A STUDY OF GIRLS' INVOLVEMENT IN
INDUSTRIAL ARTS IN TEXAS

THESIS

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

For the Degree of

MASTER OF SCIENCE

By

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Denton, Texas
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This study was conducted to find the extent to which girls are involved in industrial arts classes and related activities in Texas public schools, the factors which limit their enrollment, and teachers' opinions concerning industrial arts experiences most beneficial for girls.

Data were obtained from bulletins, books, magazines, related studies, and from information forms completed by 123 industrial arts teachers. Names of teachers who participated in the study were selected from a list of industrial arts teachers who taught in Texas during the year 1970-71 and who represented the eight basic industrial arts areas and schools from both rural and urban communities.

Chapter I includes a statement of the problem, the purpose of the study, the background and significance of the study, definition of terms, limitations of the study, related studies, and the procedures of collecting and treating the data. Chapter II contains personal data concerning the respondents. Chapter III pertains to girls' involvement in industrial arts and factors that limit their participation. Chapter IV is concerned with the nature of industrial arts for girls. The summary, findings, conclusions, and
recommendations are presented in Chapter V. Among the more important findings were,

1. Girls tend to enroll in certain areas of industrial arts with little or no participation in other areas.

2. A large majority of the respondents indicated they would be receptive to teaching industrial arts to girls.

3. The respondents indicated industrial arts would be of great value to girls.

4. The optimum number of industrial arts credits for girls is one or two.

5. Girls should be taught in mixed classes.

6. The realization of the stated objectives of industrial arts is of equal value to girls and boys.

7. Many girls have negative feelings toward becoming involved in industrial arts.

8. Exchange units and unified arts programs are of value to girls and boys.

Based upon the findings, it was concluded that industrial arts offers the types of activities and experiences that are beneficial to girls and that their limited participation is more often based upon factors, such as tradition and school policy than upon their needs. Some of these needs can be partially met by their participation in allied activities. The disproportionate number of girls enrolled in industrial arts is not a result of teacher preference,
however; administrators and counselors more often discourage rather than encourage girls' entrance into industrial arts classes. It was also concluded that present industrial arts programs need few major changes to meet girls' needs, but a reassessment and reassignment of priorities of the major objectives of industrial arts is needed.

Based upon the findings and conclusions of the study, it was recommended that educational guidelines in public schools which restrict the curriculum activities in which girls and boys can participate should be revised and opportunities for girls to participate in industrial arts should be expanded. It was also recommended that awareness programs be implemented at the high school level to familiarize girls with industrial arts and the types of job opportunities available to women in industry.
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CHAPTER I

INTRODUCTION

Many of this nation's foremost educators have expressed the opinion that school systems should delete traditional guidelines which use the sex of students to determine their eligibility for enrollment in certain courses. Some educators believe students should have the opportunity to enroll in any course that suits their interest and ability.

Recently at a conference co-sponsored by the National Education Association and the United States Office of Education, educators gathered to explore sexism in elementary and secondary education. One of the top speakers, Wade Wilson, President, Cheyenne State College, was of the opinion that schools, home, and society in general are teaching boys and girls the roles they are to play the rest of their lives. It was his opinion that, although this approach to education was not necessarily logical, these forces mold and limit the personality, the vocational careers, the civic activities, and the leisure time pursuits of tomorrow's men and women (1, p. 1).

In order to obtain the interest of girls in industrial arts, Wilson suggested giving wider publicity to the industrial arts program and its activities. Gloria Steinem,
editor of *Ms. Magazine* and consultant at the conference, suggested that if students were more aware of the pressures which force them into traditional roles, they would be able to resist these pressures and choose a course of study which would challenge them and captivate their interest (16, p. 1).

Prominent people familiar with industrial arts have expressed the opinion that it is time girls are treated equally in the acquisition of an education. As stated by Martin and Martin (9, p. 49), "There is a serious need to upgrade the curricula offered girls at all levels of the educational program and to encourage girls to enter a wider range of educational and skill training programs, including those previously reserved for boys."

Related to this statement, Fink has stated (4, p. 54), "... there is no reason why girls should not be given the opportunity to take industrial arts. Educators are in near unanimous agreement that industrial arts should be made available to all students, but it appears that girls are being penalized solely because of their sex."

If industrial arts is to be a part of general education, activities must be presented that provide experiences pertinent to girls. As stated by Richter (12, p. 17), "If industrial arts is to be a part of general education, as general education is defined today, the hope that girls will become a part of it lies squarely in the hand of new programs."
Industrial arts can provide the learning experiences necessary to challenge and captivate the interest of girls. However, very little information is available concerning the extent and nature of girls' involvement in industrial arts in Texas. This study is an attempt to broaden the scope of knowledge available.

Purpose of the Study

The purpose of this study is to investigate the extent and nature of girls' involvement in industrial arts in the state of Texas. Answers to the following questions were sought:

1. To what extent are girls involved in industrial arts classes and related activities in Texas public schools?

2. What are the factors that limit girls' enrollment in industrial arts classes?

3. What should be the nature of industrial arts for girls?

Background and Significance of the Study

Due to the course structure and philosophy of industrial arts, few areas in general education can provide girls a better opportunity to become familiar with all facets of industry. Industrial arts courses will help them make occupational decisions later in life with some insight as to their place in society. Unlike vocational education where emphasis
is placed on a single area, industrial arts provides students the opportunity to be exposed to many occupational areas.

Certain obstacles must be overcome before girls can be scheduled into industrial arts programs. Various segments of society feel that girls are not suited to many types of industrial endeavors. Those who take positions on what girls can or cannot do or what girls should or should not do, are often expressing prejudice. The result is to limit girls' incentive. In reference to this, Koontz stated (8, p. 10, "The result is to limit a girl's ambition, to cause her to accept a lower estimate of her abilities, and of what she might do in the world."

Why are girls discriminated against? Educators believe one of the main reasons is tradition. As stated by Patterson,

Tradition is a grand thing at Annapolis or West Point. But in a modern industrial arts curriculum it must be justified. Traditionally speaking, girls take "homemaking" and boys take "shop." Too often a curriculum is set up on this basis simply because no one suggests a change from the established pattern (11, p. 32).

Societal opinion is changing toward the types of activities in which women and girls should participate. Women have made many contributions that cannot be overlooked. Girls are becoming interested in educational programs that were once reserved for boys, and educators are becoming aware of the need to provide girls the opportunity to participate in all types of educational programs. Tradition is no longer
a good defense for depriving girls of the opportunity to participate in certain educational programs. As stated by Koontz,

Let's be aware of the kinds of prejudices that force a girl into a rather narrow range of occupations. Let's stop asking "Why?" and start asking "Why not?" Let's open the door to all fields, from car washing to engineering and let's open them wide (7, p. 11).

Women are determined to enter industrial occupations. They have rapidly become an important part of industry and have proven themselves times and time again. During World War II, women provided the additional manpower necessary to help the United States overcome the tremendous crisis of war. In the training efforts of the war, women were enrolled in various vocational-industrial courses. As stated by Barlow (2, p. 35), "The greatest number of trainees were enrolled in classes for aviation services, machine shop, ship building, radio services, and welding."

The continued success of women in industry is evident. As stated by Turner (18, p. 59), "Many of the wartime improvements in restrooms and lunch rooms, the additional safety practices, and the use of clothing suitable for the job are representative of the permanent impressions women have made on industry."

Presently, the trend is for more women to enter or re-enter the labor force. One characteristic of women in general is that those with a college degree have a higher rate of employment than those with less education. A reason
for this, in Sweet's opinion, is that education facilitates employment (16, p. 33).

One can find varied statistics concerning women in the labor force. As stated by Schramm (13, p. 1), "In June, 1967, the Bureau of Labor Statistics reported 27,695,000 women were participating in the labor force in the United States. This rapidly growing number of women represent approximately 35 per cent of the entire labor force."

Koontz stated (7, p. 14), "As of July 1970 . . . 31.8 million women in the civilian labor pool account for 38 per cent of all workers." In the future, women will comprise an even larger percentage of the labor force. An observation made by Simpson regarding women in the labor force is,

Today they account for nearly 38 per cent of the 80.4 million persons in it. By the mid-1970's it is expected to climb to 90.4 million. About 60 per cent of that increase will be women, meaning there will be 22 per cent more women workers and only 9 per cent more men workers (14, p. 19).

Women give many reasons why they seek employment. Some work because it is now socially acceptable and by working they develop a sense of achievement. Others work because it is an economic necessity. For others, work affords a challenge and a satisfaction lacking in the home (10, p. 19).

In many industrial concerns, opportunities for women are increasing in trades or occupations usually believed to be reserved for men. A few of the skilled trades listed by Hedges as being suitable to women are as follows: appliance
servicing, furniture upholstering, radio and television servicing, business machine servicing, tool and die making, and watch repairing (5, p. 44).

Due to the need for skilled workers, educational opportunities have broadened for women. Many industrial concerns conduct on-the-job training programs for employees. Emphasis has been placed on workers completing high school, occupational training, and higher education (19, p. 1-45).

As a part of general education, industrial arts can contribute much to enhancing education for girls. As stated by Stark,

> If a "general education" means in part, acquiring knowledge of our highly industrialized society, effective home utilization, useful consumer knowledge, and development of leisure-time activities, then we are certainly headed for an increase in the number of programs in industrial arts for girls (15, p. 76).

Students should be provided an opportunity to be exposed to activities that will enable them to find happiness, satisfaction, and a suitable place in society. These experiences will affect them the remainder of their lives. As stated by Schramm (13, p. 3), "In 1963, the President's Commission on the Status of Women . . . believed the education a woman receives affects her life more than any other action she might undertake in her lifetime."

There is relatively little information available concerning girls in industrial arts in the state of Texas. However, a study by Dyche revealed that Texas industrial arts
teachers believed high school girls should have an opportunity to take industrial arts courses. It was also found that some schools not offering industrial arts courses to girls, at the time of Dyche's study, were in the process of establishing such programs. Industrial arts teachers stated girls should have the opportunity to take courses in industrial arts that would improve their ability as homemakers (3, p. 87-88).

This study is useful in that it broadens the scope of knowledge available concerning the extent and nature of girls' involvement in industrial arts in public secondary schools in the state of Texas.

Definition of Terms

For the purpose of this study, the following terms are defined:

1. Middle school is defined as those schools with grade level distributions six through eight.

2. Junior high school, as used in this study, refers to schools with grade level distributions seven through eight or seven through nine.

3. High school, in the context of this study, refers to schools consisting of grades nine through twelve or ten through twelve.

4. Exchange unit refers to an educational program in which girls enrolled in home economics and boys enrolled in industrial arts are exchanged for instruction on a short-term basis.
5. Unified arts refers to a program in which girls and boys are combined and rotated for instruction through the fields of industrial arts, home economics, and art.

6. The objectives of industrial arts, as used in this study, refer to the objectives defined in chapter four of this study which were developed and stated by Ivan Hostetler and published in the Office of Education's publication Improving Industrial Arts Teaching (6).

7. Respondent, as used in this study, refers to industrial arts teachers who received, answered, and returned the information form.

