

ABSTRACT OF THESIS

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THE RELATIONSHIP BETWEEN  
INDUSTRIAL ARTS COURSES AND  
OCCUPATIONAL CHOICES

Submitted by  
Everett R. Miller

In partial fulfillment of the requirements  
for the Degree of Master of Science  
Colorado State College  
of  
Agriculture and Mechanic Arts  
Fort Collins, Colorado

July, 1940

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## ABSTRACT OF THESIS

Foreword.--The majority of students enrolled at Dunwoody Industrial Institute in Minneapolis, Minnesota during the past several years have been high school graduates, and a large percentage of them have had industrial arts work in the public schools. It has been observed that there seemed to be a lack of occupational information on the part of students entering the Institute. This gave rise to the question: Upon what information, knowledge, or reasons did they base their occupational choices?

The problem.--The purpose of this study is to obtain a solution to the problem: "What is the relationship of secondary school industrial arts experiences to the occupational choices of students at Dunwoody Industrial Institute?" through the answering of the following questions:

1. Does industrial arts training tend to help the student discover and develop his occupational interests?
2. Does industrial arts training tend to help the student discover and develop his occupational aptitudes?
3. Does industrial arts training tend to serve effectively as exploratory experience that leads to a more intelligent selection of a suitable occupation?

4. Do entering students tend to select trade training similar in the nature of its work to the industrial arts course or courses pursued most?
5. Does the youth without such training tend to make a more or less suitable occupational selection?
6. What motives or reasons do Dunwoody students give for their occupational choices?

Materials and methods.--Two groups of students who were in attendance at Dunwoody Institute during the 1938-1939 school year were the subjects of this investigation. One group, designated as group A, consists of 80 students who had taken industrial arts work in the public schools of Minneapolis, Minnesota; the other group, designated as group B, consists of 80 students from Minnesota, outside of Minneapolis, who had not taken industrial arts work.

The equivalency of the two groups was based on age, school grade completed, and minimum length of time in attendance. All of the students were between the ages of 17 and 24 years; all had completed the 12th grade; and all had been in attendance at Dunwoody at least three months when the study was made.

Data for this investigation were secured from two sources: the students themselves, through a personal data sheet; and the permanent office record

cards. The personal data sheet was used with 591 day-school students from whom were selected the 160 students included in the study. Free access was had to the permanent office records, and from them was obtained much useful information. All pertinent data thus secured were transferred to two large work sheets, one for each group of students.

This investigation includes the following main sections: motives or reasons stated for trade choices; occupations of the fathers; students' estimate of occupational information derived from industrial arts work; previous work experience; Dunwoody courses offered; and the industrial arts courses pursued in the public schools of Minneapolis.

Motives or reasons.--The personal data sheet contained a list of 12 motives or reasons for making occupational choices and space was provided for others. No new reasons were supplied by the students, so it may be assumed that, in all probability, they had considered all reasons of importance.

The 12 reasons were classified as good, fair, and poor for the purpose of determining to what extent students made use of worthwhile reasons in their trade choices. This classification was determined by research and authoritative statements.

Reason f, "This trade has a good future," was mentioned 143 times; and reason a, "I wanted to



follow the same trade as my father," was mentioned nine times. Reason c, "I have natural interest and aptitude for this trade," was rated highest, with 73 votes for first place.

The students in group A used a total of 254 reasons--that is, various reasons were selected 254 times--in making trade choices. Group B students used a total of 238 reasons--or various reasons were selected 238 times--in making their trade choices. Also, when the good and the fair reasons were combined as worthwhile reasons, group A students made use of them 187 times or 73.62% of the time; and group B students made use of them 161 times, or 67.64% of the time. That is, group A students relied three fourths of the time, and group B students two thirds of the time, on worthwhile reasons in making their occupational choices. This would lead to the conclusion that group A students considered their trade choice more carefully than did group B students.

Occupations of the fathers.--The findings of this part of the investigation show that students entering Dunwoody Institute neither desire to follow the same occupations as the fathers, nor take up training in those lines. Eleven percent of the 160 students included in the study took up trades the same as or similar to those of the fathers; and 89% took up trades different from those engaged in by the fathers.

Students' estimate of occupational information derived.--Twenty percent of the students in group A stated that they had received much trade and occupational information through their industrial arts training; 63.75% had received some such benefits; and 16.25% had received little or none.

Previous work experience.--In this phase of the study, the previous work histories of the students were considered in determining possible relationships to successful achievement at Dunwoody Institute. The amount of work experience of students prior to entering Dunwoody varied from less than half a year for some to more than 15 years for others. Sixteen percent stated no work experience, and eight percent stated indefinite amounts. Thirty percent of those who stated some work experience claimed four years or more, with an average of seven years. In terms of total work years, group B students had about 60% more work experience before entering Dunwoody than did group A students.

Since the achievement of group B students at Dunwoody Institute was practically on a par with that of group A students, and since they had about 60% more previous work experience, it may be concluded that their lack of industrial arts training was at least partially compensated for by this additional work experience, in meeting the work requirements at the Institute.

Dunwoody courses, stated choice, and final assignment.--At the time this investigation was made, 13 courses were offered in the Dunwoody day school. The data obtained from this part of the study showed that there were only 16 changes made from stated trade choice to final assignment for training. Group A students made four changes in their original trade choice, and group B students made 12 changes in theirs. This would indicate that the students who had taken industrial arts courses were able to make more suitable original trade selections than were those who had not had such training.

Industrial arts experiences.--Sixteen industrial arts courses were mentioned a total of 369 times as taken in high school. Mechanical drawing and wood work were pursued by the greatest number of students--77 and 67 respectively. Cabinet making and surveying received the least attention, each being mentioned once.

Forty-two and one half percent of the students stated an occupational choice in a line of work similar to the industrial arts course pursued most; 57.5% chose a trade different in the nature of the work done; 41.25% were finally assigned to trade training in a line of work similar to that taken most in high school; and 58.75% were assigned to trade training in a line different from that pursued most in industrial arts work.

The students were asked to state which of their industrial arts courses they liked best. Mechanical drawing was mentioned 23 times, machine shop, 13 times, and electricity, 11 times, as being liked best. It was found that about half of the students declared a choice for, and were finally assigned to trade training in, a line of work similar to the industrial arts course liked best.

The number of industrial arts courses taken by any one student varied from one to seven. One student had taken one course, and five had each taken seven courses. The point of greatest frequency was five courses, 24 students having taken that number. When number of semesters was considered, it was found that they varied from two to 20. Three students had each taken two semesters of industrial arts work, and one student had taken 20 semesters. The point of greatest frequency was eight semesters, 12 students having stated that amount.

Students who had taken four and five different industrial arts courses, received higher marks in their shop work at Dunwoody Institute than did those who had taken either fewer or more courses. Students who had taken from six to eight semesters of high school shop courses, received higher marks in their Dunwoody shop work than did those who had taken either fewer or more semesters of that work. These findings would indicate

that there is an advantage to students who take this variety and this amount of industrial arts work in high school.

Conclusions.--The findings of this investigation, as applied to the two groups of Dunwoody students included in the study, tend to show that:

1. Industrial arts training seems to have aided students in making a more suitable occupational choice
2. Entering students (at Dunwoody) did not tend to select trade training in lines similar to those pursued most in high school
3. Half of the students selected trade training in lines similar to those liked best in high school
4. Students who had not had industrial arts work tended to change their objective to a greater extent than did the others, but achieved about as well in their trade training
5. There was an advantage to students who had taken four and five industrial arts courses in six to eight semesters
6. Students did not tend to follow the same lines of work as those of the fathers
7. Group A students placed reliance on worthwhile reasons three fourths of the time, and group B students two thirds of the time, in making occupational choices

A problem for further study.--The findings of this investigation have shown that industrial arts experiences may tend to help students discover and develop their occupational interests and aptitudes. However, choosing an occupation and preparing for it are only parts of successful occupational adjustment. There

still remains the task of getting a job, holding the job, and progressing in the job, in order to demonstrate the soundness or success of the career plan.

Therefore, it is believed that further investigation would be necessary in a follow-up of the students in such a study as this, several years after they had been placed on jobs, to determine the degree of satisfactory adjustment attained.

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AGRICULTURE AND MECHANIC ARTS

July 15, 1940

I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY  
SUPERVISION BY EVERETT R. MILLER

ENTITLED "The Relationship Between Industrial Arts  
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BE ACCEPTED AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE  
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CREDITS 3

*A. V. Linderman*  
In Charge of Thesis

APPROVED *J. B. Fradette*  
Head of Department

Recommendation concurred in

Committee on Final Examination

*J. B. Fradette*  
*A. V. Linderman*  
*V. R. Huber*  
*George H. Tracy*

Committee on Graduate Work

*Alvin Keger*  
*L. H. Samuel*

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Agriculture and Mechanic Arts



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## Chapter I

### INTRODUCTION

Throughout the past several years, a great many more young men have sought entrance to Dunwoody Industrial Institute, Minneapolis, Minnesota, than have been admitted. During the 1938-1939 school year, according to the office records, the Institute received inquiries and applications from nearly 5000 men and young men, but only 1750 were admitted in the day school. This was due in part to the limited capacity of the school and in part to the methods of selection used.

The officials of the Institute are desirous that all who enter will receive the maximum benefit from the training offered. During the try-out period, all students enrolled are carefully observed and are given every opportunity to elect training suited to their needs and abilities. The majority of those enrolled during the past year were high school graduates, most of whom had taken industrial arts work in the public schools. There were, however, a fairly large number of young men who came from neighboring communities and outlying districts who had not had industrial arts experience.

Dunwoody Industrial Institute is a privately endowed trade and industrial school offering training in a variety of mechanical pursuits. Its students come from all parts of the country, practically every state in the Union being represented. Students are enrolled also from beyond the boundaries of the United States. They vary in age from "sixteen to sixty," the majority of the regular students being between 17 and 19 years of age. Their previous schooling varies from completion of an elementary grade to graduation from college.

After several years of teaching experience at the Institute, the writer has noted that although more than 70% of the regular students have been high school graduates, incoming students lack occupational information. These facts were revealed through personal interviews with several hundred students and through an examination of their records.

Various statements of the objectives of industrial arts courses are to be found in the literature on the subject. In the United States office of education bulletin No. 34 (32:41) appear these statements:

Industrial arts ... (a) provides information regarding industry and workers; (b) reveals employment opportunities offered by industry.

In the same bulletin (32:61) is found this statement:

Industrial arts contributes to the advancement toward a chosen goal by (c) sampling a variety of industries, through advanced school courses, in preparation for entrance as a beginner into the skilled trades.



Ericsonn (11:294) gives the following as one objective of industrial arts courses:

To afford opportunities for exploring or trying out a variety of occupational fields through actual participation in the work represented by these fields, as a means of discovering occupational aptitudes.

