an Industrial Arts curriculum for girls.

Would you desire a summary of this study? Yes No

APPENDIX B

FOLLOW-UP POST CARD REMINDER

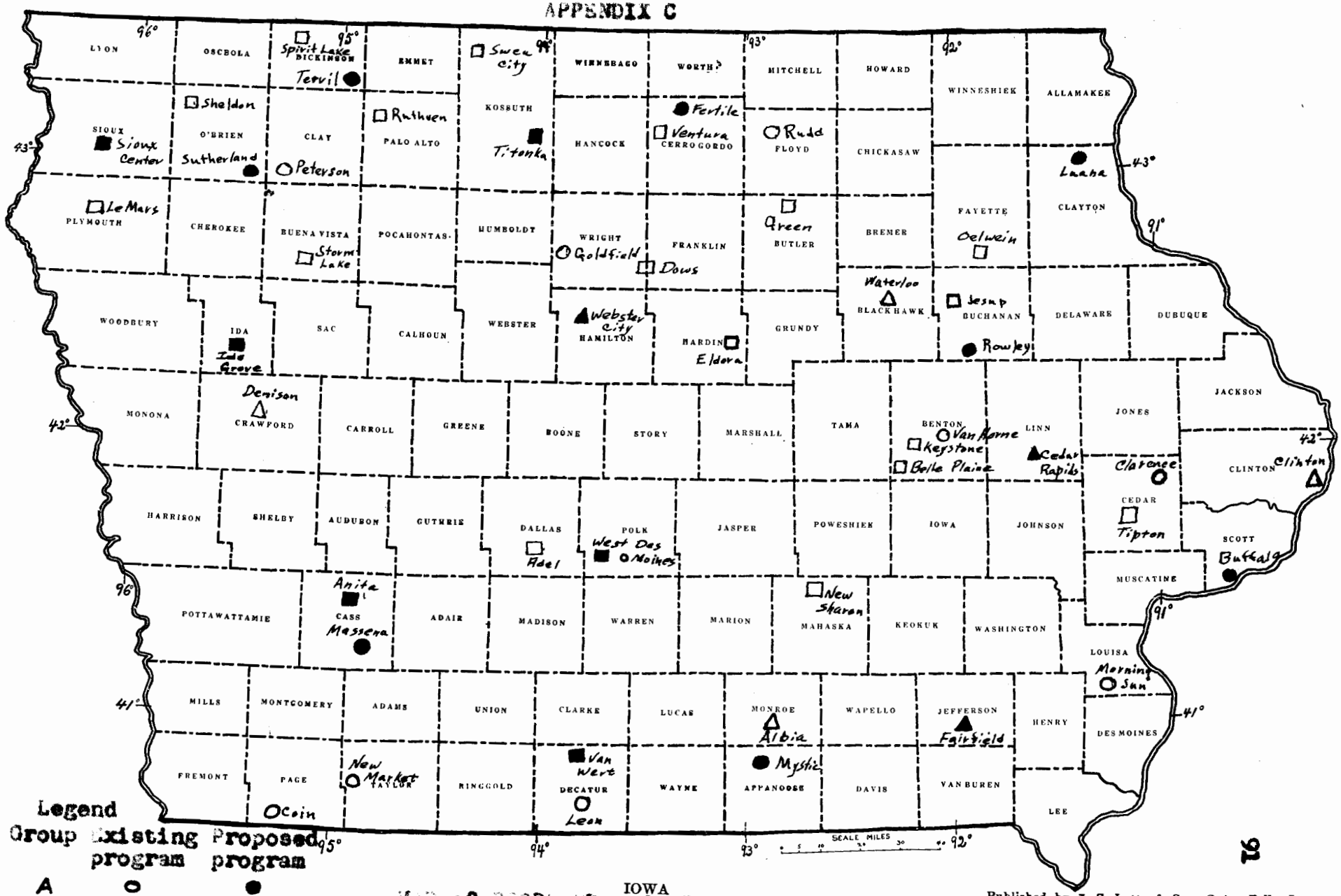
May 22, 1956

Dear Industrial Arts Teacher:

Sometime ago you received a questionnaire dealing with The Status of Girls in Industrial Arts in the State of Iowa. I would appreciate your filling it out and mailing it to me promptly.