Limitations of the Study

This study was limited in scope to the investigation of industrial arts programs in middle schools, junior high schools, and high schools in the state of Texas. The study was further limited to 240 selected industrial arts teachers listed in the report, Texas Schools Having Industrial Arts Teachers 1970-71 (17). It was also limited by the number of information forms returned and the accuracy and thoroughness of responses supplied.

Related Studies

Dyche's (3) study to determine the need for industrial arts education for girls in the secondary schools was conducted in cooperation with superintendents and industrial arts teachers in the state of Texas. The results of this
study show that industrial arts teachers believe that industrial arts courses should be made available to more girls in high schools and that some schools not offering such courses to girls at the time of the study were planning to do so in the near future. The findings also indicate that girls should have training in industrial arts to aid them in the job of becoming homemakers. Dyche was of the opinion that crowded conditions and lack of equipment prevented industrial arts from being made available to girls, and since traditionally this area of general education has been for boys, their needs claim consideration before the needs of girls.

A study by Wied (19) of the job prerequisites for certain female employees in the electronics industry in the Dallas metropolitan area provided information concerning job opportunities and entrance requirements for women in certain areas of electronic manufacturing. The study revealed seven out of eight firms indicated a preference for prospective employees who had taken high school electronics courses, and that no data were available from the Texas Education Agency as to the number of girls enrolled in industrial arts electricity-electronics courses in high school. The findings also indicate that the high school curriculum offers a wide variety of experiences in the area of electricity-electronics, and that girls who take courses in this area have a better understanding of the industry and upon employment will be better satisfied with their job.
Sweet (16) conducted a study of the labor force activity of wives in the United States in 1960 as it was influenced by the composition of their families. He found that the educational background of women directly affected their desire to work, and that women with a college education have considerably higher rates of employment than those with less education. A sizeable percentage of the younger wives were working to enhance the couples' ability to purchase a home. He found that the presence of children in the family and the variations of their ages directly affected the participation of women in the labor force, especially wives and mothers.

In a study by Schramm (13), an analysis was made of six programs concerning women workers who had attempted to enter the labor force through the assistance of community training programs to determine if such programs assisted women in obtaining jobs. It was also intended that the study would be used to develop a profile of the older woman who participated in the training programs so the results would provide direct descriptive information for those who were involved in the education, job placement, and employment of the older women. The findings indicated that the older woman worker was 44 years of age, married, the mother of 2 or 3 children whose median age was seventeen, and a high school graduate. Of the 58 women interviewed, only 27.6 per cent obtained jobs during or after their
training; however, the training did make some contribution toward their eventual employment. Schramm also found that working wives presently account for 57 per cent of the female labor force, and this number is rapidly increasing.

Organization of the Study

The study is organized into five chapters. Chapter I contains an introduction to the study, the statement of the purpose, the background and significance of the study, the definition of terms, the limitations of the study, related studies, the organization of the study, and the procedures and methods of securing the data.

Chapter II presents personal data pertaining to the respondents. It is intended to give information concerning the respondents' background and qualifications for supplying opinions on this study.

Chapter III is concerned with girls' involvement in industrial arts in Texas and factors that limit their participation in this field.

Chapter IV presents information pertaining to the nature of industrial arts for girls in the state of Texas.

Chapter V contains the summary, findings, conclusions, and recommendations of the study.

Procedures

In order to answer questions set forth in the purpose of the study, the following procedures were used:
From libraries and various resource centers, pertinent information was obtained from bulletins, related studies, books, magazines, and other industrial arts related materials.

An information form was constructed to obtain data from industrial arts teachers regarding personal opinions and facts pertinent to those questions contained in the study. Packets containing letters explaining the study (Appendix A), information forms (Appendix B), and stamped, addressed envelopes were mailed to 240 selected industrial arts teachers listed in the report *Texas Schools Having Industrial Arts Teachers 1970-71* [17]. Teachers were selected in such a way as to insure equal distribution of information forms to those teaching in each of the areas of industrial arts listed in the report. These areas were crafts, drafting, electronics, graphic arts, general shop, metals, power mechanics, and woodworking.

Two weeks after the information forms were mailed, 119, or 49.58 per cent, had been returned. Follow-up cards (Appendix C) were sent those not responding. Fourteen additional information forms were returned increasing the percentage of returns to 51.25 per cent.

The data were compiled and appropriate graphs and charts were devised. The data were then recorded, conclusions drawn, and recommendations made.
CHAPTER BIBLIOGRAPHY


CHAPTER II

PERSONAL DATA CONCERNING RESPONDENTS

The purpose of this chapter is to present personal data pertaining to the respondents and to describe the qualifications and background of those who provided information upon which conclusions were based. The data presented were gathered from an information form completed and returned by 123 public school industrial arts teachers in the state of Texas. Included are descriptions of respondents' teaching experience, educational background, current assignments, student enrollment in schools in which the respondents taught, and the classification of the communities in which they were employed.

Teaching Experience of Respondents

The respondents were asked to indicate the number of years of experience they had acquired as industrial arts teachers. As indicated in Table I, only 31, or 25.2 per cent, of the responses were received from teachers with 3 or fewer years experience.

A total of 29, or 23.6 per cent, of the respondents stated they had 4 to 6 years teaching experience, while 28, or 22.8 per cent, had from 7 to 10 years experience as teachers. Thirty-five, of 28.4 per cent, of the respondents
indicated they had 11 or more years experience teaching industrial arts.

In general, the information shows an even representation of respondents in the four categories of teaching experience. The largest number of responses was received from teachers with 11 or more years teaching experience, while the smallest number of responses was received from those with 7 to 10 years experience. However, the difference in the number of teachers who had 11 or more years experience and those with 7 to 10 years experience was slight, involving only 7 cases.

**TABLE I**

YEARS OF TEACHING EXPERIENCE OF RESPONDENTS

<table>
<thead>
<tr>
<th>Number of Years</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents*</th>
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<tr>
<td>1-3</td>
<td>31</td>
<td>25.2</td>
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<td>4-6</td>
<td>29</td>
<td>23.6</td>
</tr>
<tr>
<td>7-10</td>
<td>28</td>
<td>22.8</td>
</tr>
<tr>
<td>11 or more</td>
<td>35</td>
<td>28.4</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
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</table>

*Percentage based on 123 respondents
The Experience of Respondents in Teaching Industrial Arts to Girls

It was considered important to the study to know if the opinions supplied were those of teachers who had actually had experience teaching girls industrial arts. Data supplied by the respondents indicate that the majority had taught girls in industrial arts classes.

As shown in Table II, 82, or 66.7 per cent, of the responses were received from industrial arts teachers who were teaching or had taught girls. Those who had not taught girls accounted for 41, or 33.3 per cent, of the respondents. Therefore, it appeared that the findings were based on data provided by teachers whose experience enabled them to provide realistic opinions.

<table>
<thead>
<tr>
<th>Teaching Experience</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents*</th>
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<tbody>
<tr>
<td>Have Taught Girls</td>
<td>82</td>
<td>66.7</td>
</tr>
<tr>
<td>Have Not Taught Girls</td>
<td>41</td>
<td>33.3</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Percentages based on 123 respondents
Curriculum Area or Areas Taught

The respondents were asked to indicate the curriculum area or areas in which they taught. The findings indicate their assignments frequently included more than one curriculum area.

As illustrated in Table III, 22, or 17.9 per cent, of the respondents taught crafts, while those teaching drafting and woodworking were evenly divided with 47, or 38.2 per cent, teaching in both areas. A total of 19, or 15.4 per cent, of the respondents taught electronics, whereas graphic

<table>
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<th>Area</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents*</th>
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<td>Crafts</td>
<td>22</td>
<td>17.9</td>
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<td>Drafting</td>
<td>47</td>
<td>38.2</td>
</tr>
<tr>
<td>Electronics</td>
<td>19</td>
<td>15.4</td>
</tr>
<tr>
<td>Graphic Arts</td>
<td>13</td>
<td>10.6</td>
</tr>
<tr>
<td>General Shop</td>
<td>25</td>
<td>20.3</td>
</tr>
<tr>
<td>Metals</td>
<td>32</td>
<td>26.0</td>
</tr>
<tr>
<td>Power Mechanics</td>
<td>13</td>
<td>10.6</td>
</tr>
<tr>
<td>Woodworking</td>
<td>47</td>
<td>38.2</td>
</tr>
<tr>
<td>Plastics</td>
<td>4</td>
<td>3.3</td>
</tr>
</tbody>
</table>

*Due to multiple responses, per cents do not total 100.
arts and power mechanics were evenly divided, each with 13, or 10.6 per cent, of the respondents. Twenty-five, or 20.3 per cent, of the respondents taught general shop, while 32, or 26.0 per cent, taught metals. Only \( \frac{1}{4} \), or 3.3 per cent, of the respondents indicated they taught plastics.

In general, more of the respondents taught in at least one of the so-called traditional industrial arts areas of drafting, woodworking, and metals. The areas of drafting and woodworking accounted for more teachers than any other area included in the study.

Educational Background of the Respondents

It was considered important to the study to know the educational background of the respondents. As illustrated in Table IV, 71, or 57.5 per cent, of the respondents held bachelors degrees, while 53, or 42.3 per cent, held either master's degrees or doctorates. Fifty-one, or 41.5 per cent,

| TABLE IV |
|-----------------|-----------------|-----------------|
| Degrees Held    | Number of       | Per Cent of     |
|                 | Respondents     | Respondents*    |
| Bachelors       | 71              | 57.7            |
| Masters         | 51              | 41.5            |
| Doctorate       | 1               | 0.8             |
| Total           | 123             | 100.0           |

*Percentages based on 123 respondents
of the responses were received from teachers with masters degrees. Only 1, or 0.8 per cent, of the responses was received from a teacher with the doctorate.

Nineteen, or 15.4 per cent, more responses were received from teachers with bachelors degrees than were received from teachers with masters or doctorates. Not one indicated he held less than a bachelors degree. The information supplied by the respondents indicated they were well qualified as teachers.

Grade Level Assignments of Respondents

A question was designed and included in the information form to find the grade levels included in the respondents' assignments. These data were needed to show that the information form was completed and returned by teachers at all levels of secondary education in the state of Texas.

As indicated in Table V, teachers having middle school assignments comprised 11, or 9 per cent, of the respondents, while 28, or 22.8 per cent, of the respondents filled teaching positions at the junior high school level. Eighty, or 65 per cent, of the responses were received from high school industrial arts teachers. Three, or 2.4 per cent, of the responses were received from teachers teaching in schools with grade level distributions other than those designated as either middle school, junior high school, or high school, as defined in this study. However, these responses were
considered of value to the study because they were received from respondents teaching in combination junior-senior high

TABLE V

GRADE LEVEL ASSIGNMENTS OF RESPONDENTS

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle School</td>
<td>11</td>
<td>9.0</td>
</tr>
<tr>
<td>Junior High</td>
<td>28</td>
<td>22.8</td>
</tr>
<tr>
<td>Senior High</td>
<td>80</td>
<td>65.0</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2.4</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Percentages based on 123 respondents

schools. One, or 0.8 of one per cent, did not respond to the question.

High school teachers supplied the largest number, or 65 per cent, of the responses. Therefore, the results predominantly reflected the opinions and ideas of high school teachers.