Again, (11:295) he says that one objective is:

To widen the students' knowledge of occupations through auxiliary studies and related information.

Norton (22:123-124) in his report of the Regents' inquiry, states that the tentative course of study in Industrial Arts I for Comprehensive General Shops in grades 7, 8, and 9 lists these two exploratory objectives:

To motivate interest in and create knowledge about the principal fields of industry and the educational and occupational opportunity related thereto.

To explore the boy's inclinations, interests, and abilities in occupational pursuits.

Evidence shows that industrial arts courses are designed to provide experiences that will enable the boy to understand the work of industry and to aid him in the selection of an occupation. Since these are the stated purposes of industrial arts work, and because of the facts revealed concerning Dunwoody students, this problem arose: "What is the relationship of secondary school industrial arts experiences to the occupational choices of students at Dunwoody Industrial Institute?" The purpose of this study is to obtain a solution to the

problem through the answering of such questions as the following:

1. Does industrial arts training tend to help the student discover and develop his occupational interests?
2. Does industrial arts training tend to help the student discover and develop his occupational aptitudes?
3. Does industrial arts training tend to serve effectively as exploratory experience that leads to a more intelligent selection of a suitable occupation?
4. Do entering students tend to select trade training similar in the nature of its work to the industrial arts course or courses pursued most?
5. Does the youth without such training tend to make a more or less suitable occupational selection?
6. What motives or reasons do Dunwoody students give for their occupational choices?

In order to determine whether or not any previous studies had been made which would aid in answering these questions, a review was made of pertinent research and is given in the following chapter.



## Chapter II

### REVIEW OF LITERATURE

In an effort to learn whether or not other studies had been made which would aid in the solution of the problem of this thesis, the writer reviewed all available literature in the library of the Colorado State College. Every book, magazine article, or thesis available whose title indicated usable material was carefully examined. Only partial answers to the subordinate questions were obtained, hence further study and research were necessary. However, a brief review is given here of those studies examined which have a bearing on each of the first three subordinate questions:

1. Does industrial arts training tend to help the student discover and develop his occupational interests?
2. Does industrial arts training tend to help the student discover and develop his occupational aptitudes?
3. Does industrial arts training tend to serve effectively as exploratory experience that leads to a more intelligent selection of a suitable occupation?

Porter (24) in 1933, made a study of high school graduates in three counties of northwestern Colorado. The purpose of the study was to determine

the vocations chosen by high school graduates and some of the influences which affected the choice of and success in these vocations. He collected the data for his study by questionnaire from 194 boys and girls who had graduated from the high schools of Routt, Moffat, and Rio Blanco counties, Colorado, between the years of 1928 and 1932 inclusive. Porter's study shows that the high school subjects considered most helpful were commercial courses, English, and mathematics. The graduates of the high schools studied, believe that the faculty members could be of greater aid to students in preparing for vocations by giving information about them, attempting to find the students' interests and abilities, and guiding in the selection of courses.

Kennedy (17) in 1934, studied the dispersion of 515 graduates of the Lane Technical High School of Chicago, Illinois. He found that 52.2% of all Lane graduates engage in technical and industrial occupations; and that 47.8% of all graduates enter occupations for which the curriculum does not aim to provide proper training.

Campbell (5) in 1933, made a study to determine the correlation between pupils' industrial arts training in high school and their work after leaving high school.

The questionnaire, along with the personal interview, was used to collect the data. One hundred



eighty-seven questionnaires out of a total of 210 were collected, representing every graduating class from 1897 to 1931.

The results of the study show that the high school industrial arts training helped 80% of the 187 persons in their vocations. Seventy percent said technical knowledge and information was the most important part of the training. Seventy-six percent were helped in a practical way in their vocations by the industrial arts training. Eighty percent used their industrial arts as a recreation.

Campbell states further that through clarifying the aims of industrial arts training, definite objectives could be obtained. The goal of these objectives Campbell (5) believes, can be reached by analyzing the student and revising the course of industrial arts training to fit his needs.

Simmons (28) in 1937, made a study of graduates of the Science Hill high school, Johnson City, Tennessee, to determine what relationship existed between the occupational choices of the graduates and their high school preparation and additional training. He found that 42.9% of the graduates listed English as the most useful subject, while 78% of the boys entered trade, mechanical, and professional pursuits.

Clodfelter (6) in 1936, made an occupational survey of the graduates of the Dewey high school in

Dewey, Oklahoma, to determine whether or not they entered occupations for which they received training in high school. He found that the high school courses prepared the students for college but only 18% of the boys and 17% of the girls go either to college or to business college.

Ehrenfeld (10) in 1935, studied the occupational careers of the graduates of the Philipsburg, Pennsylvania, senior high school. From the findings of his study he concludes that there should be less stress put on college preparatory and more on business and industry.

Klein (18) in 1935, studied social-economic trends and their influence upon the industrial arts curriculum. He concludes from his findings that a reinterpretation of the traditional subject matter of industrial arts in the light of social-economic trends for social reconstruction is necessary and justified. He proposes a curriculum based on a progressive philosophy of education and specific objectives of industrial arts.

Henning (14) in 1934, made a study of the value derived from industrial arts by 120 male adults. In this study, he shows that the adults accorded the worthy-homemembership objective of industrial arts courses a high score, while guidance values were given a low estimate.



The findings obtained from these eight studies will be used as points of reference in chapter five.

Subordinate questions (continued)

4. Do entering students tend to select trade training similar in the nature of its work to the industrial arts course or courses pursued most?

Since this question pertains to students entering Dunwoody Institute for the first time, it was to be expected that no previous study would be found which answered the question. Hence, its answer lies in the findings of the present study.

5. Does the youth without such training tend to make a more or less suitable occupational selection?

As in question four, no previous study was found which revealed an answer to this question, so its answer lies in the findings of this study.

6. What motives or reasons do Dunwoody students give for their occupational choices?

Again, as this pertains directly to Dunwoody students, no answer was found in other studies. However, attention is here called to two studies reviewed in earlier paragraphs of this chapter. Kennedy (17) found that only 8.1% of the graduates of Lane Technical High School had chosen occupations the same as their fathers; and only 7.2% had chosen occupations related to those of their fathers.

Porter (24) found that natural interest was

considered the most important factor which influenced the choice of a vocation, as stated by a majority of the 194 boys and girls studied.

Since studies made previously by other investigators did not reveal a great deal of data germane to this study, and since none of the questions subordinate to the main problem of this thesis were fully answered, the writer has undertaken to solve the problem through further study and research.

The methods, materials, and devices used; a presentation of the data obtained; and a discussion and interpretation of the findings are given in the following chapters.



### Chapter III

#### MATERIALS AND METHODS

Foreword.--Close contact with Dunwoody Industrial Institute for the past several years has enabled the writer to conduct this investigation under unusually favorable circumstances. Before beginning the study, he was assured the help and cooperation of the Director of the school and of any staff members who might be asked to contribute information. This close contact with the Institute afforded such advantages as:

1. Large groups of students with which to work.
2. Accurate information regarding rejection or assignment to trade try-out.
3. A homogeneous group as to industrial arts training in the Minneapolis schools.
4. A large enrollment of students both with and without industrial arts training.
5. An opportunity to study and compare two groups, one with industrial arts training and one without such training.
6. Free access to adequate records.

#### SOURCES OF DATA

After very careful consideration of existing conditions at the Institute, such as the system of en-

rolling students, assigning them to courses, grouping them in classes, and recording data on the permanent record cards, a plan for collecting data was worked out. Data for the study were obtained from two sources: the students themselves; and the permanent office record cards. Facts and information obtained directly from the students possess much value and a fairly high degree of validity when properly obtained. In no other way could accurate information be had concerning their declared choice of an occupation, their motives and reasons for choosing a given occupation, the occupations engaged in by the fathers, and other such information. Also this was a means of getting information on the industrial arts courses pursued in the public schools. This first-hand information is vital to any study of this nature.

The permanent office record cards were a highly valuable source of data as each card holds a complete history of the student from the time he enters the Institute until he is placed on a job or until he leaves the school. It is on the basis of information posted on these record cards that all recommendations pertaining to the student while in school, and his future employment are made. Free access to the records has made it possible to obtain desired facts and information exactly as recorded. From the permanent record cards, one for



each of the 160 students included in the study, was obtained information concerning the various courses or trades to which the students had been assigned, any transfers from one trade to another, and the ratings given by the various instructors.

#### METHODS AND DEVICES

Group equivalency.--In order to determine whether or not industrial arts experiences had an influence on the occupational choices made by Dunwoody students, and on their subsequent progress in training, it was necessary to select two groups of students who were equivalent. This study has to do with two groups of Dunwoody students who were in attendance during the 1938-1939 school year. One group, herein designated as group A, consists of 80 students, all from the Minneapolis public schools, who have had industrial arts experience. The other group, herein designated as group B, consists of 80 students, all from the State of Minnesota, outside of Minneapolis who have not had industrial arts experience. Table 1 shows the bases upon which the equivalency of the two groups was set up. All students in both groups had completed high school, all were between the ages of 17 and 24 years, and all had been in attendance at Dunwoody at least three months when the study was made.

Table 1.--GROUP EQUIVALENCY

Bases	Age (yrs.)		Grade com- pleted		Months in attendance at Dunwoody		Average Shop Ratings*	
Groups	A	B	A	B	A	B	A	B
High	24	24	12th	12th	18	17	84.5%	95%
Low	17	17	12th	12th	5	3	64.5%	64.5%
Average	18.92	19.55	12th	12th	8.52	7.75	76.37%	76.00%

\*Dunwoody ratings are given as numerals, 1, 2, 3, 4, & 5, and have percent equivalents as shown below.

1	= 90% to 100% inclusive;	average	= 95.00%
2	= 80% to 89%	"	" = 84.50%
3	= 70% to 79%	"	" = 74.50%
4	= 60% to 69%	"	" = 64.50%
5	= Failure		

The average shop ratings in percent (76.37% for group A and 76.00% for group B) were obtained by multiplying the number of students receiving each rating by the average percent equivalent of each rating, then adding the products thus obtained, (three products for group A and four products for group B), and dividing the sum by 80, the number of students in the group (see also table 2 in Ch. IV). The difference in percent ratings for the two groups is seen to be very slight--only .37%. The



averages for each of the four bases of equivalency are very close for the two groups being studied. Reliable investigations show that no two individuals are exactly alike. Tallman (31), in a study of 63 pairs of identical twins with respect to intelligence resemblances, found that there was an average difference of 5.08 with a probable error of .469. Hence, one may expect to find some differences in individuals in groups such as those being studied.

The original plan was to study two groups of not less than 100 students each, but after interviewing all available regular students, it was found that smaller groups would have to be selected. This was due to the fact that of the 591 students questioned, only 80 students for group B met the age, previous schooling, and Dunwoody attendance requirements set up for the study. The writer recognizes the fact that there might be certain advantages in dealing with larger groups. However, since a third of the entire day-school student body was used in selecting the two groups, and since several distinct advantages presented themselves, as noted at the beginning of this chapter, it is believed that the 160 cases selected have provided ample data for this study.