Yours truly,

Walter Haynes
Keystone, Iowa



Legend

Group	Existing program	Proposed program
A	○	●
B	□	■
C	△	▲

IOWA

Map of PROPOSED and EXISTING PROGRAMS of INDUSTRIAL ARTS for GIRLS

Published by J. S. Latta & Son, Cedar Falls, Iowa

APPENDIX D

SCHOOLS IN GROUP A TO WHICH QUESTIONNAIRES WERE SENT

Ainsworth *
Andrew *
Argyle *
Arnolds Park *
Atkins *
Batavia *
Blairstown *
Blakesburg
Bonaparte *
Buffalo *@
Bussey *
Calamus *
Carroll
Chelsea *
Clarence *#
Coin *#
Dallas *
Deep River *
De Soto *
Dow City *
Dumont *
Dundee *
Earlville *
Essex *
Fertile *@
Garden Grove *
Garwin *
Geneseo Twp. *
Goldfield *#
Grafton
Harris *
Hilton-P.O. Conroy *
Hopkinton *
Hull *
Huron P.O. Oakville *
Jamaica *
Joice *
Kellogg *
Klemme
Lacey P.O. New Sharon
Lawler
Leon *#
Lewis *
Livermore *
Lowden *
Luana *@
Lynnville *
Magnolia *
Malcom *
Martinsdale *
Massena *@
Melbourne *
Melrose
Merrill *
Meservey
Milo *
Moorhead
Morning Sun *#
Mystic *@
New Market *#
Norwalk *
Norway *
Oakville *
Okoboji Twp. P.O. Milford *
Olds
Orient *
Peterson *#
Preston *
Quasqueton *
Rake *
Renwick
Rowley *@
Royal *
Rudd *#
Runnells *
Sabula *
Sergeant Bluff
Shellsburg *
Sperry *
Sutherland *@

APPENDIX D (continued)

Terril *@	Walker
Union-Whitten *	Wesley *
Urbana *	West Chester *
Ute *	West Side
Van Horne *#@	Wyoming *

Note - * Indicates questionnaire returned
# Indicates school offered industrial arts to girls
@ Indicates school had some future plans for girls in industrial arts

APPENDIX E

SCHOOLS IN GROUP B TO WHICH QUESTIONNAIRES WERE SENT

Adel *#
Alta *
Anamosa *
Anita *@
Ankeny *
Armstrong *
Avoca*
Battle Creek *
Belle Plaine *#@
Calmar *
Casey *
Cedar Valley
Central City *
Cherokee *
Clarion *
Conrad *
Cresco *
Dows *#@
Dysart *
Eddyville *
Eldon
Eldora *#
Emmetsburg*
Fontanelle *
Forest City-Leland
George *
Glenwood *
Graettinger *
Grand Junction *
Greene *@
Griswold *
Hampton *
Harlan
Hawarden
Holstein *
Ida Grove *@
Iowa Falls *
Janesville *
Jesup *@
Johnston *
Keystone *#@
Lake City *
La Porte City *
Le Claire *
Le Mars *#
Logan *
Madrid *
Malvern *
Manning *
Manson
Mapleton *
Maquoketa *
Marengo *
Maynard *
Monona
Monticello
Moulton *
Mount Ayr
Nashua *
New London *
New Sharon-Lacey Cons. *#
North English *
Oelwein *#
Olin
Onawa *
Plainfield
Prairie City *
Rock Valley
Ruthven *#
Sac City
Sheldon *#
Sioux Center *@
Spirit Lake *#@
Springville *
State Center
Storm Lake *#
Story City *
Swea City *#@

APPENDIX E (continued)

Tipton *#@
Titonka *@
Underwood *
Urbandale *
Van Wert *@
Ventura *#
Vinton *
Wapello *
West Liberty
West Union *
Winterset
Winthrop *
West Des Moines *@

Note - * Indicates questionnaire returned
# Indicates school offered industrial arts to girls
@ Indicates school had some future plans for girls in industrial arts

APPENDIX F

SCHOOLS IN GROUP C TO WHICH QUESTIONNAIRES WERE SENT

Albia *#
Atlantic *
Boone
Cedar Falls *
Cedar Rapids *@
Clinton *#
Creston
Davenport
Denison *#@
Des Moines
Estherville *
Fairfield *@
Fort Madison *
Grinnell *
Indianola *
Keokuk *
Knoxville *
Marion *
Marshalltown *
Mount Pleasant *
Shenandoah *
Waterloo *#
Webster City *@

Note - * Indicates questionnaire returned
# Indicates school offered industrial arts to girls
@ Indicates school had some future plans for girls in industrial arts

APPENDIX G

ITEMS DEEMED IMPORTANT BY THE RESPONDENTS FOR AN INDUSTRIAL ARTS CURRICULUM FOR GIRLS

Group	Number of Schools	Type of Item
Group A	3	Basic tool instruction
	3	Home mechanics
	2	All items in question 12
	2	Electrical repairs
	2	Mechanical drawing
	2	Painting and refinishing
	1	Aluminum etching
	1	Basket weaving
	1	Chair caning
	1	Copper enameling
	1	Furniture construction
	1	Furniture purchasing
	1	Glassware etching
	1	Leathercraft
	1	Metal craft
	1	Plastics
	1	Upholstering
	1	Use of jig saw
Group B	7	Home mechanics
	6	Hand tool instruction
	3	Consumer information
	2	Crafts
	2	Leather
	2	Jewelry
	2	Planning and sketching
	2	Same as for boys
	2	Wood finishing
	2	Woodworking
	1	Appliance repair
	1	Art metal
	1	Copper enameling
	1	Ceramics
	1	Design, balance and color

APPENDIX G (continued)

Group	Number of Schools	Type of Item
Group B continued	1	Household electricity
	1	Measuring
	1	Painting
	1	Wood identification
	1	Uses of synthetics
	1	Upholstering
Group C	3	Household electricity
	2	Leather
	1	Crafts
	1	Enameling
	1	Finishes
	1	Furniture refinishing
	1	Home mechanics
	1	Jewelry
	1	Mechanical drawing
	1	Metal working
	1	Plastics
	1	Woodworking