Student Enrollment in Schools in Which Respondents Taught

There was no attempt to limit the study to schools of a particular size. The method of sampling provided returns from schools of varying size.
Table VI shows the majority of the respondents, 47, or 38.2 per cent, taught in schools with enrollments from 1,001 to 2,000 students. Information forms received from respondents teaching in schools with 500 or less students enrolled.

### TABLE VI

**ENROLLMENT IN SCHOOLS IN WHICH RESPONDENTS TAUGHT**

<table>
<thead>
<tr>
<th>Enrollment</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0- 500</td>
<td>20</td>
<td>16.3</td>
</tr>
<tr>
<td>501-1,000</td>
<td>28</td>
<td>22.8</td>
</tr>
<tr>
<td>1,001-2,000</td>
<td>47</td>
<td>38.2</td>
</tr>
<tr>
<td>2,001-3,000</td>
<td>24</td>
<td>19.5</td>
</tr>
<tr>
<td>3,001 or over</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>No Response</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Percentage based on 123 respondents

totaled 20, or 16.3 per cent, of those returned, while 28, or 22.8 per cent, were received from teachers in schools with 501 to 1,000 students enrolled.

Twenty-four, or 19.5 per cent, of the responses were received from respondents teaching in schools with 2,001 to 3,000 students enrolled, whereas respondents teaching in schools with 3,000 or more students enrolled accounted for
only 2, or 1.6 per cent, of the responses received. Of the information forms returned only 2, or 1.6 per cent, of the respondents did not respond to the question.

In general, the information shows an even representation of respondents teaching in schools with enrollments ranging from 0 to 500 students, 501 to 1,000 students, and 2,001 to 3,000 students. However, the 47 respondents teaching in schools with 1,001 to 2,000 students enrolled accounted for approximately twice the number in any of the other major categories.

Classification of the Communities in Which the Respondents Were Employed

The information supplied by the respondents furnished data relative to the classification of the communities in which they were employed. The communities as referred to in this study were classified on the information form as mainly agricultural, mainly industrial, or approximately equal. These classifications were based on the main source of income for the community. This information was needed to show that responses were received from teachers who taught in agricultural communities as well as from those who taught in industrial communities. It was also considered important to show that responses were received from respondents teaching in communities in which agricultural and industrial influences were approximately equal.
As indicated in Table VII, 21, or 17.1 per cent, of the respondents taught in communities that were mainly agricultural. Seventy-two, or 58.5 per cent, of the responses were received from teachers teaching in industrial communities,

TABLE VII
CLASSIFICATION OF THE COMMUNITIES IN WHICH THE RESPONDENTS WERE EMPLOYED

<table>
<thead>
<tr>
<th>Classification of Communities</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mainly Agricultural</td>
<td>21</td>
<td>17.1</td>
</tr>
<tr>
<td>Mainly Industrial</td>
<td>72</td>
<td>58.5</td>
</tr>
<tr>
<td>Approximately Equal</td>
<td>26</td>
<td>21.2</td>
</tr>
<tr>
<td>Do Not Know</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>No Response</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Percentages based on 123 respondents

while 26, or 21.2 per cent, of the respondents taught in communities that had approximately equal representation in agriculture and industry. A total of 2, or 1.6 per cent, of the respondents stated they did not know their communities' classification, and 2, or 1.6 per cent, chose not to respond. Respondents teaching in agricultural communities and those teaching in communities with equal representation in agriculture and industry comprised 38.3 per cent of the respondents.
CHAPTER III

GIRLS' INVOLVEMENT IN INDUSTRIAL ARTS IN TEXAS
AND FACTORS THAT LIMIT THEIR PARTICIPATION

At present, the Texas State Education Agency does not have readily available the enrollment by sex in the various areas of industrial arts. A major part of the data presented in Chapter III pertains to this topic. Data related to some of the factors which limit the number of girls enrolled in industrial arts classes are also included in this chapter. The data were secured from questions included in the information form which was completed by selected industrial arts teachers.

Data presented include total enrollment and the enrollment of girls in the industrial arts areas of crafts, drafting, electronics, graphic arts, general shop, metals, power mechanics, woodworking, and plastics. A presentation of the involvement of girls in industrial arts clubs in schools in which the respondents taught, and respondents' receptiveness to teaching industrial arts to girls are given. Also included are the respondents' assessments of the value of industrial arts for girls, as well as their opinion concerning the feelings of administrators, counselors, other teachers, and parents toward girls being scheduled into industrial arts classes. The opinions of the respondents as to
the reasons girls are not encouraged to enroll more extensively in industrial arts, and their opinions pertaining to the negative feelings of girls toward enrolling in industrial arts are presented. Also included is information supplied by the respondents concerning the effect of girls on discipline in industrial arts classes.

Enrollment in Industrial Arts Classes

Data concerning the total number of students enrolled in industrial arts classes in schools in which the respondents taught were supplied by 123 public school industrial arts teachers.

As shown in Table VIII, 12,857 of the students enrolled were boys, while 1,107 were girls. This is a total of 13,964 students enrolled in the industrial arts curriculum in schools in which the respondents taught. The findings indicate that girls were enrolled in industrial arts but only at an approximate ratio of one to twelve boys.

Students enrolled in crafts accounted for 1,115, or 8.0 per cent, of the total number of students enrolled in industrial arts classes. Of this number, 760, or 68.2 per cent, of the students were boys. Girls comprised 31.8 per cent of the crafts students. Two thousand nine hundred and four, or 20.4 per cent, of the students were enrolled in drafting. There were 2,648, or 92.4 per cent, male drafting
TABLE VIII

ENROLLMENT IN INDUSTRIAL ARTS IN SCHOOLS IN WHICH THE RESPONDENTS TAUGHT

<table>
<thead>
<tr>
<th>Areas</th>
<th>Total in Area</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Per Cent</td>
<td>Number</td>
</tr>
<tr>
<td>Crafts</td>
<td>1,115</td>
<td>8.0</td>
<td>760</td>
</tr>
<tr>
<td>Drafting</td>
<td>2,904</td>
<td>20.4</td>
<td>2,684</td>
</tr>
<tr>
<td>Electronics</td>
<td>887</td>
<td>6.4</td>
<td>881</td>
</tr>
<tr>
<td>Graphic Arts</td>
<td>856</td>
<td>6.1</td>
<td>557</td>
</tr>
<tr>
<td>General Shop</td>
<td>1,488</td>
<td>10.6</td>
<td>1,459</td>
</tr>
<tr>
<td>Metals</td>
<td>1,912</td>
<td>13.7</td>
<td>1,911</td>
</tr>
<tr>
<td>Power Mechanics</td>
<td>951</td>
<td>6.8</td>
<td>951</td>
</tr>
<tr>
<td>Woodworking</td>
<td>3,559</td>
<td>25.5</td>
<td>3,442</td>
</tr>
<tr>
<td>Plastics</td>
<td>292</td>
<td>2.1</td>
<td>212</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13,964</td>
<td>100.0</td>
<td>12,857</td>
</tr>
</tbody>
</table>

*Due to multiple responses, per cents do not total 100.*
students, while 220, or 7.6 per cent, of the drafting stu-
dents were female.

Students enrolled in electronics accounted for 887, or
6.4 per cent, of those enrolled in industrial arts. Male
students were responsible for 881, or 99.3 per cent, of this
number, while only 6, or 0.7 per cent, were girls. The num-er of industrial arts students enrolled in graphic arts
was 856, or 6.1 per cent, of the total industrial arts stu-
dent population. A total of 557, or 61.5 per cent, were
boys, whereas 299, or 34.9 per cent, were girls.

There were 1,488, or 10.6 per cent, of the students
enrolled in general shop. One thousand four hundred and
fifty-nine, or 98.1 per cent, were boys, while 29, or 1.9
per cent, were girls. Students in metals accounted for 1,912,
or 13.7 per cent, of those enrolled in industrial arts. Of
this number, 1,911, or 99.0 per cent, were boys. Only 1,
or 0.1 per cent, of the students in metals was a girl.

Students enrolled in power mechanics accounted for 951,
or 6.8 per cent, of those enrolled in industrial arts. There
were no girls enrolled in this area. Students in woodworking
were responsible for 3,599, or 25.5 per cent, of the students
enrolled in industrial arts. Three thousand four hundred and
forty-two, or 96.7 per cent, were boys, while 117, or 3.3
per cent, were girls. There were only 292, or 2.1 per cent,
of the total number of industrial arts students enrolled in
plastics. Of this number 212, or 72.6 per cent, were boys,
whereas girls accounted for 30, or 27.4 per cent, of the students.

Enrollment of Girls in Industrial Arts Curriculum Areas

As shown in Table IX, girls tend to enroll in certain areas of industrial arts, with little or no participation in other areas.

TABLE IX
ENROLLMENT OF GIRLS IN INDUSTRIAL ARTS

<table>
<thead>
<tr>
<th>Area</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crafts</td>
<td>355</td>
<td>32.1</td>
</tr>
<tr>
<td>Drafting</td>
<td>220</td>
<td>19.9</td>
</tr>
<tr>
<td>Electronics</td>
<td>6</td>
<td>0.5</td>
</tr>
<tr>
<td>Graphic Arts</td>
<td>299</td>
<td>27.0</td>
</tr>
<tr>
<td>General Shop</td>
<td>29</td>
<td>2.6</td>
</tr>
<tr>
<td>Metals</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Power Mechanics</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Woodworking</td>
<td>117</td>
<td>10.6</td>
</tr>
<tr>
<td>Plastics</td>
<td>80</td>
<td>7.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,107</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Information supplied by the respondents shows that in schools in which programs were available, there were more girls enrolled in crafts than in any other industrial arts curriculum area. They accounted for 355, or 32.1 per cent, of the total number of girls enrolled in industrial arts classes. The second largest enrollment of girls was in the area of graphic arts, in which 299, or 27 per cent were enrolled. The enrollment of girls in drafting accounted for 220, or
19.9 per cent, of those enrolled in industrial arts, whereas 117, or 10.6 per cent, of the total number of girls were enrolled in woodworking. Students in plastics comprised 80, or 7.2 per cent, of the girls enrolled, while those enrolled in general shop were responsible for 29, or 2.6 per cent. Six, or 0.5 per cent, of the total number of girls enrolled were taking electronics. Only 1, or 0.1 per cent, of the girls was a student in metal, while there were no girls enrolled in power mechanics.

Involvement of Girls in Industrial Arts Clubs

As shown in Table X, 28, or 22.8 per cent, of the respondents indicated their schools sponsored industrial arts clubs.

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sponsors Club</td>
<td>28</td>
<td>22.8</td>
</tr>
<tr>
<td>Does Not Sponsor Club</td>
<td>95</td>
<td>77.2</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Ninety-five, or 77.2 per cent, of the teachers stated their schools did not have industrial arts clubs.