The personal data sheet.--The purpose of the personal data sheet procedure was to secure certain information that could not be had from the office records. This included information pertaining to the industrial

arts courses pursued, declared choice of an occupation on entering Dunwoody, reasons for choosing a given course or trade, and other information. After the data sheet was drawn up and typed, it was checked by two officials of the school. It was then tried out on six students, improvements were made, and it was again checked by the two officials and approved for use. An interview was then held with 591 regular day-school students. This was done principally in groups and covered a period of three and one-half months. This amount of time was necessary because of the fact that new students are admitted the first of every month, and because of the writer's intention to include in the study only those students who had been in attendance at least three months. Groups of students ranging in number from 8 or 10 to 30 or 40 were secured at such times as to interfere least with their regular assignments. The use of the personal data sheet was explained to the students and they were asked to read it completely before starting to fill it out. If any student had difficulty in interpreting a question to be answered, the writer was present to assist. Sufficient time was allowed for every one to answer all items completely and definitely, so that the information thus obtained might be as reliable as possible.

The next step was to separate the data sheets into two groups, one for those students who had taken industrial arts courses, and the other for those who had



not taken such courses. After this first sorting was completed, a further selection was necessary to get the two groups A and B. This consisted of getting students into the two groups who met the requirements of the study as set up and as previously stated. After the data sheets had been thus administered and segregated into the two groups to be studied, tabulations of data were begun. To facilitate this work and to give a good general overview of the data, they were transferred to two large work sheets, one for each group of students being studied.

The permanent office records.--In securing facts and information from the office records, considerable care, patience, and time were the main requisites. Since this information was to be transferred to places provided for it on the personal data sheets, these were arranged alphabetically in the two groups. Facts and information thus transferred consisted of the first shop assignment, any transfer from one assignment to another, and the average shop rating for each student. As shown in table 1, the numerical shop ratings were translated into percent grades for the purpose of clarifying the presentation of the data. The transfer of data from the record cards to the data sheets completed the task of gathering the data. The next step involved the use of the large work sheets previously mentioned.

The work sheets.--Two large work sheets were drawn up, one for each of the two groups of students

being studied. All information and facts germane to this study, obtained from the students and from their records were transferred to these work sheets in columns under suitable headings.

A copy of the personal data sheet and a work sheet form are included in the following pages.

In the next chapter is given a presentation of the results or findings of this study.



## PERSONAL DATA SHEET

Date \_\_\_\_\_

On Occupational Adjustment Information  
For Young Men Entering Trade Training

Read carefully: Please read each item carefully before writing anything or checking any items. If any item is not entirely clear, please ask about it. All information will be kept strictly confidential.

Name \_\_\_\_\_ Clock No. \_\_\_\_\_  
(last) (first) (initial)

1. I entered Dunwoody Institute (date) \_\_\_\_\_ 19\_\_\_\_
2. My age on entering Dunwoody was \_\_\_\_\_ years \_\_\_\_\_ months.
3. The trade or course I first registered for was \_\_\_\_\_
4. The trade I am now learning is \_\_\_\_\_
5. My father's occupation is (or was) \_\_\_\_\_
6. I attended the public schools of \_\_\_\_\_, (city or town) (state)  
and completed the \_\_\_\_\_ grade. I had additional schooling as follows: post graduate \_\_\_\_\_ yrs.; Jr. college \_\_\_\_\_ yrs.; college \_\_\_\_\_ yrs.; business college \_\_\_\_\_ yrs.; vocational school \_\_\_\_\_ yrs.
7. In the public schools I took shop and drawing courses as shown below: (indicate the amount of each as so many semesters, months, or weeks). Leave blanks empty if courses were not taken.
  - a. Architectural Drawing . . . . . for about \_\_\_\_\_
  - b. Auto Mechanics. . . . . for about \_\_\_\_\_
  - c. Carpentry . . . . . for about \_\_\_\_\_
  - d. Electrical . . . . . for about \_\_\_\_\_
  - e. General Metal . . . . . for about \_\_\_\_\_

- f. Machine Shop . . . . . for about \_\_\_\_\_
- g. Mechanical Drawing . . . . . for about \_\_\_\_\_
- h. Printing . . . . . for about \_\_\_\_\_
- i. Sheet Metal. . . . . for about \_\_\_\_\_
- j. Wood Working Shop. . . . . for about \_\_\_\_\_
- k. \_\_\_\_\_ for about \_\_\_\_\_

8. The course listed above that I liked best was \_\_\_\_\_

9. My industrial arts experiences gave me definite trade and occupational information as indicated. (Check only one.)

Much \_\_\_\_\_ Some \_\_\_\_\_ Little or none \_\_\_\_\_

10. I have had practical work experience as follows: (please list the various kinds of mechanical, manual or business experiences that you have had to any extent--say at least three months for each).

\_\_\_\_\_ for \_\_\_\_\_ yrs. or \_\_\_\_\_ months.

\_\_\_\_\_ for \_\_\_\_\_ yrs. or \_\_\_\_\_ months.

\_\_\_\_\_ for \_\_\_\_\_ yrs. or \_\_\_\_\_ months.

\_\_\_\_\_ for \_\_\_\_\_ yrs. or \_\_\_\_\_ months.

11. The work listed in No. 10 that I liked best was \_\_\_\_\_

12. When you entered Dunwoody you expressed a choice for one particular trade. In the following list of possible reasons why you made your trade choice, select the one you consider was most important and put the figure 1 after it. Put the figure 2 after the one you think was the next important, figure 3 after the one next important, etc. If some seem to have the same importance, give them the same number. If some have no importance, leave them blank. Read them all before making any selection.

a. I wanted to follow the same trade as my father. \_\_\_\_\_

b. My father advised me to follow this trade. \_\_\_\_\_

c. I have natural interest and aptitude for this trade. \_\_\_\_\_

d. I understand this trade pays well. \_\_\_\_\_

e. This trade will give me steady work. \_\_\_\_\_



- f. This trade has a good future. \_\_\_\_\_
- g. I know I can get work in this trade. \_\_\_\_\_
- h. The school counselor advised me to take up this trade. \_\_\_\_\_
- i. My school shop work got me interested in this trade. \_\_\_\_\_
- j. A friend or relative advised me to take up this trade. \_\_\_\_\_
- k. Previous experience gave me interest in this trade. \_\_\_\_\_
- l. I selected this trade just by chance. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

13. If you are not now taking the shop course for which you first registered, please give your reason.

\_\_\_\_\_

\_\_\_\_\_

DO NOT WRITE BELOW THIS LINE

Declared Choice \_\_\_\_\_

First Assignment \_\_\_\_\_ Progress \_\_\_\_\_

Second Assignment \_\_\_\_\_ Progress \_\_\_\_\_

Third Assignment \_\_\_\_\_ Progress \_\_\_\_\_

Disposition \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

1/25/39



[illegible]



## Chapter IV

### RESULTS OR FINDINGS

In the preceding chapter, the sources of data and the methods and procedure used in securing them, were given. The findings obtained through the various phases of the study, with brief explanatory statements for each, are presented in this chapter. They will be presented in approximately the order shown.

1. Age of students
2. School grade completed
3. Months in attendance at Dunwoody
4. Average shop ratings at Dunwoody
5. Point rating equivalents
6. Motives or reasons for selecting a given occupation
7. Occupations of the fathers
8. Occupational information derived from industrial arts experiences
9. Previous work experience
10. Dunwoody courses offered, stated choice, and final assignment
11. Industrial arts courses pursued

The first four items listed above were presented in Chapter III, and were used in establishing the



equivalency of the groups (See table 1 in ch. III).

#### SHOP RATINGS AND POINT-RATING EQUIVALENTS

The distribution of shop ratings, together with arbitrary point-rating equivalents, is shown in table 2. By assigning point values to the shop ratings, (as done with letter grades in some colleges), such as three points for a one rating, two points for a two rating, one point for a three rating, and minus one point for a four rating (which is unsatisfactory), the point distribution would appear as in table 2. This will serve to emphasize and clarify the equivalency of the groups on the basis of shop ratings.

Table 2.--DISTRIBUTION OF AVERAGE DUNWOODY SHOP RATINGS AND POINT-RATING EQUIVALENTS

AVERAGE SHOP RATINGS	GROUP A	GROUP B	POINT RATINGS	
	Number of students	Number of students	Group A	Group B
1	....	1	....	+ 3
2	19	13	+38	+26
3	57	63	+57	+63
4	4	3	- 4	- 3
5	....	....	....	....
Totals	80	80	+91	+89

Table 2 shows that no students in group A received a one rating, and that one student in group B did receive that rating. The table shows also that a rating of three was most frequent in both groups; 57 students in group A and 63 students in group B were so

rated. A rating of four was received by four group A and three group B students.

The method used to calculate the point ratings is as follows: By multiplying the number of students in a group receiving a given shop rating by the number of points for that rating, as stated above, the point-rating equivalents may be found. For example, referring to the table, it is seen that  $2 \times 19 = 38$ ;  $1 \times 57 = 57$ ;  $-1 \times 4 = -4$ . Adding these products,  $+38$ ,  $+57$ , and  $-4$ , gives the sum of  $+91$ , the total point rating for group A. In the same manner, the total point rating for group B is found to be  $+89$ . It is thus seen, by this method of comparison, that the two groups are nearly equal in so far as their Dunwoody shop work is concerned. In terms of percent, group A receives  $91 \div 180$ , or  $50.6\%$  of the points, and group B receives  $89 \div 180$ , or  $49.4\%$  of the points. The difference is seen to be  $1.2\%$ .

#### MOTIVES OR REASONS STATED FOR TRADE CHOICES

This phase of the study was to determine the reasons or motives stated by students for choosing a given occupation. Item 12 on the personal data sheet was used to secure this information. The results for groups A and B are given in table 3.

This table shows that reason f, "This trade has a good future," was mentioned most, or 143 times.