Data pertaining to the number of students involved in industrial arts clubs are presented in Table XI. There was a total of 960 students involved in these clubs. Eight hundred and ninety-five, or 93.2 per cent, of the club members
TABLE XI

STUDENTS' INVOLVEMENT IN INDUSTRIAL ARTS CLUBS

<table>
<thead>
<tr>
<th>Students</th>
<th>Number of Members</th>
<th>Per Cent of Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>895</td>
<td>93.2</td>
</tr>
<tr>
<td>Girls</td>
<td>65</td>
<td>6.8</td>
</tr>
<tr>
<td>Total</td>
<td>960</td>
<td>100.0</td>
</tr>
</tbody>
</table>

were boys. Girls accounted for 65, or 6.8 per cent, of the industrial arts club members. The findings indicate that girls were involved in industrial arts clubs but not nearly to the extent as were boys.

Respondents' Receptiveness to Teaching Industrial Arts to Girls

To know the respondents' receptiveness to teaching industrial arts to girls was considered important to the study, as this might affect directly the number of girls enrolled. A question was designed and included in the information form to secure relative data. Information supplied by the respondents is presented in Table XII.

The majority of the respondents indicated they would be receptive to teaching industrial arts to girls. One hundred and twelve, or 91.1 per cent, of the respondents were in this category. There were 11, or 8.9 per cent, who indicated they
TABLE XII
RESPONDENTS' RECEPTIVENESS TO TEACHING INDUSTRIAL ARTS TO GIRLS

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptive</td>
<td>112</td>
<td>91.1</td>
</tr>
<tr>
<td>Not Receptive</td>
<td>11</td>
<td>8.9</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>

would not be receptive to teaching industrial arts to girls of the 123 who replied.

Value of Industrial Arts to Girls

As shown in Table XIII, the respondents were asked to give their opinions regarding the value of industrial arts

TABLE XIII
VALUE OF INDUSTRIAL ARTS FOR GIRLS

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much Value</td>
<td>67</td>
<td>54.5</td>
</tr>
<tr>
<td>Moderate Value</td>
<td>48</td>
<td>39.0</td>
</tr>
<tr>
<td>Little Value</td>
<td>6</td>
<td>4.9</td>
</tr>
<tr>
<td>No Value</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>
for girls. Sixty-seven, or 54.5 per cent, of the respondents indicated they believed industrial arts would be of much value to girls. Forty-eight, or 39 per cent, of the respondents reported that industrial arts was of moderate value to girls, while 6, or 4.6 per cent, stated it would be of little value to them. Only 1, or 0.8 per cent, believed that industrial arts would be of no value to girls, and 1, or .08 per cent, failed to respond to the question.

Restricted Enrollment

As indicated in Table XIV, 120, or 97.6 per cent, of the respondents believed industrial arts classes should be open

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open to Girls</td>
<td>120</td>
<td>97.6</td>
</tr>
<tr>
<td>Closed to Girls</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>

to girls, while 2, or 1.6 per cent, indicated they should not. One, or 0.8 per cent, of the respondents failed to respond to the question.
An overwhelming majority of the respondents believed that some industrial arts should be included in the educational experiences of girls from grades six through twelve, the grade levels included in the study.

Grade Levels and Areas of Industrial Arts in Which Classes Should Be Open to Girls

Since there is a wide range of industrial arts areas available in grades six through twelve in many Texas schools, it was considered important to find the opinions of teachers regarding the areas of instruction that best meet the needs of girls and the most appropriate grade levels at which to provide them. The levels designated in this study were defined in Chapter I.

Figure 1 presents graphically the data received on information forms returned. Fifty-six per cent of the respondents believed that crafts should be open to girls at the middle school level, while 72 per cent indicated it should be open to them at the junior high school level. Those who thought crafts should be open to girls at the high school level accounted for 70 per cent of the respondents.

Thirty-five per cent of the responses received indicated that drafting should be offered to girls at the middle school level, while 68 per cent indicated it should be offered to them at the junior high school level. It seemed to be the consensus of the group that drafting at the high school level was more important to girls than any other
Fig. 1--Grade levels at which curriculum areas should be open to girls.
industrial arts area offered. The majority, or 79 per cent, of the respondents indicated it was more important to girls at this level.

Twenty-nine per cent of the responses were received from teachers who believed electronics would be of value to girls at the middle school level, whereas 49 per cent indicated it should be open to junior high school girls. Sixty-seven per cent of the respondents believed that electronics should be open to high school girls.

A total of 33 per cent of the respondents indicated that graphic arts should be open to girls at the middle school level. Fifty-five per cent believed graphic arts should be made available to junior high school girls, while 62 per cent thought it should be made available to girls at the high school level.

Thirty-six per cent of the respondents indicated that general shop should be open to middle school girls, whereas 60 per cent thought it important that general shop be made available to junior high school girls. Those who indicated high school girls should be allowed to take general shop accounted for 62 per cent of the respondents.

Responses that indicated metals should be open to middle school girls accounted for 23 per cent of those received. Thirty-six per cent of the respondents believed that girls should be allowed to take metals at the junior high school
level, while 45 per cent indicated that metals should be offered to high school girls.

Only 20 per cent of the respondents believed power mechanics should be open to middle school girls, while 32 per cent believed it should be open to girls at the junior high school level. However, 50 per cent believed high school girls should be allowed to take power mechanics.

As the data indicate, 35 per cent of the responses were received from teachers who believed that woodworking should be offered to middle school girls. Fifty-five per cent thought junior high school girls should be allowed to take it, while 66 per cent indicated that woodworking should be offered to girls at the high school level.

Encouragement of Girls' Enrollment in Industrial Arts by School Personnel and Parents

The respondents were asked to indicate their opinions regarding the feelings of school administrators, counselors, other teachers, and parents toward scheduling girls in industrial arts. The responses are illustrated graphically in Figure 2.

Of the respondents, 33 per cent were of the opinion that school administrators discourage the scheduling of girls into industrial arts. However, 29 per cent were of the opinion that administrators appeared to be neutral concerning the matter, while 21 per cent did not know where administrators stood on the subject. Only 17 per cent believed
Fig. 2--Respondents' opinions regarding the feelings of school administrators, counselors, other teachers, and parents toward girls scheduling industrial arts.

that administrators encouraged the scheduling of girls into industrial arts.
There were 29 per cent of the respondents who indicated that counselors appeared to discourage the scheduling of girls into industrial arts. Twenty-eight per cent reported they were neutral, and 17 per cent did not know counselors' attitudes toward the subject. Also, 26 per cent of the respondents indicated that counselors encouraged the scheduling of girls into industrial arts.

Information supplied by the industrial arts teachers indicated 36 per cent thought other teachers were neutral concerning the scheduling of girls into industrial arts, whereas 28 per cent did not know how other teachers believed. While 24 per cent indicated other teachers encouraged girls being scheduled into industrial arts, 12 per cent thought other teachers discouraged the practice.

The majority, or 61 per cent, of the respondents did not know how parents believed about girls' enrollment in industrial arts. Seventeen per cent indicated they thought parents encouraged the scheduling of girls into industrial arts. Thirteen percent indicated parents appeared to be neutral on the subject, whereas 9 per cent believed parents discouraged the scheduling of girls into industrial arts.

Reasons Girls Are Not Encouraged to Take Industrial Arts Classes

A question was included in the information form to find industrial arts teachers' opinions as to why girls were not encouraged more often to take industrial arts classes.
As illustrated in Figure 3, 52 per cent of the respondents believed tradition was the main reason girls were not encouraged to take industrial arts. Thirty-three per cent reported that facilities were not adequate to accommodate additional student load brought about by girls scheduling

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities Not Available</td>
<td>XXXXXXXXXXXXXXX</td>
</tr>
<tr>
<td>School Policy</td>
<td>XXXXXXXXXXXX</td>
</tr>
<tr>
<td>Teacher Preference</td>
<td>XXXX</td>
</tr>
<tr>
<td>Parental Influence</td>
<td>XXX</td>
</tr>
<tr>
<td>Counselor Influence</td>
<td>XXXXXXXXXXXXX</td>
</tr>
<tr>
<td>Tradition</td>
<td>XXXXXXXXXXXXXXXXXXXXXXX</td>
</tr>
</tbody>
</table>

Fig. 3--Respondents' opinions as to the reasons girls were not encouraged to take industrial arts.

industrial arts, while 26 per cent thought counselor influence was the predominant cause.

Those who believed school policy was the predominant reason girls were not encouraged to take industrial arts accounted for 20 per cent of the respondents, whereas 8 per cent indicated that industrial arts teachers preferred not to
teach girls. Seven per cent thought parental influence was the main reason girls did not take industrial arts.

**Negative Feelings of Girls Toward Taking Industrial Arts**

Figure 4 presents graphically the opinions of industrial arts teachers concerning the negative feelings of girls toward their involvement in industrial arts classes.

**Girls' Feelings**

- Shows Lack of Femininity
- Too Hazardous
- Not Accepted by Boys
- Indifferent
- Parents Will Disapprove
- Adversely Affect Relationship With Other Girls

**Fig. 4**—Respondents' opinions concerning negative feelings of girls toward taking industrial arts.

Thirty-seven per cent of the respondents indicated girls did not take industrial arts because they believed it was too hazardous. Thirty-six per cent of the respondents indicated
the predominant reason that girls did not take industrial arts was because it presents an image that is less feminine than desired.

Those who thought girls were indifferent concerning their participation in industrial arts accounted for 24 per cent of the respondents, while 17 per cent reported girls did not take industrial arts because their parents would disapprove. Ten per cent of the respondents indicated the main reason girls were not taking industrial arts was due to the feeling they would not be accepted by boys in the classes. Those who thought girls were concerned that it would adversely affect their relationship with other girls accounted for 6 per cent of the respondents.

Girls' Effect on Discipline

Data concerning the ways girls affect discipline in industrial arts classes are presented in Table XV.

TABLE XV

<table>
<thead>
<tr>
<th>GIRLS' EFFECT ON DISCIPLINE IN INDUSTRIAL ARTS CLASSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td>Decrease Problem</td>
</tr>
<tr>
<td>Increase Problem</td>
</tr>
<tr>
<td>Little or No Effect</td>
</tr>
<tr>
<td>No Response</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Teachers who indicated that girls have no effect on discipline in industrial arts classes accounted for 57, or 46.3 per cent, of the respondents, while 29, or 23.6 per cent, indicated girls increased the discipline problem. Twenty-four, or 19.5 per cent, of the respondents stated girls decreased the discipline problem, and 13, or 10.6 per cent, failed to respond to the question.
CHAPTER IV

NATURE OF INDUSTRIAL ARTS FOR GIRLS
IN THE STATE OF TEXAS

Previous chapters presented information concerning the extent to which girls are involved in industrial arts. A major part of the data presented in Chapter IV pertains to the opinions of the respondents regarding the nature of industrial arts appropriate for girls. The data were ascertained from questions included in the information form which was completed by the industrial arts teachers.

Information presented includes a summary of school policies concerning the eligibility of girls to enroll in industrial arts classes and teacher opinions of the most appropriate number of elective industrial arts credits for girls. The respondents' assessments of the class setting in which girls should be taught as well as their opinions regarding the order of importance of the stated objectives of industrial arts and the value of the realization of these objectives by girls are presented. Also included are the opinions of the respondents as to whether their present industrial arts programs should be modified to meet the needs of girls and, if modification is needed, their opinions regarding the types of changes feasible.
A presentation of the respondents' opinions pertaining to the value of an exchange unit for girls, and their thoughts as to the optimum duration of the exchange unit are given. The respondents' opinions regarding the type of industrial arts subject matter that should be taught to girls, and their thoughts as to how a unified arts program would compare to the present separate programs are included. Information pertaining to the eligibility of girls to be members of industrial arts clubs in schools in which the respondents taught is given. Also included are data concerning the number of schools sponsoring home economics clubs, as well as respondents' views regarding joint activities between the two clubs. Finally, the opinions of the respondents as to the types of joint activities that should be undertaken are presented.

Industrial Arts Classes Open to Girls

The respondents were asked to indicate whether or not girls were eligible in their schools to enroll in the industrial arts areas in which they taught. The majority of the respondents taught in more than one area of industrial arts and, therefore, provided multiple responses. In many instances, they indicated that certain industrial arts classes were open to girls while others were closed in their particular school as a matter of policy. Information supplied by
the respondents concerning areas of industrial arts open to girls is presented in Table XVI.

Respondents who indicated crafts was open to girls accounted for 19, or 86.4 per cent, of those teaching crafts, while 3, or 13.6 per cent, of the crafts teachers stated crafts classes were closed to girls. Forty-two, or 89.4 per cent, of the drafting teachers indicated that drafting was open to girls in the schools in which they taught, whereas 5, or 10.6 per cent, indicated drafting was not open.

Teachers who stated electronics was open to girls accounted for 13, or 68.4 per cent, of the responses received from electronics teachers, while 6, or 31.6 per cent of the responses were received from electronics teachers who taught in schools where electronics was closed to girls. Thirteen of the respondents taught graphic arts and they all stated their classes were open to girls.

The majority of the general shop teachers, 18, or 72 per cent, indicated general shop was closed to girls, whereas 7, or 28 per cent, responded that general shop was open to girls. Nineteen, or 59.4 per cent, of the metals teachers stated metals was closed to girls, while metals classes were open to girls in 13, or 40.6 per cent, of the schools in which the respondents taught.

As indicated by the power mechanics teachers, girls were allowed to take power mechanics in 6, or 46.2 per cent, of
## TABLE XVI

**INDUSTRIAL ARTS AREAS OPEN TO GIRLS IN SCHOOLS OF RESPONDENTS**

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of Respondents</th>
<th>Open to Girls</th>
<th></th>
<th></th>
<th>Closed to Girls</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number</td>
<td>Per Cent*</td>
<td>Number</td>
<td>Per Cent*</td>
<td></td>
</tr>
<tr>
<td>Crafts</td>
<td>22</td>
<td>19</td>
<td>86.4</td>
<td>3</td>
<td>13.6</td>
<td></td>
</tr>
<tr>
<td>Drafting</td>
<td>47</td>
<td>42</td>
<td>89.4</td>
<td>5</td>
<td>10.6</td>
<td></td>
</tr>
<tr>
<td>Electronics</td>
<td>19</td>
<td>13</td>
<td>68.4</td>
<td>5</td>
<td>31.6</td>
<td></td>
</tr>
<tr>
<td>Graphic Arts</td>
<td>13</td>
<td>13</td>
<td>100.0</td>
<td>0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>General Shop</td>
<td>25</td>
<td>7</td>
<td>28.0</td>
<td>18</td>
<td>72.0</td>
<td></td>
</tr>
<tr>
<td>Metals</td>
<td>32</td>
<td>13</td>
<td>40.6</td>
<td>19</td>
<td>59.4</td>
<td></td>
</tr>
<tr>
<td>Power Mechanics</td>
<td>13</td>
<td>6</td>
<td>46.2</td>
<td>7</td>
<td>53.8</td>
<td></td>
</tr>
<tr>
<td>Woodworking</td>
<td>47</td>
<td>26</td>
<td>55.3</td>
<td>21</td>
<td>44.7</td>
<td></td>
</tr>
<tr>
<td>Plastics</td>
<td>4</td>
<td>4</td>
<td>100.0</td>
<td>0</td>
<td>0.0</td>
<td></td>
</tr>
</tbody>
</table>

*Percentages based on the number of respondents teaching in each subject area.*
the schools, whereas in 7, or 53.8 per cent, of the schools they were not.

While 26, or 55.3 per cent, of the woodworking teachers indicated girls were allowed to enroll in woodworking, 21, or 44.7 per cent, stated girls were not permitted to enroll. Four of the respondents included plastics as an area they taught in which girls were allowed to enroll.

The Optimum Number of Industrial Arts Credits for Girls

It is recognized that programs of study for secondary school students should be tailored to meet individual needs. In this study, there was an attempt, however, to find the respondents' opinions concerning the optimum number of industrial arts credits generally needed by girls in grades seven through twelve.

As shown in Table XVII, 46, or 37.4 per cent, of the respondents indicated two credits was the most appropriate number of industrial arts credits for girls. Thirty, or 24.4 per cent, of the respondents indicated that the most appropriate number of credits for girls is one.

Those who thought three was an appropriate number of credits for girls accounted for 20, or 16.3 per cent, of the respondents, whereas 16, or 13.0 per cent, thought girls should accumulate four credits. Only 4, or 3.2 per cent of the responses that were received indicated girls should not
TABLE XVII
THE OPTIMUM NUMBER OF INDUSTRIAL ARTS CREDITS
FOR GIRLS IN GRADES SEVEN THROUGH TWELVE

<table>
<thead>
<tr>
<th>Credits</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
<td>3.2</td>
</tr>
<tr>
<td>1</td>
<td>30</td>
<td>24.4</td>
</tr>
<tr>
<td>2</td>
<td>46</td>
<td>37.4</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>16.3</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>13.0</td>
</tr>
<tr>
<td>No Response</td>
<td>7</td>
<td>5.7</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>

have any industrial arts credits, while 7, or 5.7 per cent, failed to respond to the question.

Class Setting Most Appropriate for Girls in Industrial Arts

A question was included in the information form in which industrial arts teachers were asked to give their opinions regarding the class setting most appropriate for girls in industrial arts.

As shown in Table XVIII, the respondents were predominantly in favor of girls being scheduled into mixed classes as opposed to all-girl classes. Eighty-five, or 69.1 per cent, of them favored mixed classes for girls, while 27, or
TABLE XVIII
CLASS SETTING MOST APPROPRIATE FOR GIRLS IN INDUSTRIAL ARTS

<table>
<thead>
<tr>
<th>Class Setting</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Classes</td>
<td>85</td>
<td>69.1</td>
</tr>
<tr>
<td>All-girl Classes</td>
<td>27</td>
<td>22.0</td>
</tr>
<tr>
<td>No Opinion</td>
<td>11</td>
<td>8.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>123</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

22 per cent, favored all-girl classes. Only 11, or 8.9 per cent, of them reported they had no opinion on the subject.

Objectives of Industrial Arts and Their Value to Girls

Since Hostetaler (1) conducted his study concerning objectives of industrial arts, the findings of which were published in 1960 by the United States Office of Education, the most quoted and accepted objectives of industrial arts are those stated in Table XIX.

The respondents were asked to give their opinions regarding the order of importance of the stated objectives of industrial arts and the value of the realization of these objectives by girls. Information supplied by the respondents is presented in Table XIX.
TABLE XIX
ORDER OF IMPORTANCE OF THE STATED
OBJECTIVES OF INDUSTRIAL ARTS

<table>
<thead>
<tr>
<th>Order of Importance</th>
<th>Objectives</th>
<th>* Number of Respondents</th>
<th>Per Cent of Respondents</th>
<th>*** Number of Respondents</th>
<th>Per Cent of Respondents</th>
<th>**** Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>*</td>
<td>50</td>
<td>40.6</td>
<td>20</td>
<td>16.3</td>
<td>14</td>
<td>11.4</td>
</tr>
<tr>
<td>Second</td>
<td>**</td>
<td>29</td>
<td>23.6</td>
<td>24</td>
<td>19.5</td>
<td>28</td>
<td>22.8</td>
</tr>
<tr>
<td>Third</td>
<td>***</td>
<td>15</td>
<td>12.2</td>
<td>33</td>
<td>26.8</td>
<td>40</td>
<td>32.5</td>
</tr>
<tr>
<td>Fourth</td>
<td>****</td>
<td>23</td>
<td>18.7</td>
<td>32</td>
<td>26.0</td>
<td>27</td>
<td>21.9</td>
</tr>
<tr>
<td>No Answer</td>
<td></td>
<td>6</td>
<td>4.9</td>
<td>14</td>
<td>11.4</td>
<td>14</td>
<td>11.4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>123</td>
<td>100.0</td>
<td>123</td>
<td>100.0</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*To develop in each student an insight and understanding of industry and its place in our culture.

**To discover and develop talents of students in the technical fields and applied sciences.

***To develop technical problem-solving skills related to materials and processes.

****To develop in each student a measure of skill in the use of common tools and machinery.

Fifty, or 40.6 per cent, of the respondents considered the most important objective of industrial arts was to develop in each student an insight and understanding of industry and its place in our culture, while 29, or 23.6 per
cent, thought it ranked second. Those who thought it was the third most important objective accounted for 15, or 12.2 per cent, of the respondents, whereas 23, or 18.7 per cent, believed it should be the fourth objective of industrial arts. Six, or 4.9 per cent, of the respondents failed to respond to the question.

To discover and develop the talents of students in technical fields and applied sciences was considered the most important objective of industrial arts by 20, or 16.3 per cent, of the respondents, while 24, or 19.5 per cent, ranked it second. Thirty-three, or 26.8 per cent, believed it should be the third industrial arts objective, and 23, or 26.0 per cent, indicated it should be fourth. Those choosing not to respond to this part of the question totaled 14, or 11.4 per cent, of the respondents.

Those who believed the most important objective of industrial arts was to develop technical problem-solving skills related to materials and processes accounted for 14, or 11.4 per cent, of the respondents, while 28, or 22.8 per cent, indicated it was the second most important objective. Forty, or 32.5 per cent, ranked it third in order of importance, and 27, or 21.9 per cent, believed it was the fourth most important objective. Teachers who failed to respond to the question comprised 14, or 11.4 per cent, of those who returned the information forms.
Respondents who considered the objective of industrial arts to develop in each student a measure of skill in the use of common tools and machinery as first in the order of importance accounted for 35, or 28.5 per cent, of the responses received, while 34, or 27.6 per cent, indicated it was second. Those who believed it ranked third in order of importance accounted for 16, or 13.0 per cent, of the respondents, whereas, 24, or 19.5 per cent, thought it was fourth. Fourteen, or 11.4 per cent, failed to respond to this part of the question.

As shown in Table XX, the majority of the respondents indicated the realization of the stated objectives of

<p>| TABLE XX |
| RESPONDENTS' OPINIONS REGARDING THE IMPORTANCE OF THE REALIZATION OF THE STATED OBJECTIVES OF INDUSTRIAL ARTS BY GIRLS |</p>
<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Of equal value to girls and boys</td>
<td>87</td>
<td>70.7</td>
</tr>
<tr>
<td>Of value to girls but of less value than to boys</td>
<td>31</td>
<td>25.2</td>
</tr>
<tr>
<td>Of more value to girls than to boys</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>No Opinion</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>
industrial arts was of equal value to girls and boys. Those who gave this opinion accounted for 87, or 70.7 per cent, of the respondents, while 31, or 25.2 per cent, of them felt these objectives were of value to girls but of less value than to boys. Only 2, or 1.6 per cent, of the respondents indicated these objectives were of more value to girls than to boys, whereas 3, or 2.5 per cent, stated they had no opinion on the subject.