Table 3.--REASONS STATED FOR TRADE CHOICES: GROUPS A AND B

Reasons or motives given	Groups	Total times stated	Rated 1 (high)	Rated 2	Rated 3	Rated 4 or lower	Rank order		
							A	B	Both
a. I wanted to follow the same trade as my father	A	5	1	1	1	3	12	10½	11
	B	4	1	0	1	2			
b. My father advised me to follow this trade	A	24	6	6	7	5			
	B	19	3	5	5	6	6	8	8
c. I have a natural interest and aptitude for this trade	A	59	33	15	5	6			
	B	73	40	20	9	4	2	2	2
d. I understand this trade pays well	A	48	3	16	19	10			
	B	40	1	9	18	12	3	4	3
e. This trade will give me steady work	A	28	2	11	8	7			
	B	41	8	11	11	11	5	3	4
f. This trade has a good future	A	72	27	24	15	6			
	B	71	28	32	5	6	1	1	1
g. I know I can get work in this trade	A	23	6	6	2	9			
	B	27	6	4	5	12	7	7	5½
h. The school counselor advised me to take up this trade	A	7	1	0	2	4			
	B	7	1	2	1	3	10½	9	9
i. My school shop work got me interested in this trade	A	33	13	2	11	7			
	B	Did not take shop work					4		
j. A friend or relative advised me to take up this trade	A	15	1	7	2	5			
	B	31	4	8	10	9	9	6	7
k. Previous experience gave me interest in this trade	A	18	3	7	3	5			
	B	32	14	8	8	2	8	5	5½
l. I selected this trade just by chance	A	7	0	3	1	3			
	B	4	3	0	0	1	10½	10½	10



Reason a, "I wanted to follow the same trade as my father," was mentioned least, or only nine times. From the standpoint of being rated one, reason a, "I have a natural interest and aptitude for this trade," ranks highest with 73 votes; and reasons a, "I wanted to follow the same trade as my father," and h, "The school counselor advised me to take up this trade," rank lowest with two votes each. Reason i, "My school shop work got me interested in this trade," was mentioned 33 times by the 80 students in group A. It was rated one by 13 students, and four or lower by seven students.

A space was provided on the personal data sheet for the students to write in additional reasons, but only eight did so. The items thus written in appeared with a frequency of one each, and are as follows:

By group A

This seems the most practical trade for which I am suited

My hobby is amateur radio

Have built short wave radios as a hobby

Like the work very much

By group B

Became interested through a correspondence course

Desire to learn a trade I really like

Am interested in mechanical things

I am interested in this trade

The first reason given above under group A may be classed as a statement of aptitude; and the second and third pertaining to hobbies, and the fourth, pertaining to the student's likes, are clearly statements of interest. All four reasons shown above under group B appear to be statements of interest, so they have been included in table 3 with reason g.

Upon a closer examination of the reasons checked by students as having influenced them in their choice of an occupation, these questions arose in the mind of the writer: Is there a difference in the value or quality of the reasons listed--that is, might some be classed as good, some as fair, and others as poor reasons? If this is true, then is there any relationship between the students' selection and rating of the twelve reasons or motives listed, and their choice of a trade and subsequent success or failure in their preparation for this trade at Dunwoody Industrial Institute? Answers were sought for these questions through analysis of the data as shown in tables 4 and 4a.

The set-up of table 4 requires some explanation. The 12 reasons listed on the personal data sheet, which were checked and rated by the students, have been arranged in groups according to whether they were considered good, fair, or poor reasons. Reasons b, c, g, h, and k, were considered good reasons, and are grouped at the top of the list; reasons a, f, and i, were con-



Table 4.--ANALYSIS OF STATED REASONS OR MOTIVES: GROUPS A AND B

GROUPS	A									B								
STUDENTS' APPRAISALS	1			2			3			1			2			3		
SHOP RATINGS	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
b. My father advised me to follow this trade		2	3		1	3			7			1			6		1	5
c. I have a natural interest and aptitude for this trade		9	24		5	7		2	4	1	8	15		4	16			5
g. I know I can get work in this trade			4		2	3		1	1			4		2				5
h. The school counselor advised me to take up this trade			1						2					1	1		1	
k. Previous experience gave me interest in this trade		1	1		3	5			3			9	2	2	2		2	4
a. I wanted to follow the same trade as my father			1					1			1					1		
f. This trade has a good future		6	22		3	18		4	13		5	22		4	27		1	3
i. My school shop work got me interested in this trade		3	9		2			2	9									
d. I understand this trade pays well			3		2	13		5	13			2			8		5	14
e. This trade will give me steady work			2		1	9		1	5			8		2	5		3	7
j. A friend or relative advised me to take up this trade			1			6			2			4			4		1	10
l. I selected this trade just by chance						3			1	1		3						



sidered fair reasons, and are grouped just below the good reasons; and reasons d, e, j, and l were considered poor reasons, and appear at the bottom of the list. The basis and justification of this appraisal of the reasons is given in Chapter V.

It will be noted that the data in the table to the right of reasons or motives are listed for both groups of students in three major columns, headed one, two, and three. These represent the students' appraisals of the reasons they checked. Reasons checked under major column one were considered by the students to be most important; reasons checked under major column two were considered to be of less importance; and reasons checked under major column three were considered to be of still less importance in their choice of an occupation. Reasons considered by students to have less importance than noted above have been omitted from the table.

Further examination of table 4 shows that each of the three major columns has been divided into three minor columns, headed one, two, and three. These represent the shop ratings of the students. Those who were rated one--highest--are listed in minor column one (no students in group A rated one); those who were rated two are listed in minor column two; and those who were rated three are listed in minor column three.

Students who were rated four are not included in this phase of the study since a four rating is unsatisfactory, and hence, no reasons or motives checked should be considered as good, fair, or poor.

Table 4 shows that there were 9 students in group A, and 8 students in group B, who were rated two in their shop work, who considered reason c most important. Twenty-four students in group A and 15 in group B, who were rated three in their shop work, considered reason c most important. There were 57 students in both groups, whose shop work at Dunwoody was satisfactory, who gave reason c first place. Twenty-eight students in group A and 27 in group B, or 55 in all, rated reason f highest. One student rated reason h high. It was given second place by two students, and third place by three students. Also reasons g and k received a very light vote for first place, eight and eleven respectively. Reason e was given first place by ten students, and second place by 17 students.

This part of the study was carried a step farther to consider to what extent the members of the two groups had placed reliance on worthwhile motives in their selection of a trade. The data are presented in table 4a.



Table 4a.--STUDENTS' RATING OF REASONS

CLASSIFICATION OF REASONS					NO. OF TIMES RATED	
					GROUP A	GROUP B
Good reasons rated	one	(high)			45	38
" " "	two	(med.)			29	36
" " "	three	(low)			20	23
					<u>94</u>	<u>97</u>
Fair	"	"	one	(high)	41	28
"	"	"	two	(med.)	23	31
"	"	"	three	(low)	29	5
					<u>93</u>	<u>64</u>
Poor	"	"	one	(high)	6	18
"	"	"	two	(med.)	34	19
"	"	"	three	(low)	27	40
					<u>67</u>	<u>77</u>
TOTALS-----					254	238

Table 4a shows that the good reasons were checked a total of 94 times by group A students, and 97 times by group B students; that the fair reasons were checked 93 times by group A students and 64 times by group B students; and that the poor reasons were checked 67 times by group A students and 77 times by group B students; all of the reasons were checked a total of 254 times by the group A students and a total of 238 times by the group B students.

An interpretation of these data is given in Chapter V.



## OCCUPATIONS OF FATHERS

A further phase of the study was to secure information pertaining to the occupations of the fathers. These data were obtained from item five on the personal data sheet and are given in tables 5 and 6.

Table 5.--OCCUPATIONS OF FATHERS: GROUP A

Occupations	Times Mentioned
Carpenter	7
Machinist	4
Milkman	3
Salesman	3
Barber	2
Groceryman	2
Janitor	2
Paper mill worker	2
Shipping clerk	2
Building contractor	2
Steam engines	2
Welder	2
Street car man	1
Housemen, exp. co.	1
Oat mill foreman	1
Floor layer	1
Mechanical draftsman	1
Sash and door ripper	1
Farm machinery	1
Pipe fitter	1
Company lawyer	1
Painter and decorator	1
Department manager	1
Inspection engineer	1
Steam fireman	1
Tool and die maker	1
Electrician	1
Mattress maker	1
Broom maker	1
Union business agent	1
Miner	1
Auto body worker	1

Table 5 (continued)

Occupations	Times Mentioned
Doctor. . . . .	1
Architect . . . . .	1
Post office clerk . . . . .	1
Bookkeeper. . . . .	1
Industrial arts teacher . . . . .	1
Flour miller . . . . .	1
Punch press operator . . . . .	1
R. R. engineer. . . . .	1
R. R. coach cleaner . . . . .	1
Supt. of battery plant. . . . .	1
Upholsterer . . . . .	1
Dry goods store owner . . . . .	1
Truck driver. . . . .	1
City fireman . . . . .	1
R. R. Brakeman. . . . .	1
Real estate dealer. . . . .	1
Brick mason . . . . .	1
Shoe repairman. . . . .	1
Glass worker. . . . .	1
Spotter . . . . .	1
R. R. car repairman . . . . .	1
Laborer . . . . .	1
Photo engraver. . . . .	1
Wood shop foreman . . . . .	1

Table 6.--OCCUPATIONS OF FATHERS: GROUP B

Occupations	Times Mentioned
Farmer. . . . .	31
Heating and plumbing. . . . .	3
Telephone man . . . . .	3
Clothing store clerk. . . . .	2
Auto mechanic . . . . .	2
Carpenter . . . . .	2
Electrician . . . . .	2
Depot agent . . . . .	2
Groceryman . . . . .	2
Laborer. . . . .	2
Bottler . . . . .	2
Painter . . . . .	2
Pattern maker . . . . .	1
R. R. section foreman . . . . .	1
R. R. conductor . . . . .	1
Telegraph operator. . . . .	1
R. R. laborer . . . . .	1
Creamery man . . . . .	1



Table 6 (continued)

Occupations	Times Mentioned
Meat cutter. . . . .	1
Lumberman. . . . .	1
Forester . . . . .	1
Logger . . . . .	1
Musician . . . . .	1
Jeweler . . . . .	1
Foreman . . . . .	1
Miller . . . . .	1
Summer resort owner. . . . .	1
Stone cutter . . . . .	1
Glazier . . . . .	1
Clergyman . . . . .	1
Elevator man . . . . .	1
Salesman (hardware). . . . .	1
Tavern keeper. . . . .	1
R. R. messenger. . . . .	1
Postmaster . . . . .	1
U. S. Customs officer. . . . .	1
R. R. rate clerk. . . . .	1

The occupations shown in both tables are listed in order of frequency of mention. Table 5 shows that in group A, twelve occupations were mentioned from two to seven times each, and forty-four were mentioned once each. Table 6 shows that in group B, twelve occupations were mentioned from two to thirty-one times each, and twenty-five were mentioned once each.

This phase of the study was carried a step farther to determine if there was a relationship between the occupation of the father and the trade selected by the son. Table 7 presents this relationship.



Table 7.--RELATIONSHIP BETWEEN OCCUPATIONS OF FATHERS AND  
TRADE CHOICES OF SONS

RELATIONSHIP	DECLARED CHOICE			ACTUAL CHOICE		
	Group A	Group B	Both	Group A	Group B	Both
SAME	5	4	9	1	3	4
SIMILAR	0	0	0	9	5	14
DIFFERENT	75	76	151	70	72	142

Table 7 shows that five students in group A and four in group B stated that they wanted to follow the same trade as the fathers, but that one in group A and three in group B actually did choose the same trade.