Modification of the Present Industrial Arts Program to Meet the Needs of Girls

The respondents were asked to give their opinions as to whether or not the enrollment of girls in the present industrial arts program in the schools in which they taught would necessitate the modification of these programs to meet girls' needs. The findings are presented in Table XXI.

TABLE XXI

MODIFICATION OF THE PRESENT INDUSTRIAL ARTS PROGRAM TO MEET THE NEEDS OF GIRLS

<table>
<thead>
<tr>
<th>Extent of Modification</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extensively</td>
<td>12</td>
<td>9.8</td>
</tr>
<tr>
<td>Moderately</td>
<td>50</td>
<td>40.7</td>
</tr>
<tr>
<td>Little or None</td>
<td>58</td>
<td>47.1</td>
</tr>
<tr>
<td>No Response</td>
<td>3</td>
<td>2.4</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Those who indicated the program should be changed moderately were responsible for 50, or 40.7 per cent, of the responses, while 58, or 47.1 per cent, believed the present program should be modified little or none. Only 12, or 9.8 per cent, indicated extensive modification was necessary, and 3, or 2.4 per cent, of the respondents failed to answer the question.

Respondents’ Opinions Regarding the Types of Modification Feasible

A question was included in the information form in which the respondents were asked to indicate the types of changes they would suggest if modification of the present industrial arts program was necessary to meet girls’ needs. Data supplied by the respondents are presented in Table XXII.

A majority, 90, or 73.2 per cent, of the respondents thought that if a change in the present industrial arts program was needed for girls it should be toward familiarizing them with industrial products found in the home and how to perform basic repairs. Fifty-two, or 42.3 per cent, of the respondents indicated change should take the form of increased emphasis on consumer education, while 43, or 35 per cent, believed information pertaining to labor statistics concerning women in industry should be made available.

If the current industrial arts programs were in need of modification, one change that might be implemented as
TABLE XXII
SUGGESTED CHANGES OF THE PRESENT INDUSTRIAL ARTS PROGRAM

<table>
<thead>
<tr>
<th>Suggested Changes</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased emphasis on consumer information</td>
<td>52</td>
<td>42.3</td>
</tr>
<tr>
<td>Information pertaining to labor statistics on women in industry</td>
<td>43</td>
<td>35.0</td>
</tr>
<tr>
<td>More emphasis on occupational information pertaining to industry</td>
<td>35</td>
<td>28.5</td>
</tr>
<tr>
<td>Unit to familiarize girls with industrial products found in the home and how to perform basic repairs</td>
<td>90</td>
<td>73.2</td>
</tr>
<tr>
<td>Increased emphasis on design</td>
<td>27</td>
<td>22.0</td>
</tr>
<tr>
<td>Increased emphasis on research and development of products</td>
<td>13</td>
<td>10.6</td>
</tr>
<tr>
<td>Emphasize project less</td>
<td>13</td>
<td>10.6</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>8.9</td>
</tr>
<tr>
<td>No response</td>
<td>8</td>
<td>6.5</td>
</tr>
</tbody>
</table>

*Percentages based on 123 respondents

indicated by 35, or 28.5 per cent, of the respondents was to provide more occupational information pertaining to industry, whereas 27, or 22 per cent, believed increased emphasis on design would be of value.
Thirteen, or 10.6 per cent, of the respondents thought greater emphasis should be placed on research and development of consumer products and an equal number indicated there should be less emphasis on projects. Teachers who thought changes should take some form other than those presented in the information form totaled 11, or 8.9 per cent, of the respondents; 8, or 6.5 per cent, failed to respond to the question. Teachers who expressed the opinion that changes other than those presented in the information form might be desirable suggested changes such as home repair and proper use of tools.

**Industrial Arts Exchange Unit for Girls**

The respondents were asked to provide their opinions concerning the value of an exchange unit in which home economics girls and industrial arts boys are exchanged for instruction on a short-term basis.

As indicated in Figure 5, a majority, 86 per cent of the respondents believed the exchange unit would be of value to girls, while only 10 per cent of the responses were received from industrial arts teachers who indicated it would be of little or no value to girls. Four per cent of the respondents chose not to respond to the question.

Figure 6 presents graphically the opinions of industrial arts teachers who participated in the study concerning the value of the exchange unit for boys. Eighty-two per cent of
Fig. 5--Respondents' opinions regarding the value of the exchange unit for girls.

Of value to girls

86%

- 4% No response

- 10%

Little or no value to girls

Fig. 6--Respondents' opinions regarding the value of the exchange unit for boys.

Of value to boys

82%

- 6%

- 12%

No response

Little or no value to boys

the respondents indicated the exchange unit would be of value to boys, whereas 12 per cent thought it would be of no value
to them. Those who gave no response to the question accounted for 6 per cent of the respondents.

Optimum Duration of the Exchange Unit

Industrial arts teachers were asked to give their opinions as to the optimum duration of the exchange unit and the types of industrial arts related material they believed should be taught to girls in the exchange.

The data presented in Table XXIII concerns the opinions of the respondents pertaining to the optimum duration of the exchange unit. Those who believed the exchange should last from one to five days accounted for 6, or 4.9 per cent, of the respondents, while 16, or 13 per cent, thought the duration of the exchange unit should be six to ten days.

<table>
<thead>
<tr>
<th>Duration</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>One to five days</td>
<td>6</td>
<td>4.9</td>
</tr>
<tr>
<td>Six to ten days</td>
<td>16</td>
<td>13.0</td>
</tr>
<tr>
<td>Eleven to fifteen days</td>
<td>34</td>
<td>27.6</td>
</tr>
<tr>
<td>More than fifteen days</td>
<td>56</td>
<td>45.5</td>
</tr>
<tr>
<td>No response</td>
<td>11</td>
<td>9.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Thirty-four, or 27.6 per cent, of the responses were received from industrial arts teachers who indicated the most appropriate duration for the exchange unit would be from eleven to fifteen days. Fifty-six, or 45.5 per cent, of the respondents checked more than fifteen days as the most appropriate length of the exchange unit, and 11, or 9 per cent, gave no response.

Those who indicated the exchange unit should last more than fifteen days were asked to specify a length of time they believed would be more appropriate. As presented in Table XXIV, those who specified six weeks as a more appropriate

<table>
<thead>
<tr>
<th>TABLE XXIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENGTH OF EXCHANGE UNIT IN EXCESS OF FIFTEEN DAYS RECOMMENDED BY RESPONDENTS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Length of Unit</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Six Weeks</td>
<td>20</td>
<td>44.5</td>
</tr>
<tr>
<td>Nine Weeks</td>
<td>12</td>
<td>26.7</td>
</tr>
<tr>
<td>One Semester</td>
<td>7</td>
<td>15.6</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>13.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>123</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

length of time for the exchange unit accounted for 20, or 44.5 per cent, of the respondents, while 12, or 26.7 per cent, believed the exchange unit should last nine weeks.
Seven, or 15.6 per cent, of the teachers who responded indicated its duration should be for one semester, and 6, or 13.2 per cent, stated the exchange should last for some other period of time.

Table XXV presents the respondents' opinions as to the types of industrial arts related subject matter that should

<table>
<thead>
<tr>
<th>TABLE XXV</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUGGESTED INDUSTRIAL ARTS RELATED SUBJECT MATTER THAT SHOULD BE TAUGHT TO GIRLS IN THE EXCHANGE UNITS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Content</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household repair</td>
<td>97</td>
<td>78.9</td>
</tr>
<tr>
<td>Upholstering and refinishing of furniture</td>
<td>55</td>
<td>44.7</td>
</tr>
<tr>
<td>Design and structure in home products</td>
<td>53</td>
<td>43.1</td>
</tr>
<tr>
<td>Consumer information dealing with furniture and home appliances</td>
<td>76</td>
<td>61.8</td>
</tr>
<tr>
<td>Floor care</td>
<td>20</td>
<td>16.3</td>
</tr>
<tr>
<td>Interior and exterior painting</td>
<td>42</td>
<td>34.4</td>
</tr>
<tr>
<td>Home electrical circuits</td>
<td>75</td>
<td>61.0</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>8.9</td>
</tr>
<tr>
<td>No response</td>
<td>7</td>
<td>5.7</td>
</tr>
</tbody>
</table>

*Percentages based on 123 respondents
be taught to girls. The most frequently selected industrial arts related subject matter that should be taught to girls was household repair. Ninety-seven, or 78.9 per cent, of the respondents were of this opinion. Consumer information dealing with furniture and home appliances, and home electrical circuits, were the next most frequently selected item for instruction. The responses to these two topics were nearly evenly divided with 76, or 61.8 per cent, and 75, or 61 per cent, respectively.

Fifty-five, or 44.7 per cent, of the respondents reported that upholstering and refinishing of furniture should be taught to girls during the exchange, while 53, or 43.1 per cent, believed that design and structure in home products should be included. Interior and exterior painting was selected by 42, or 34.4 per cent, of the respondents as subject matter that would be of value to girls, whereas 20, or 16.3 per cent, of them thought information pertaining to floor care was important.

Eleven, or 8.9 per cent, of the responses were received from teachers who believed some other type of industrial arts related subject matter should be presented, and 7, or 5.7 per cent, of the respondents failed to answer the question.

Unified Arts Programs for Girls

The respondents were asked their opinions as to how a unified arts program, in which girls and boys are combined and
rotated through the areas of industrial arts, home economics, and art, would compare with the present separate programs. Table XXVI presents the findings upon which conclusions were based.

Industrial arts teachers who stated a unified arts program would be of more value than the present separate programs accounted for 60, or 48.8 per cent, of the responses received. Thirty-five, or 28.5 per cent, of the respondents

TABLE XXVI

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Value</td>
<td>60</td>
<td>48.8</td>
</tr>
<tr>
<td>Less Value</td>
<td>35</td>
<td>28.5</td>
</tr>
<tr>
<td>Equal Value</td>
<td>19</td>
<td>15.4</td>
</tr>
<tr>
<td>No Response</td>
<td>9</td>
<td>7.3</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>

were of the opinion that it would be of less value. While 19, or 15.4 per cent, of the respondents indicated a unified arts program would be of equal value to the present separate programs, 9, or 7.3 per cent, did not respond to the question.
Eligibility of Girls for Membership in Industrial Arts Clubs

In Chapter III, information concerning the extent to which girls were involved in industrial arts clubs in schools in which the respondents taught was presented. To know if girls were eligible to be members of these clubs was considered important as this directly affects the number of girls involved in industrial arts clubs.

As shown in Table XXVII, 26, or 92.9 per cent, of the respondents whose schools sponsored industrial arts clubs stated that girls were eligible to be members. Only 2, or 7.1 per cent, of the responses were received from teachers who indicated girls were not eligible to be members of the industrial arts club at their schools.

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of Respondents</th>
<th>Per Cent of Respondents*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>26</td>
<td>92.9</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Percentage based on 28 respondents whose schools sponsor industrial arts clubs.
Relationships Between Industrial Arts Clubs and Home Economics Clubs

The respondents were asked to indicate whether or not the schools in which they taught sponsored home economics clubs. If their schools did sponsor such a club, they were asked if the industrial arts club and the home economics club participated in joint activities. Also, the respondents were asked if they believed there should be joint activities between the two clubs, and the type of activities they thought should be made available.

Figure 7 presents graphically the number of schools having home economics clubs. A large majority, 83 per cent, of

![Diagram showing 83% sponsor home economics clubs, 13% do not sponsor, 4% no response.]

Fig. 7—Number of schools sponsoring home economics clubs.

the schools sponsored home economics clubs, while 13 per cent did not. Those who failed to respond to the question accounted for 4 per cent of the respondents.
As shown in Figure 8, only 4 per cent of the respondents indicated there were joint activities between the industrial arts club and home economics club. Fifty-nine per cent of the teachers indicated there were not joint activities between the two clubs, and 37 per cent of the respondents failed to answer the question.

The respondents were asked to rank in order of importance selected activities believed to be appropriate for joint participation by industrial arts and home economics club members. Information supplied is presented in Table XXVIII.

Ten, or 43.5 per cent, of the respondents believed community projects should be ranked first as a joint activity for the two clubs, while 9, or 39.1 per cent, rated it second.
TABLE XXVIII
JOINT ACTIVITIES FOR INDUSTRIAL ARTS
AND HOME ECONOMICS CLUB MEMBERS

<table>
<thead>
<tr>
<th>Order of</th>
<th>Community Projects</th>
<th>Social Activities</th>
<th>Field Trips</th>
<th>Social Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of</td>
<td>Number of</td>
<td>Per Cent of</td>
<td>Number of</td>
</tr>
<tr>
<td></td>
<td>Respondents</td>
<td>Respondents</td>
<td>Respondents</td>
<td>Respondents</td>
</tr>
<tr>
<td>First</td>
<td>10</td>
<td>1</td>
<td>43.5</td>
<td>1</td>
</tr>
<tr>
<td>Second</td>
<td>9</td>
<td>2</td>
<td>39.1</td>
<td>2</td>
</tr>
<tr>
<td>Third</td>
<td>3</td>
<td>2</td>
<td>13.0</td>
<td>2</td>
</tr>
<tr>
<td>Fourth</td>
<td>1</td>
<td>18</td>
<td>4.4</td>
<td>78.0</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>23</td>
<td>100.0</td>
<td>23</td>
</tr>
</tbody>
</table>

Percentages based on 23 respondents who answered the question.

Those who ranked community projects third accounted for 3, or 13 per cent, of the respondents, whereas 1, or 4.4 per cent, ranked it fourth in importance.

Teachers who indicated parties should be ranked first among joint activities for the clubs were responsible for 1, or 4.4 per cent, of the respondents, and 2, or 8.8 per cent, believed parties were second in order of importance. Those who thought this type of activity ranked third accounted for
2, or 8.8 per cent, of the industrial arts teachers, while 18, or 78 per cent, placed it fourth in importance.

Field trips as a joint activity were thought to be first in importance by 5, or 21.7 per cent, of the respondents, whereas 6, or 26.1 per cent rated them second. Eleven, or 47.8 per cent, of the teachers placed field trips third in order of importance, and 1, or 4.4 per cent, ranked them fourth.

School improvement projects were checked as first in order of importance by 11, or 47.8 per cent, of the respondents. Responses were equally divided between those who regarded them second and third in order of importance. Each response was checked by 5, or 21.7 per cent, of the respondents. Those who believed school improvements should be rated fourth accounted for 2, or 8.8 per cent, of the teachers responding to this question.
CHAPTER BIBLIOGRAPHY

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study was conducted to investigate the involvement of girls in industrial arts in the state of Texas and to find the opinions of teachers concerning the nature of programs and subject matter appropriate for girls in this area of the curriculum. More specifically, the study attempted to find answers to the following questions.

1. To what extent are girls involved in industrial arts classes and related activities in Texas public schools?

2. What are the factors that limit girls' enrollment in industrial arts classes?

3. What should be the nature of industrial arts for girls?

The study was limited to industrial arts programs in middle schools, junior high schools, and high schools in which selected respondents taught. Respondents were selected from the report Texas Schools Having Industrial Arts Teachers 1970-71 (1) in a way which would insure the distribution of information forms to an equal number of teachers in each of the industrial arts content areas. It was also limited by
the number of information forms returned and by the accuracy and thoroughness of the data provided.

Packets containing letters explaining the study, information forms, and stamped, addressed envelopes were mailed to 240 selected industrial arts teachers. One hundred and twenty-three, or 51.25 per cent, of the information forms were completed and returned. An examination of the background and qualifications of the respondents revealed that the information presented and opinions expressed could be assumed to be reliable data upon which to formulate answers to the questions set forth in the study.

Three-fourths of the respondents had four or more years of industrial arts teaching experience and approximately two-thirds indicated they had taught industrial arts to girls. There were nearly twice as many high school teachers involved in the study as middle school and junior high school teachers combined. The bachelor's degree was the highest degree held by slightly more than one-half of the respondents, while the remainder had acquired at least a master's degree. Nearly sixty per cent of the respondents taught in communities in which industry was the main source of income, as compared to seventeen per cent in agricultural communities and twenty-one per cent in communities in which industrial and agricultural activities were nearly equally distributed.

Chapter I presents an introduction, the statement of the problem, the background and significance of the study,
limitations of the study, related studies, a brief over-view of the contents of the remaining chapters, and the procedure and method of securing the data.

Information presented in Chapter II concerns personal data pertaining to the respondents. Data included are descriptions of their teaching experiences, educational background, current assignments, student enrollment in schools in which the respondents taught, and the classification of the communities in which they were employed.

Girls' involvement in industrial arts and factors that limit their participation in industrial arts programs are presented in Chapter III. Data presented include total enrollment and enrollment of girls in the industrial arts areas of crafts, drafting, electronics, graphic arts, general shop, metals, power mechanics, woodworking, and plastics in the schools involved in the study. A presentation of girls' involvement in industrial arts clubs in schools in which the respondents taught, and respondents' receptiveness to teaching industrial arts to girls are given. Also included are the respondents' assessments of the value of industrial arts for girls, as well as their opinions concerning the feelings of administrators, counselors, other teachers, and parents toward girls being scheduled for industrial arts classes. The opinions of the respondents as to reasons girls are not encouraged to enroll more extensively in industrial arts and their opinions pertaining to the negative feelings of girls
toward enrolling in industrial arts are presented. Also in-
cluded is information supplied by the respondents concerning
the effect of girls on discipline in industrial arts classes.

Chapter IV is concerned with the nature of industrial
arts for girls in the state of Texas. Data presented include
a summary of school policies concerning the eligibility of
girls to enroll in industrial arts classes, and teachers'
opinions of the appropriate number of industrial arts credits
for girls. The respondents' assessments of the class setting
in which girls should be taught, as well as their opinions
regarding the order of importance of the stated objectives
of industrial arts and the value of the realization of these
objectives by girls, are presented. Also included are the
opinions of the respondents as to whether their present in-
dustrial arts programs should be modified to better meet the
needs of girls, and, if modification is needed, their opinions
regarding the types of changes that are feasible.

A presentation of the respondents' opinions pertaining
to the value of an exchange unit for girls, and their thoughts
concerning the optimum duration of the exchange unit are
given. The respondents' opinions regarding the types of in-
dustrial arts subject matter that should be taught to girls,
and their opinions as to how a unified arts program would
compare to the present separate programs are included. In-
formation is given pertaining to the eligibility of girls for
membership in industrial arts clubs in schools in which the
respondents taught. Also included are data concerning the number of schools sponsoring home economics clubs, as well as respondents' views regarding joint activities of the two clubs. Finally, the opinions of the respondents as to the types of joint activities that should be undertaken are presented.

Findings

1. Of the total number of girls enrolled in industrial arts in the schools involved in the study, more were enrolled in the areas of crafts, graphic arts, and drafting, with percentages of 32.1, 27.0, and 19.9, respectively.

2. The areas of industrial arts in the schools involved in the study, with the greatest ratio of girls to boys, as indicated by the percentages of girls to the total enrollment in the various areas, are graphic arts, crafts, and plastics, with percentages of 34.9, 31.8, and 27.4, respectively.

3. Industrial arts clubs were sponsored by twenty-eight of the schools in which the respondents taught. Girls were allowed to be members in twenty-six of these clubs. The ratio of boys to girls in industrial arts clubs in schools in which the respondents taught was 14 to 1.

4. A majority, 91.1 per cent, of the respondents indicated they would be receptive to teaching industrial arts to girls.
5. Sixty-seven, or 54.5 per cent, of the industrial arts teachers indicated industrial arts would be of great value to girls, and 48, or 39 per cent, indicated it would be of moderate value to them.

6. An overwhelming majority, 97.6 per cent, of the respondents believed some industrial arts should be included in the educational experiences of girls from grades six through twelve.

7. In almost every instance, the respondents indicated the need for girls to obtain experiences in industrial arts in middle schools and junior high schools was not as great as for high school girls.

8. In the opinion of the respondents, administrators discouraged the scheduling of girls into industrial arts more often than they encouraged it and 29 per cent seemed to be neutral on the subject.

9. The respondents indicated that counselors' attitudes toward encouraging or discouraging the scheduling of girls into industrial arts were approximately equal, with percentages of 26 and 29, respectively, but almost half, 45 per cent, were believed to be neutral on the issue.

10. Thirty-six per cent of the teachers of subjects other than industrial arts were considered neutral concerning the scheduling of girls into industrial arts, while percentages of those who encouraged or discouraged this practice were 24 and 12, respectively.
11. A majority, 61 per cent, of the respondents indicated they did not know how parents felt in regard to the scheduling of girls into industrial arts.

12. An overwhelming majority of the respondents indicated tradition and the inability of present industrial arts facilities to accommodate increased enrollment due to girls' participation were the main reasons girls were not encouraged to take industrial arts.

13. Industrial arts teachers indicated the main reasons girls had negative feelings toward becoming involved in industrial arts were that it was too hazardous and it tends to present an image that is not feminine.

14. Over one-half of the respondents indicated that girls' involvement in industrial arts classes either decreased or had little effect on problems involving discipline.

15. The areas of industrial arts more often free of enrollment restrictions to girls are plastics, graphic arts, drafting, crafts, and electronics, with percentages of 100.0, 100.0, 89.4, 86.4, and 68.7, respectively.

16. A majority of respondents indicated the optimum number of industrial arts credits for girls were one or two, with percentages of 37.4 and 24.4, respectively.

17. A majority, 69.1 per cent, of the industrial arts teachers indicated girls should be taught in mixed classes.

18. The order of importance of the stated objectives of industrial arts, defined by Hostetlar (2), in the opinion of
the respondents is first, to develop in each student an insight and understanding of industry and its place in our culture; second, to develop in each student a measure of skill in the use of common tools and machinery; third, to develop technical problem-solving skills related to materials and processes; and fourth, to discover and develop talents of students in the technical fields and applied sciences.