Nine in group A and five in group B chose trades somewhat similar to those engaged in by the fathers. Seventy in group A and 72 in group B chose trades different from those followed by the fathers.

In terms of percent, 5.6% of the 160 students studied stated that they wanted to follow the same trades as the fathers, but only 2.5% actually did select the same trades; 8.7% selected trades somewhat similar, and 88.7% selected trades different from those engaged in by the fathers.

#### OCCUPATIONAL INFORMATION DERIVED FROM INDUSTRIAL ARTS EXPERIENCES

Item nine on the data sheet requested the students to state to what extent they derived trade

and occupational information from their industrial arts experiences. Sixteen, or 20%, stated that they had received much information, 51 or 63.75% stated that they had received some information, and 13 or 16.25% stated that they had received little or no trade and occupational information from their industrial arts training.

#### PREVIOUS WORK EXPERIENCE OF STUDENTS

Item ten requested information pertaining to the practical work experience of the students prior to the time they entered Dunwoody. They were asked to report only the work experience of three months duration or more. The purpose of this question was to get information which might aid in determining whether or not there was any relation between the previous work experience of a student and his choice of an occupation and subsequent success or failure in preparing for it at Dunwoody.

In checking responses, it was found that many students had not indicated any work experience; others stated that they had some work experience; and still others stated indefinite amounts of previous work experience. One student in group A who gave his age as 20 years stated that he had worked 11 years and 6 months. Data pertaining to the work experience of the two groups are given in table 8.



Table 8.--PREVIOUS WORK EXPERIENCE OF STUDENTS

NUMBER OF YEARS	NUMBER OF STUDENTS (Group A)	NUMBER OF STUDENTS (Group B)	NUMBER OF STUDENTS (Both groups)
0 - ½	11	6	17
½ - 1	12	8	20
1 - 2	7	7	14
2 - 3	7	7	14
3 - 4	5	10	15
4 - 5	4	7	11
5 - 6	5	2	7
6 - 7	2	0	2
7 - 8	1	3	4
8 - 9	0	3	3
9 - 10	1	2	3
10 - 11	0	2	2
11 - 12	1	1	2
12 - 13	0	0	0
13 - 14	0	0	0
14 - 15	0	0	0
15 - 16	0	1	1
None	20	10	30
Indef.	4	11	15
Totals	80	80	160

Table 8 shows that the amount of work experience possessed by students before entering the Institute varied from less than half a year to more than fifteen years. In group A, the point of greatest frequency for those who had stated some experience was from half a year to a year, this amount of time being mentioned by 12 students. The amount of time mentioned most by those students in group B was from three to four years, ten having stated this amount. Thirty students in the two groups stated that they had no experience, and 15 gave indefinite amounts.



# DUNWOODY COURSES OFFERED, STATED CHOICE, AND FINAL ASSIGNMENT

The various courses offered in the Dunwoody day school are listed in Table 9, and the declared choices and final assignments for the entire 160 students in both groups are indicated.

Table 9.--DUNWOODY COURSES OFFERED, DECLARED CHOICE, AND  
FINAL ASSIGNMENT

Courses offered	Declared Choice			Final Assignment		
	A	B	Both	A	B	Both
Air conditioning	18	18	36	18	17	35
Auto mechanics	8	5	13	8	8	16
Bldg. const. (carpentry)	0	3	3	0	3	3
Bldg. const. (drafting)	5	2	7	4	2	6
Electrical	20	35	55	20	36	56
General mechanics	0	3	3	0	0	0
Highway	0	1	1	0	0	0
Painting and decorating	1	0	1	1	0	1
Machine shop	14	4	18	14	6	20
Mechanical drafting	11	3	14	10	3	13
Printing	3	5	8	5	5	10
Refrigeration	0	1	1	0	0	0
Sheet metal	0	0	0	0	0	0

Table 9 shows that the electrical course stands highest, both in declared choice and final assignment; that air conditioning is next in both; and that highway and refrigeration are at the bottom of the list, both in declared choice and final assignment. This table shows also that there were very few changes from declared choice to final assignment, 16 in all, with a range of from zero for some courses to three for others. The three changes from the general mechanics course are accounted for by the fact that this course does not offer

specific trade training. Its purpose is to furnish miscellaneous shop work for some students who request such training, and for those students who were at first uncertain as to what course they desired. Item 13 on the data sheet requested students to state their reasons for making a change from their declared choice of a trade, but only ten did so. The reasons thus written in appeared with a frequency of one each, and are as follows:

By group A

Didn't like the work after starting it  
 Could not get interested in this trade  
 A friend got me interested in another trade  
 My entrance test mark was too low  
 I changed because my father and a friend  
 advised me to  
 I found out I didn't like that work

By group B

I found I had to have electrical work for  
 refrigeration, so decided to take the  
 electrical course  
 Decided the future was not good  
 I failed on the entrance test  
 Decided I didn't like the course

INDUSTRIAL ARTS COURSES PURSUED

Foreword.--The data pertaining to industrial arts work engaged in by the students, prior to entering Dunwoody, are given in tables 10, 11, 12, 13, 14, and 15.



Table 10 combines the data pertaining to the distribution of industrial arts courses taken, the number of semesters taken, and the average shop ratings for all students in group A. Clock numbers, as given in the first column of table 10, are assigned to all students as soon as registration is completed. This table gives a good over-view of the data, and will be referred to again.



Table 10.--DISTRIBUTION OF INDUSTRIAL ARTS COURSES  
TAKEN, NUMBER SEMESTERS TAKEN, AND AVERAGE DUNWOODY  
SHOP RATINGS

Students by clock number	Number of industrial arts courses taken	Total number of semesters taken	Average shop ratings	Students by clock number	Number of industrial arts courses taken	Total number of semesters taken	Average shop ratings
1002	4	7	3	1010	0	10	3
1120	3	6	3	960	6	6	3
1032	4	8	2	591	6	11	3
657	4	19	2	865	5	7	2
571	5	6	2	617	4	4	3
439	7	20	3	311	4	5	4
345	5	8	3	338	4	6	2
1028	4	8	3	495	5	10	3
799	3	6	3	360	3	7	3
446	5	9	3	1006	7	12	3
1119	5	11	3	356	3	12	3
1012	3	15	3	1022	5	10	2
999	5	8	2	754	4	8	3
786	5	12	3	493	3	10	2
819	6	11	3	1138	4	7	3
369	3	15	3	741	3	9	4
449	6	9	3	526	2	2	3
803	5	6	3	1065	4	9	3
997	6	10	3	760	4	12	2
230	3	4	3	572	5	19	3
597	2	6	3	771	5	9	3
717	3	7	3	530	5	6	3
309	4	7	3	1072	5	8	3
998	4	12	3	1126	3	5	4
989	3	8	3	596	3	12	3
594	4	5	3	570	7	12	3
812	5	8	3	996	4	7	2
1009	5	11	2	1016	2	5	3
409	6	11	3	752	5	10	3
908	6	8	3	812	7	14	2
539	5	8	2	1165	5	6	2
468	4	6	2	1169	3	8	3
1082	3	12	2	781	1	2	3
532	4	10	3	600	5	7	3
793	5	8	3	766	5	11	4
967	2	2	3	1140	4	4	2
1000	6	12	3	566	7	10	3
1031	2	7	2	460	4	10	3
749	5	6	3	1127	5	12	2
407	5	12	3	1190	3	3	3

Table 11.--INDUSTRIAL ARTS COURSES AND AMOUNT OF EACH TAKEN

Industrial Arts Courses Taken	Semesters of each*							Number taking each	Courses liked best (times stated)
	0 to $\frac{1}{2}$	$\frac{1}{2}$ to 1	1 to 2	2 to 3	3 to 4	4 to 5	Over 5		
1. Architectural drawing	1	3	6	2	1	1	1	15	7
2. Auto Mechanics	0	9	4	2	0	0	0	15	8
3. Carpentry	1	3	3	0	1	0	0	8	1
4. Electrical	2	34	17	2	0	0	0	55	11
5. General metal	0	5	2	1	0	0	0	8	1
6. Machine shop	1	23	6	3	0	1	0	34	13
7. Mechanical drawing	0	13	25	14	8	12	5	77	23
8. Printing	2	31	7	1	0	2	1	44	7
9. Sheet Metal	2	22	8	1	1	0	0	34	3
10. Wood working shop	1	25	20	12	6	3	0	67	7
11. Cabinet making	0	0	0	1	0	0	0	1	1
12. Auto electric	0	1	0	1	0	0	0	2	1
13. Wood turning	1	2	0	0	0	0	0	3	0
14. Forge & blacksmith	1	2	0	0	0	0	0	3	0
15. Surveying	0	1	0	0	0	0	0	1	0
16. Pattermaking	0	2	0	0	0	0	0	2	0

\*One semester equals 18 weeks



Courses pursued Most and Liked Best.--The

students were asked to state which of their industrial arts courses they liked best. It will be seen from table 11, that mechanical drawing was mentioned most--23 times in all--as being liked best. However, in terms of percent, auto mechanics ranked first of the ten courses pursued most. Eight out of 15, or 53.3% of those taking auto mechanics liked it best. Architectural drawing came next with seven out of 15, or 46.6%, liking it best. Sheet metal ranked lowest with only three out of 34, or 8.8%, stating that they liked it best.

Data were obtained from the personal data sheets and the school records which revealed certain relationships between industrial arts courses taken, declared choice on entering the Institute, and final assignment to a trade for training. Table 12 presents these relationships.

Table 12.--RELATIONSHIP BETWEEN INDUSTRIAL ARTS COURSE PURSUED MOST, DECLARED CHOICE, AND FINAL ASSIGNMENT: GROUP A

RELATIONSHIP	BETWEEN INDUSTRIAL ARTS COURSE TAKEN MOST AND DECLARED CHOICE OF TRADE	BETWEEN INDUSTRIAL ARTS COURSE TAKEN MOST AND FINAL TRADE ASSIGNMENT
Same or similar	34 or 42.5%	33 or 41.25%
Different	46 or 57.5%	47 or 58.75%



Table 12 shows that 34, or fewer than half of the beginning students in group A stated a choice of trade the same as or similar to the industrial arts course pursued most; and that 33, or fewer than half of the students were finally assigned to trade training in the same or similar line as that taken most in industrial arts.

The study was carried a step farther to determine whether or not there was a relationship between the course liked best and declared choice, or final assignment to trade for training at Dunwoody. These data are given in table 13. There were two students in group A who did not state a preference.

Table 13.--RELATIONSHIP BETWEEN DECLARED CHOICE, INDUSTRIAL ARTS COURSE LIKED BEST, AND FINAL ASSIGNMENT: GROUP A

RELATIONSHIP	BETWEEN DECLARED CHOICE AND INDUSTRIAL ARTS COURSE LIKED BEST	BETWEEN FINAL ASSIGNMENT AND INDUSTRIAL ARTS COURSE LIKED BEST
Same or similar	39 or 48.75%	39 or 48.75%
Different	39 or 48.75%	39 or 48.75%

Table 13 shows that 39 or 48.75% of the 80 students in the group stated a trade choice the same as or similar to the industrial arts course liked best. The same number, 39, were finally assigned to a trade for

training the same as or similar to the industrial arts course liked best. A like number in both cases were found to be different in relationship.

Number of Courses and Number of Semesters.--

Table 11, shows that 16 courses in all were mentioned a total of 369 times, and the time spent by students in industrial arts courses varied from less than half a semester for some courses to more than five semesters for other courses. For example, one student had taken less than half a semester of architectural drawing; two students had taken less than half a semester of electricity; one student had taken more than five semesters of printing; and five students had taken more than five semesters of mechanical drawing. The table shows also that the most usual length of time spent in industrial arts work was about one semester, this amount of time being mentioned 176 times. The next in frequency of mention was from one to two semesters, this being mentioned 98 times.

Mechanical drawing and wood working were the two courses pursued by the greatest number of students, 77 and 67 respectively. Cabinet making and surveying received the least attention, each being mentioned once.

Data on the number of industrial arts courses taken, average Dunwoody shop ratings, and point-rating equivalents, are shown in table 14 and figure 1.



Table 14.--NUMBER OF INDUSTRIAL ARTS COURSES TAKEN, AVERAGE DUNWOODY  
SHOP RATINGS, AND POINT RATING EQUIVALENTS: GROUP A

NUMBER OF COURSES TAKEN	NUMBER OF STUDENTS	AVERAGE SHOP RATING	POINT RATING EQUIVALENT	AVERAGE SHOP RATING	POINT RATING EQUIVALENT	AVERAGE SHOP RATING	POINT RATING EQUIVALENT	AVERAGE SHOP RATING	POINT RATING EQUIVALENT	AVERAGE SHOP RATING	POINT RATING EQUIVALENT	TOTAL POINTS PER COURSE TAKEN
		1		2		3		4				
1	1	...	...	...	...	1	1	...	...	...	...	1
2	5	...	...	1	2	4	4	...	...	...	...	6
3	17	...	...	3	6	12	12	2	-2	...	...	16
4	19	...	...	7	14	11	11	1	-1	...	...	24
5	24	...	...	7	14	16	16	1	-1	...	...	29
6	9	...	...	...	...	9	9	...	...	...	...	9
7	5	...	...	1	2	4	4	...	...	...	...	6



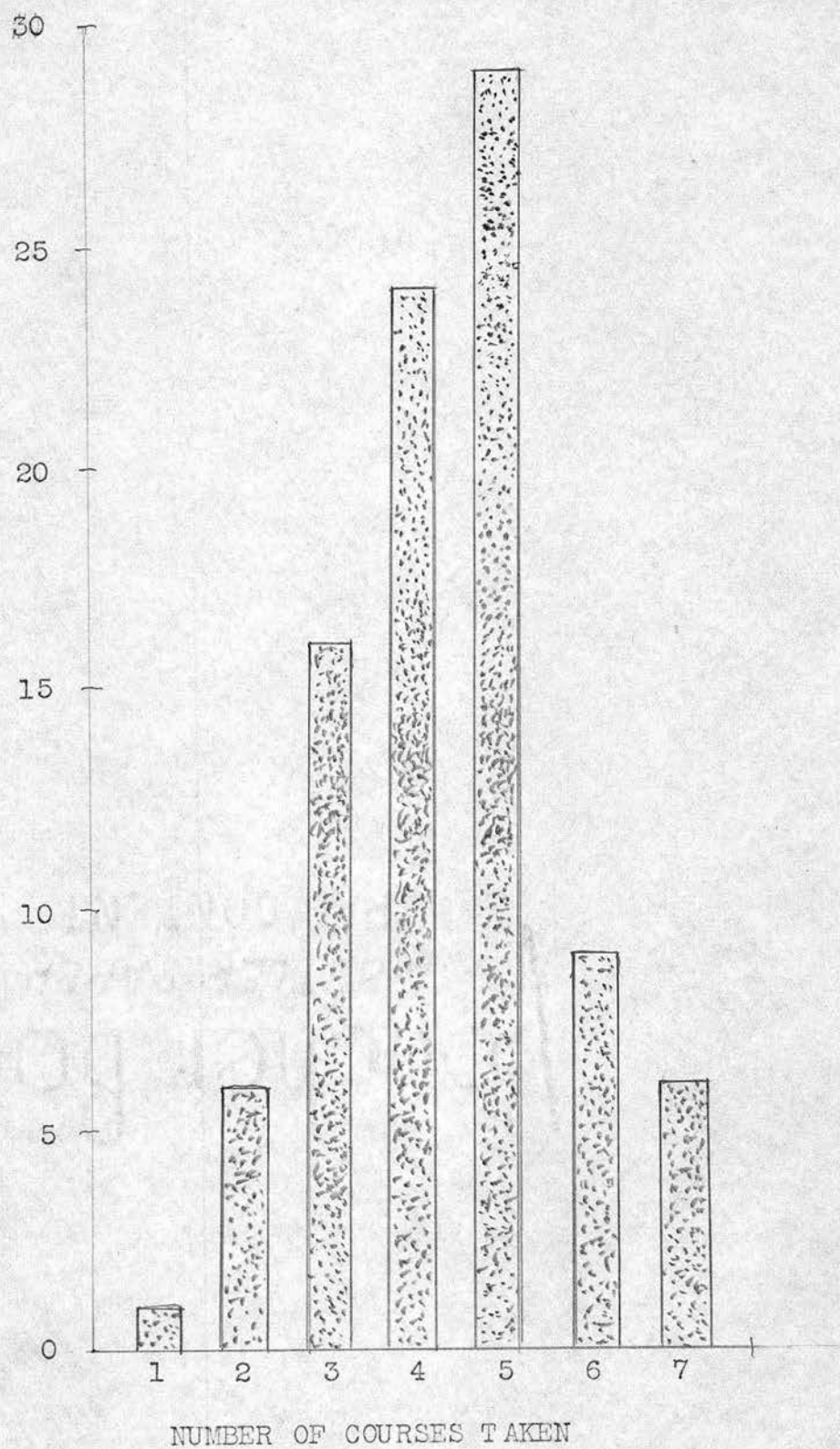
SHOP  
POINT  
RATINGS

Fig. 1.--Industrial arts courses taken and point ratings.

Table 14 and figure 1 show that the number of industrial arts courses taken by any one student varied from one to seven, the average being 4.33 (see also table 10). It is seen also that one student took only one course and that five students each took seven courses. Five courses were pursued by the greatest number of students, 24 having taken that number.

This table gives information also concerning the relationship between the number of industrial arts courses taken and the Dunwoody shop ratings received. The one student who took only one course received a rating of three. One of the five who took two courses was rated two, and each of the other four was rated three. There were no students in group A rated one. Seven out of 19, or 36.8% of those who had taken four courses, were rated two. This is the highest percent who received this rating. Eleven of the 19, or 57.9%, were rated three; and one, or 5.3%, was rated four. One of the five students who had taken seven industrial arts courses was rated two, and each of the other four was rated three.

The point-rating equivalents were explained in connection with table 2. It will be seen from table 14 and figure 1 that when the point-rating equivalents are totaled, students who had taken five courses received the highest point rating, 29; those who had taken four courses received the next highest point rating, 24; and the one student who had taken only one course received a



point rating of one.

In table 15 and figure 2 are given similar data for the number of semesters taken.





SHOP  
POINT  
RATINGS



Fig. 2.--Semesters of industrial arts courses taken and point ratings.



Table 15 and figure 2 show that the number of semesters of industrial arts work taken by any one student varied from two to twenty, the average being 8.73 (see also table 10). Three students had two semesters each, and one student had 20 semesters of industrial arts work. Eight semesters were taken by the greatest number of students, 12 having had that number.

This table indicates also the relationship between the number of semesters of industrial arts work taken and the Dunwoody shop ratings. No students in group A were rated one. It is seen that the three students who had taken two semesters of industrial arts work each received a rating of three. Four, or 36.4% of the 11 students who had taken six semesters, received a rating of two; the other seven, or 63.6% received a rating of three. One-fourth of the students who had taken eight semesters of industrial arts work received a rating of two; the other three-fourths were rated three. The one student who had taken 20 semesters was rated three.

It will be seen from table 15 and figure 2 that when the point-rating equivalents are totaled, students who had taken either six or eight semesters of industrial arts work received the highest point ratings, 15 in each case; those who had taken ten semesters received the next highest rating, 13; and the students who had taken either three or twenty semesters, each



received a point rating of one.

An interpretation and discussion of the data presented in this chapter is given in chapter V.

## Chapter V

### DISCUSSION OF FINDINGS

Foreword.--The preceding chapters included a statement of the problem of this thesis, the background of events and conditions from which the problem arose, a review of pertinent research, the methods and materials employed in collecting and handling the data, a statement of the bases on which the two groups of students were equated, and an account of the findings through the presentation of the data themselves. It is the purpose, in this chapter, to analyze and interpret the findings in terms of the problem: "What is the relationship of secondary school industrial arts experiences to the occupational choices of students at Dunwoody Industrial Institute?"

#### MOTIVES OR REASONS

A justification of the appraisal given.--In chapter IV, it was suggested that the various motives or reasons given by a student for selecting a certain occupation might be considered as relatively good, fair, or poor. (See table 4 in ch. IV, and the descriptive material pertaining to it). A justification for this appraisal is



presented here for the twelve motives or reasons.

Reason b, "My father advised me to follow this trade," may be considered a good reason because there is no one more interested in the welfare of a young man than his parents. Through constant living together, the parents come to know something of the interests, the desires, and the abilities of the son. They are likely to advise him as considerately as possible for his best interests. However, the father may not have a thorough knowledge of the world of occupations, and his advice may not be entirely reliable.

Reason c, "I have natural interest and aptitude for this trade," may be considered a good reason because interest and aptitude are important success factors in any undertaking. The fact that an individual possesses these factors is itself a good reason. Bingham (2:63) says:

The capacity for achieving an interest in carrying on the work of any occupation, is a vital constituent of aptitude for it. Other things being equal, no one questions that a man is better fitted to undertake training for a calling that he will like than for one toward which he will feel either indifference or repugnance.

Again, Bingham states that significant symptoms of aptitude may be found in what a person says about his interests.

Reason g, "I know I can get work in this trade," may be considered a good reason, because the whole object of the student's preparation for a trade is to get a job.



Hence, if he has a job in view, and knows that he can get work when he has completed his training, that in itself is a good reason for selecting a given occupation.