19. Approximately 71 per cent of the respondents indicated that the realization of the stated objectives of industrial arts was of equal value for girls and boys.

20. The present industrial arts program would require moderate, or little if any, change to meet the needs of girls.

21. Modifications of industrial arts programs viewed most essential to meet girls' needs were an addition of units to familiarize girls with industrial products found in the home and how to perform basic repairs, increased emphasis on consumer information, and additional information pertaining to labor statistics concerning women in industry.

22. A large majority, 86 per cent, of the industrial arts teachers indicated an exchange unit would be of value to girls, and 82 per cent indicated it would be of value to boys.

23. The optimum duration for an exchange unit was thought to be in excess of fifteen days by 45.5 per cent of the respondents.
24. Industrial arts subject matter of greatest importance to girls relates to household repair, consumer information dealing with furniture and home appliances, and electrical circuits.

25. A unified arts program was considered of more value than industrial arts as a separate program by 48.8 per cent of the respondents, while 28.5 per cent indicated it was of less value.

26. Girls were eligible to be members in 92.9 per cent of the industrial arts clubs.

27. Joint activities were conducted between the industrial arts and home economics clubs in only 4 per cent of the schools.

28. Suggested activities to be conducted between the industrial arts and home economics clubs were ranked as to their order of importance by the respondents. School improvements were first; community projects, second; field trips, third; and social activities, fourth.

Conclusions

Insofar as the sample involved was representative, and insofar as the data obtained and the opinions expressed are accurate, the following conclusions may be drawn:

1. Industrial arts offers the types of activities and experiences that are beneficial to the educational development of girls.
2. Public schools contribute to stereotyping of girls by discouraging or prohibiting their enrollment in industrial arts or certain areas of industrial arts, thus preparing or conditioning them for restricted roles in the labor force.

3. Limited participation of girls in industrial arts is more often based upon factors such as tradition and school policies to provide boys with first priorities in the use of facilities rather than upon girls' needs, aptitudes, and ability to function in typical industrial arts programs.

4. The disproportionate number of girls enrolled in industrial arts is not a result of teachers' preference or of problems of class management resulting from girls' participation.

5. Needs of girls in the field of industrial arts can be partially met by their participation in allied activities and programs such as exchange units, industrial arts clubs, and unified arts.

6. Present industrial arts programs need few major changes to meet needs of girls, but there is a need for reassessment and reassignment of priorities of the major objectives of industrial arts.

7. Administrators and counselors more often discourage rather than encourage girls to enter industrial arts classes.
Recommendations

Based upon the findings and conclusions of the study, the following recommendations were formulated:

1. Educational guidelines in public schools which restrict the curriculum activities in which girls and boys can participate should be revised.

2. Girls should have the opportunity to be exposed to industrial arts experiences and activities to a greater extent than they are at the present.

3. Awareness programs should be implemented at the high school level to familiarize girls with industrial arts and the types of job opportunities available to women in industry.

APPENDIX A

LETTER TO PARTICIPATING INDUSTRIAL ARTS TEACHERS

P. O. Box 352
Lewisville, Texas  75067

Dear Sir:

I am presently conducting a study of the extent and nature of girls' involvement in industrial arts in the state of Texas.

The remainder of the study depends upon information that can be provided by professionals such as you who are currently involved in public secondary education. Therefore, will you please complete and return the enclosed information form in the self-addressed stamped envelope while it is at hand and has your attention? The information form has been designed to consume as little of your time as possible, yet provide information pertinent to the study.

Information supplied will be handled confidentially and data will be grouped in such a way that it will be impossible for any person or school to be identified. Your participation in this study will be greatly appreciated.

Approved: Sincerely yours,

James Mahoney Charles W. Work
Professor of Industrial Arts Woodworking Instructor
North Texas State University Lewisville High School
Denton, Texas Lewisville, Texas
APPENDIX B

TEACHER'S INFORMATION FORM

Information Form Concerning
INDUSTRIAL ARTS FOR GIRLS

Name________________________________________ Position____________________
(omit name if desired)

School______________________________ City________________________

Directions: Please check ( ) your answer to the questions below and fill in the blanks with the information requested.

1. How many years have you been employed by this school district (including the current academic year)? ________ years

2. From what college or university did you graduate?

__________________________________________ School
__________________________________________ City__ State

3. What is the highest degree you hold?

( ) None
( ) Bachelor's
( ) Master's
( ) Doctorate

4. How many years have you been teaching industrial arts including the current academic year? ________ years

5. What is the enrollment of your school? ________ students

6. How would you classify your community?

( ) Mainly agricultural  ( ) Approximately equal
( ) Mainly industrial  ( ) Do not know
7. In what type of school are you teaching?

( ) Middle school (grades 6 through 8)
( ) Junior high school (grades 7 through 8, or 7 through 9)
( ) High School (grades 9 through 12, or 10 through 12)

8. Please complete the following table concerning the areas in which you teach.

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of students enrolled</th>
<th>Is course open to girls Yes-No</th>
<th>Number of girls enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crafts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drafting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graphic Arts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Shop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Mechanics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woodworking</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Have you prior to this semester, taught classes in industrial arts in which girls were enrolled?

( ) Yes
( ) No

10. In your opinion, in what class setting should girls be taught industrial arts?

( ) In mixed classes
( ) In all girl classes
( ) No opinion

11. Would you be receptive to teaching industrial arts to girls?

( ) Yes
( ) No
12. Of the eighteen credits required by the state of Texas for graduation, the most appropriate number of industrial arts credits for girls would be:

( ) 0 credits
( ) 1 credit
( ) 2 credits
( ) 3 credits
( ) 4 credits

13. In your opinion, should industrial arts courses be open to girls?

( ) Yes
( ) No

If the answer is yes, specify which ones (check area and level).

<table>
<thead>
<tr>
<th>Course</th>
<th>Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Middle school</td>
</tr>
<tr>
<td>Crafts</td>
<td></td>
</tr>
<tr>
<td>Drafting</td>
<td></td>
</tr>
<tr>
<td>Electronics</td>
<td></td>
</tr>
<tr>
<td>Graphic Arts</td>
<td></td>
</tr>
<tr>
<td>General Shop</td>
<td></td>
</tr>
<tr>
<td>Metals</td>
<td></td>
</tr>
<tr>
<td>Power Mechanics</td>
<td></td>
</tr>
<tr>
<td>Woodworking</td>
<td></td>
</tr>
</tbody>
</table>

14. In your opinion, how do the groups listed below feel toward scheduling girls into industrial arts? (Please check the appropriate spaces).

<table>
<thead>
<tr>
<th>Groups</th>
<th>Encourage</th>
<th>Discourage</th>
<th>Appear to be neutral</th>
<th>Not known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrators</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counselors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other teachers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
15. If girls are not encouraged to take industrial arts classes in your school, please check the reason.

( ) Facilities will not accommodate enlarged enrollment
( ) School policy
( ) Teachers prefer not to teach girls
( ) Parental influence
( ) Counselor influence
( ) Tradition

16. Which of the following comments best describes the negative feelings of girls toward enrolling in industrial arts? (Check all that apply).

( ) It shows lack of femininity
( ) It is too hazardous
( ) Would not be accepted by boys in class
( ) Indifferent
( ) Their parents will disapprove
( ) Will adversely affect their relationship with other girls

17. In what way do girls in industrial arts classes affect discipline?

( ) Increase problem
( ) Decrease problem
( ) Have little or no affect

18. Of what value is industrial arts to girls?

( ) High value
( ) Moderate value
( ) Low value
( ) No value

19. If you were offering industrial arts instruction to girls, to what extent should your present program be modified to meet their needs?

( ) Extensively
( ) Moderately
( ) Little or none

20. If change in industrial arts for girls is needed, which of the following would you suggest?

( ) Increased emphasis on consumer education
( ) Information pertaining to labor statistics concerning women in industry should be made available
( ) More emphasis on occupational information pertaining to industry should be taught
( ) Should contain a unit directed specifically toward familiarizing girls with industrial products found in the home and how to perform basic repairs
( ) Increased emphasis on design
( ) More importance should be placed on research and development of products
( ) Projects should be emphasized less
( ) Other, Specify __________________________

21. The following is a list of the stated objectives of industrial arts. Please indicate the one you feel is first in importance as number "1", the one second in importance as number "2", and so on.

( ) Develop in each student an insight and understanding of industry and its place in our culture.
( ) Discover and develop talents of students in the technical fields and applied sciences.
( ) Develop technical problem solving skills related to materials and processes.
( ) Develop in each student a measure of skill in the use of common tools and machinery.

22. Do you feel the realization of the above objectives would be of value to girls?

( ) Of equal value to both girls and boys
( ) Of value to girls but of less value than to boys
( ) Of more value to girls than to boys
( ) No opinion

23. In your opinion, what is the feeling of parents in your community about girls taking industrial arts?

( ) Approve
( ) Disapprove
( ) Neutral
( ) Not known

24. In your opinion, would an exchange unit in which home economics girls and industrial arts boys are exchanged for instruction on a short-term basis be of value?

To girls ( ) Yes ( ) No
To boys ( ) Yes ( ) No
25. What would be the optimum duration of the exchange unit?

( ) One to five days
( ) Six to ten days
( ) Eleven to fifteen days
( ) More than fifteen days, specify__________________________

26. What type of industrial arts related materials do you feel should be taught to girls in the exchange? (Check those you feel are most important.)

( ) Household repair
( ) Upholstering and refinishing of furniture
( ) Design and structure in home products
( ) Consumer information dealing with furniture and home appliances
( ) Floor care
( ) Interior and exterior painting
( ) Home electrical circuits
( ) Other, specify__________________________

27. In your opinion, how would a unified arts program in which girls and boys are combined and rotated through the areas of industrial arts, home economics, and art compare to the present separate programs?

( ) More value
( ) Less value
( ) Equal value

28. Do you have an industrial arts club in your school?

( ) Yes; number of members__________
( ) No

29. Are girls eligible to be in the industrial arts club?

( ) Yes; how many are members__________
( ) No

30. Does your school have a future homemakers club?

( ) Yes
( ) No

31. If the answer to question #30 is "yes", are there joint activities between the industrial arts and home economics club?

( ) Yes
( ) No
32. Do you feel there should be joint activities between the two clubs?

( ) Yes
( ) No

33. If the answer to question #32 is "yes," what type of activities do you feel should be made available? (Please check in order of preference, numbering first choice number "1," second choice number "2," and so on.)

( ) Community projects
( ) Social activities
( ) Field trips
( ) School improvements
( ) Other, specify_______________________________
APPENDIX C

FOLLOW-UP CARD TO INDUSTRIAL ARTS TEACHERS

Dear Sir:

Recently we sent you an information form concerning industrial arts for girls.

As yet, your reply has not been received. Therefore, won't you fill out the form and return it soon in order that this study may include opinions of all Texas industrial arts teachers included in the sample.

If you have already mailed the completed form, please disregard this card. Thank you very much for your cooperation.

Sincerely,

Charles W. Work
BIBLIOGRAPHY

Books


Articles

Fink, William, "Industrial Arts for All," *High Points*, XLVII, No. 3 (March, 1965), 32.


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