Reason h, "The school counselor advised me to take up this trade," may be considered a good reason, because the counselor is a specialist in the field. His job requires him to be posted on occupational opportunities and requirements. He is supposed to be the one most familiar with the characteristics, abilities, desires, and interests of the student. Proctor (25:318) states:

Two important duties of a school counselor are: (1) the discovery of the abilities of school children; and (2) the giving of counsel relating to the selection of, and preparation for, a life-career.

Therefore, the student has turned to what must be considered a reliable source of counsel.

Reason k, "Previous experience gave me interest in this trade," may be considered a good reason, because one of the best sources of occupational information is the job itself. The individual thus has an opportunity to compare the requirements of the job with his own abilities and desires. Allen and Tiemann (1:128) say:

What we ourselves do (self-activity) helps us much more in learning than what other people do for us. This is why a direct experience is so much more valuable than a second-hand experience.

Reason a, "I wanted to follow the same trade as my father," may be considered only a fair reason.

Since the father has supplied the family with its needs through his job, and since the son has had an opportunity to learn something about the work through association and observation, he may think the trade will be suitable for him. But, as will be pointed out later in this chapter, the sons do not tend to follow the same occupations as those of the fathers.

Reason f, "This trade has a good future," may be considered only a fair reason. Although some knowledge of a trade's future can be had from a study of the trade and of conditions, not too much dependence is to be placed on this information. Industry is constantly changing. Social and economic changes are taking place rapidly. Vocational Education Bulletin Number 174 (33:17) contains this statement:

Because the content of occupations shifts so frequently, the modern worker in all fields of employment must adapt and re-adapt himself to the demands of his job, not once but many times during his productive life.

Reason i, "My school shop work got me interested in this trade," may be considered only a fair reason. The school shop work may bring out certain aptitudes, and aid in determining certain interests; yet the school shop is far removed from industry and does not approximate typical trade conditions as to hours, wages, skills and the like. Koos and Kefauver (19:124) point out certain occupational advantages through exploratory courses in practical arts, but also recognize various limitations.



Reason d, "I understand this trade pays well," may be considered a poor reason, because wages vary greatly from place to place, and from time to time, even in the same occupation. Also, there is always the uncertainty of steady employment. Prosser and Palmer (27:86) have this to say:

Wages differ greatly from one occupation to another as well as from one job to another within an occupation.

Again (27:89):

Steady employment is about as important as rate of pay. When miners work about four months per year at \$6.00 per day, they earn not \$1800 but \$600 during the year.

This reason savors of "wishful thinking."

Reason e, "This trade will give me steady work," may be considered a poor reason due to very seasonal conditions of many occupations, climatic conditions, rapid technological changes, and the like. Hence, employment possibilities cannot be forecast with any degree of certainty. (Refer again to Bul. 174, as under reason f, above).

Reason i, "A friend or relative advised me to take up this trade, may be considered a poor reason, because the advice is not likely to be based on a knowledge of either the trade or the individual. The factor of vital interest would also be lacking.

Reason l, "I selected this trade just by chance" must be considered a poor reason, because it shows no



thinking, reasoning, or planning on the part of the student. There has been no analysis of either self or occupation. "One guess is as good as another," was the apparent basis of choice.

Discussion.--Tables 4 and 4a (ch. IV), presented the data pertaining to the students' selection and rating of the reasons classified as good, fair, and poor. The purpose of this phase of the study was to consider the extent to which the members of both groups of students had placed reliance on worthwhile reasons in their selection of a trade. Choices in anything are made from two or more alternatives, and there is a strong probability that the greater the number of alternatives, the better the choice is likely to be. The reason for this increase in reliability is that the one making the choice has a greater chance of having considered all the factors of importance.

In this study, both groups of students selected motives or reasons for their trade choices from a large list. They were also given an opportunity to add others of their own, but were unable to do so. The good and the fair reasons may all be considered worthwhile on the basis of the discussion in the preceding pages.

It is of interest to note the extent to which students in both groups have used worthwhile and poor reasons and the numbers of each used in making their occupational choices. Table 4a, shows that the students

in group A used a total of 254 reasons--that is, various reasons were selected 254 times--in making trade choices. Group B used a total of 238 reasons--or various reasons were selected 238 times--in making their trade choices. Since group A students have made use of a greater variety and a greater number of reasons in selecting a trade, it is possible that their trade choice has been more carefully considered.

Further study of table 4a shows that when the good and the fair reasons are combined as worthwhile, group A students made use of them 187 times, or 73.62% of the time. Group B students made use of them 161 times, or 67.64% of the time. That is, group A students relied three fourths of the time, and group B students relied two thirds of the time on worthwhile reasons in the selection of their occupation. Also, group A students mixed in poor reasons one fourth of the time, and group B students mixed in poor reasons one third of the time. It would appear, therefore, that the judgment of group A students in making occupational choices is somewhat more reliable than that of group B students.

Conclusion.--From the findings of this phase of the present study, it is evident that the group A students based their occupational choices on a greater number and variety of worthwhile reasons, and on a smaller number of poor reasons than did the group B students. It seems evident also, that the students who had taken industrial



arts work in high school before attending Dunwoody Institute, were able to make more reliable occupational choices than were those who had not had such experience

Further analysis of the findings would tend to indicate also that industrial arts courses have helped the students to some extent in discovering and developing their occupational interests and aptitudes. This conclusion is based on the fact that students mentioned the reason, "I have natural interest and aptitude for this trade," more than any other reason. And also because this reason was considered one of the good reasons on which students placed their greatest reliance in making their occupational choices. However, it would seem that before one could state authoritatively that interests and aptitudes have been definitely discovered and developed by industrial arts experiences, a follow-up study would be necessary after the individuals had been out on the job for several years.

These findings have provided an answer to subordinate question six, pertaining to motives or reasons given for making an occupational choice, and a partial answer to questions one and two, concerning interests and aptitudes (see ch. I).

#### OCCUPATIONS OF THE FATHERS

Discussion.--This phase of the study was for the purpose of determining whether or not there was a relationship between the occupation of the father and



the trade selected by the son. Table 5 and table 6 (in ch. IV) give the occupations of the fathers and the frequency of mention of each occupation for groups A and B. Table 7 (in ch. IV) shows the relationship between the declared choice of the student, the actual choice, and the occupations of the fathers for both groups.

It is seen from table 7 that five students in group A and four students in group B declared a trade choice the same as that engaged in by the father. However, only one student in group A and three in group B actually did take up trades the same as those of the fathers. Nine students in group A and five in group B took up trades similar to those of the fathers. Thus it is seen that ten, or 12.5% of the students in group A took up trades the same as or similar to those of the fathers; and 70, or 87.5% took up trades different from those of the fathers. In group B, eight, or 10% of the students took up trades the same as or similar to those engaged in by the fathers; and 72, or 90% took up trades different from those of the fathers.

Conclusion.--This tends to show that students entering Dunwoody Institute neither desire to follow the same lines of work engaged in by the fathers, nor actually take up training in those lines.

These findings correspond with those of Kennedy (17), as reported in Chapter II, where he found

that no large percentage of the graduates of Lane Technical High School had chosen occupations the same as those of their fathers.

#### STUDENTS' ESTIMATE OF OCCUPATIONAL INFORMATION DERIVED

Discussion.--Through item nine on the personal data sheet, the students were requested to state to what extent they derived trade and occupational information from their industrial arts experiences. Sixteen, or 20% stated that they had received much information; 51, or 63.75% stated that they had received some information; and 13, or 16.25% stated that they had received little or no trade and occupational information from their industrial arts training.

Conclusion.--These facts would lead to the conclusion that, since 83.75% of the students in group A believed they had received some occupational information through their industrial arts experiences, one of the stated objectives of such courses had been rather well accomplished. The fact that 16.25% stated that they had received little or no occupational information through their high school shop work, would tend to indicate that, in some schools at least, more attention could well be devoted to this type of instruction.

These findings have provided a partial answer to subordinate question number three, concerning the



exploratory value of industrial arts work (see ch. I).

### PREVIOUS WORK EXPERIENCE

Discussion.--Data pertaining to the previous work experience of students were secured through item ten on the personal data sheet, and the findings were presented in table 8 (in ch. IV). The purpose of this phase of the study was to consider the previous work histories of these students in determining possible relationships to successful achievement at Dunwoody Institute.

As shown in table 8, the amount of work experience of students before entering Dunwoody varied from less than half a year for some, to more than 15 years for others. Thirty-five, or more than 30% of those who had stated some work experience, claimed four years or more, with an average of seven years for each of the 35 students. In terms of total work years, group B students have had about 60% more work experience than those in group A.

It has already been pointed out that in the matter of successful achievement at Dunwoody, there was found to be very little difference between the two groups (see table 1 in ch. III). As stated in chapter I, a very large number of applicants are turned away from the Institute each year. Those who are admitted soon learn that one of the first requirements to continued



attendance is the ability and the willingness to work. Norton (22:145), in his report of the Regents' inquiry, says:

Studies of the causes of discharge [of workers] show the importance of desirable working habits and attitudes, such as responsibility, self-reliance, promptness, cooperation, and industriousness. These qualities are essential if the pupil is to become successfully adjusted to his work, and should be considered throughout the whole of the pupils' training period.

Since someone else is eager and waiting to take the place of any who leave, the possession of desirable work habits is a great help to those who wish to remain.

Conclusion.--It is probable that the previous work experiences of the students before coming to Dunwoody have played an important part in the development of work habits. Since group B students had about 60% more previous work experience than did those in group A, and since their achievement at Dunwoody was practically on a par with that of group A, it may be concluded that their lack of industrial arts experience was at least partially compensated for by this additional work experience in meeting the work requirements at Dunwoody.

These findings have provided an answer to subordinate question five, which has to do with the suitability of trade choices made by students who have not had industrial arts experiences.

DUNWOODY COURSES, STATED CHOICE,  
AND FINAL ASSIGNMENT

Discussion.--Table 9 (in ch. IV) contained the data pertaining to Dunwoody courses, first trade choices stated by the students when entering, and the final assignments for training. Data for all students in both groups were included. An important consideration in this phase of the study is the number of changes from stated trade choice to final assignment. It was found that only 16, or ten percent of the students in both groups made any change from their original choice. Further study of the table discloses the fact that there were four changes made by group A students and 12 by group B students. That is, group B students made three times as many changes as did group A students.

Conclusion.--These findings would tend to indicate that the students who had taken industrial arts courses were able to make more suitable original trade selections than were those who had not had such courses. These findings agree with those of Campbell (5) who found that 80% of the students studied were helped in their vocations by industrial arts training.

When the findings of this phase of the study are combined with those obtained from the study of students' estimate of occupational information derived,



as discussed previously in this chapter, a complete answer to subordinate question three is provided.

### INDUSTRIAL ARTS EXPERIENCES

Foreword.--It was shown in table 10, table 11, figure 1, and figure 2 (in ch. IV), that a large variety of industrial arts courses was taken by the students in group A, and that much time was spent in that type of school work. Hence, the students had ample opportunity to secure considerable industrial information and to explore a variety of occupational fields through their participation in those courses in high school.

Courses pursued most.--By referring to table 11, it will be seen that 16 industrial arts courses were mentioned a total of 369 times. Mechanical drawing and woodwork were mentioned most, 77 and 67 times respectively. Mechanical drawing was pursued for more than 189 student-semesters; and woodwork was pursued for more than 115 student-semesters.

Table 12 (in ch. IV) shows the data obtained when information was sought pertaining to the relationship between the industrial arts courses pursued most, declared choice, and final assignments. The data reveal that 34, or 42.5% of the students stated an occupational choice in a line of work the same as or similar to the industrial arts course pursued most. Forty-six, or 57.5% chose a trade different in the nature of the work



done.

This would indicate that the majority of students tend to select trade training at Dunwoody Institute which is different in the nature of its work from the industrial arts courses pursued most in high school. Thus, a complete answer is provided to subordinate question four (see ch. I).

Courses liked best.--It was shown in table 11, that when information was sought pertaining to the industrial arts courses liked best by students in group A, mechanical drawing ranked highest with 23 votes; machine shop was next with 13 votes; and electricity came next with 11 votes. The tendency for a student to select a course at Dunwoody, either similar or different in the nature of its work to the industrial arts course liked best, is shown in table 13 (in ch. IV). Thirty-nine students did and 39 students did not select such a course. (Two did not express a preference.) Further examination of table 13 shows that when it came to final assignment to a trade for training, 39 students went into similar work and 39 went into different work from the industrial arts course liked best.

The selection of a certain type of trade training at Dunwoody is motivated by the need for earning a living, by employment possibilities, by hours and wages, and by other such factors. In high school, the selection of shop work is more likely to be motivated by

interest or avocational desire.

The figures presented above, might at first seem to show that there was no tendency for a student to declare a choice for, or be assigned to trade training similar in the nature of its work to the industrial arts course liked best. However, when the difference between the motives for taking shop work at Dunwoody and those for taking shop work in high school are considered, it would seem rather noteworthy that as many as half of the students in the group did take up trade training in work similar to that liked best in high school.

Conclusion.--The results obtained from this phase of the study tend to show that most of the students do not take up trade training at Dunwoody similar to the industrial arts courses pursued most. However, half of them do take up training similar to the courses liked best.

Number of courses.--A close study of table 14 and figure 1 (in ch. IV) reveals the fact that students who had taken four and five different industrial arts courses, received higher point ratings in their shop work at Dunwoody than did those who took either fewer or more courses. There was a sharp dropping off in point ratings when six and seven courses were taken.

It may be of interest to note that all of these students have at least the minimum of ability required to graduate from high school. Since all of the



students in group A are high school graduates they have completed all the requirements for graduation, such as English, history, mathematics, social science, etc. in addition to the industrial arts courses which have been given special consideration here.

Number of semesters.--An examination of table 15 and figure 2 (in ch. IV) shows that when length of time is considered, students who had taken from six to eight semesters received the highest point ratings in their Dunwoody shop work. There was a sharp dropping off from eight to nine semesters, which indicates that, so far as length of time is concerned, the most effective exploratory experiences had terminated.

Conclusion.--It is therefore evident that the students who had taken five different industrial arts courses in a total of six to eight semesters have attained the highest point ratings in their work at Dunwoody Institute. This would indicate that there is an advantage to students who take this variety and this amount of industrial arts work in high school before coming to Dunwoody, because they receive a larger number of satisfactory marks at the Institute. It also tends to show that the law of diminishing returns begins to operate, so far as successful attainment at Dunwoody is concerned, when students take more than five different industrial arts courses in high school, and devote more than eight semesters to this type of exploratory work.



## Chapter VI

### SUMMARY

Foreword.--The majority of students enrolled at Dunwoody Industrial Institute in Minneapolis, Minnesota during the past several years have been high school graduates, and a large percentage of them have had industrial arts work in the public schools. It has been observed that there seemed to be a lack of occupational information on the part of students entering the Institute. This gave rise to the question of what information, knowledge, or reasons upon which they based their occupational choices.

The problem.--The purpose of this study is to obtain a solution to the problem: "What is the relationship of secondary school industrial arts experiences to the occupational choices of students at Dunwoody Industrial Institute?" through the answering of the following questions:

1. Does industrial arts training tend to help the student discover and develop his occupational interests?
2. Does industrial arts training tend to help the student discover and develop his occupational aptitudes?
3. Does industrial arts training tend to serve effectively as exploratory experience

that leads to a more intelligent selection of a suitable occupation?

4. Do entering students tend to select trade training similar in the nature of its work to the industrial arts course or courses pursued most?
5. Does the youth without such training tend to make a more or less suitable occupational selection?
6. What motives or reasons do Dunwoody students give for their occupational choices?

Materials and methods.--Two groups of students who were in attendance at Dunwoody Institute during the 1938-1939 school year were the subjects of this investigation. One group, designated as group A, consists of 80 students who had taken industrial arts work in the public schools of Minneapolis, Minnesota; the other group, designated as group B, consists of 80 students from Minnesota, outside of Minneapolis, who had not taken industrial arts work.

The equivalency of the two groups was based on age, school grade completed, and minimum length of time in attendance. All of the students were between the ages of 17 and 24 years; all had completed the 12th grade; and all had been in attendance at Dunwoody at least three months when the study was made.

Data for this investigation were secured from two sources; the students themselves, through a personal



data sheet; and the permanent office record cards. The personal data sheet was used with 591 day-school students from whom were selected the 160 students included in the study. Free access was had to the permanent office records, and from them was obtained much useful information. All pertinent data thus secured were transferred to two large work sheets, one for each group of students.

This investigation includes the following main sections: motives or reasons stated for trade choices; occupations of the fathers; students' estimate of occupational information derived from industrial arts work; previous work experience; Dunwoody courses offered; and the industrial arts courses pursued in the public schools of Minneapolis.

Motives or reasons.--The personal data sheet contained a list of 12 motives or reasons for making occupational choices and space was provided for others. The 12 reasons were classified as good, fair, and poor for the purpose of determining to what extent students made use of worthwhile reasons in their trade choices. Reason f, "This trade has a good future," was mentioned 143 times; and reason a, "I wanted to follow the same trade as my father," was mentioned nine times. Reason c, "I have natural interest and aptitude for this trade," was rated highest, with 73 votes for first place.

The students in group A used a total of 254 reasons--that is, various reasons were selected 254

times--in making trade choices. Group B students used a total of 238 reasons--or various reasons were selected 238 times--in making their trade choices. Also, students in group A relied three fourths of the time on worthwhile reasons in the selection of their occupation; and the students in group B relied two thirds of the time on worthwhile reasons in the selection of their occupation. This would lead to the conclusion that group A students considered their trade choice more carefully than did group B students.

Occupations of the fathers.--The findings of this part of the investigation show that students entering Dunwoody Institute neither desire to follow the same occupations as the fathers, nor take up training in those lines. Eleven percent of the 160 students included in the study took up trades the same as or similar to those of the fathers; and 89% took up trades different from those engaged in by the fathers.

Students' estimate of occupational information derived.--Twenty percent of the students in group A stated that they had received much trade and occupational information through their industrial arts training; 63.75% had received some such benefits; and 16.25% had received little or none.

Previous work experience.--The amount of work experience of students prior to entering Dunwoody varied from less than half a year for some to more than



15 years for others. Sixteen percent stated no work experience, and eight percent stated indefinite amounts. Thirty percent of those who stated some work experience claimed four years or more, with an average of seven years. In terms of total work years, group B students had about 60% more work experience before entering Dunwoody than did group A students.

Since the achievement of group B students at Dunwoody Institute was practically on a par with that of group A students, and since they had about 60% more previous work experience, it may be concluded that their lack of industrial arts training was at least partially compensated for by this additional work experience, in meeting the work requirements at the Institute.

Dunwoody courses, stated choice, and final assignment.---Group A students made four changes in their original trade choice, and group B students made 12 changes in theirs. This would indicate that the students who had taken industrial arts courses were able to make more suitable original trade selections than were those who had not had such training.

Industrial arts experiences.---Sixteen industrial arts courses were mentioned a total of 369 times as taken in high school. Mechanical drawing and woodwork were pursued by the greatest number of students--77 and 67 respectively. Cabinet making and surveying received the least attention, each being mentioned once.

Forty-two and one half percent of the students stated an occupational choice in a line of work similar to the industrial arts course pursued most; 57.5% chose a trade different in the nature of the work done; 41.25% were finally assigned to trade training in a line of work similar to that taken most in high school; and 58.75% were assigned to trade training in a line different from that pursued most in industrial arts work.

The students were asked to state which of their industrial arts courses they liked best. Mechanical drawing was mentioned 23 times, machine shop 13 times, and electricity 11 times, as being liked best. It was found that about half of the students declared a choice for, and were finally assigned to trade training in, a line of work similar to the industrial arts course liked best.

The number of industrial arts courses taken by any one student varied from one to seven. One student had taken one course, and five had each taken seven courses. The point of greatest frequency was five courses, 24 students having taken that number. When number of semesters was considered, it was found that they varied from two to 20. Three students had each taken two semesters of industrial arts work, and one student had taken 20 semesters. The point of greatest frequency was eight semesters, 12 students having stated that amount.



Students who had taken four and five different industrial arts courses, received higher marks in their shop work at Dunwoody Institute than did those who had taken either fewer or more courses. Students who had taken from six to eight semesters of high school shop courses, received higher marks in their Dunwoody shop work than did those who had taken either fewer or more semesters of that work. These findings would indicate that there is an advantage to students who take this variety and this amount of industrial arts work in high school.

Conclusions.--The findings of this investigation, as applied to the two groups of Dunwoody students included in the study, tend to show that:

1. Industrial arts training seems to have aided students in making a more suitable occupational choice
2. Entering students (at Dunwoody) did not tend to select trade training in lines similar to those pursued most in high school
3. Half of the students selected trade training in lines similar to those liked best in high school
4. Students who had not had industrial arts work tended to change their objective to a greater extent than did the others, but achieved about as well in their trade training
5. There was an advantage to students who had taken four and five industrial arts courses in six to eight semesters
6. Students did not tend to follow the same lines of work as those of the fathers

7. Group A students placed reliance on worthwhile reasons three fourths of the time, and group B students two thirds of the time, in making occupational choices

A problem for further study.--The findings of this investigation have shown that industrial arts experiences may tend to help students discover and develop their occupational interests and aptitudes. However, choosing an occupation and preparing for it are only parts of successful occupational adjustment. There still remains the task of getting a job, holding the job, and progressing in the job, in order to demonstrate the soundness or success of the career plan.

Therefore, it is believed that further investigation would be necessary in a follow-up of the students in such a study as this, several years after they had been placed on jobs, to determine the degree of satisfactory adjustment attained.



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