THE EFFECT OF SCHOOL SIZE ON REALISTIC CAREER CHOICES OF TRADITIONAL INDUSTRIAL ARTS STUDENTS

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CHAPTER I

INTRODUCTION

Industrial arts education has been around for most of the last century under the titles of manual training, manual arts, industrial arts, and now, industrial arts/technology. Each name change has reflected a change in content base or objective. The new industrial arts/technology program reflects a change to a technology base with emphasis being placed on helping students to make wise occupational choices (Gemmill, 1984). The State of Oklahoma has a role in the nation's change to industrial arts/technology education.

The Oklahoma State Department of Vocational and Technical Education is presently making major changes in the curriculum and content base of industrial arts programs which includes teacher training, equipment, materials, and resources. One of the reasons for the change was a perception among Oklahoma industrial arts and vocational leaders that current industrial arts programs are not providing adequate career guidance and educational information. Several studies have been completed that investigated the influence that industrial arts has on subsequent enrollment in vocational-technical education programs.

Interestingly enough, there is very little evidence to suggest that either traditional industrial arts or the new industrial technology programs have a significant impact on helping students to arrive at realistic career choices.

Osborn (1986) in her study using hand and computer searches, such as ERIC, using a variety of descriptors, revealed no related studies or research instruments involving industrial arts and vocational choice.

The state of the art in moving toward the technology concept makes it impossible to compare the realistic effectiveness of traditional industrial arts programs with the new industrial technology programs in terms of helping students to make realistic career choices. However, the need still exists to determine if the traditional industrial arts programs at the seventh and eighth grade level assist students in making realistic career choices.

Statement of Problem

There is no definitive data available for administrators and educational planners to use in determining the educational value of industrial arts in helping students to make realistic career choices.

Purpose Of The Study

The purpose of this study is to determine the effect of school size and enrollment of students in traditional industrial arts programs on realistic career choices, as measured by the Harrington-O'Shea Career Decision-Making System, among seventh and eighth grade students.

Objectives

In order to accomplish the purpose of the study the following objectives are set forth:

1. To determine changes in stated occupational preferences of students.

2. To determine changes in subject preference of students.
3. To determine changes in job values held by students.
4. To determine changes in self-perceived abilities of students.
5. To determine changes in career interest of students.
6. To compare those changes among students in small, medium, and large size schools.
7. To compare the consistency of students' theoretical occupational choice with their stated occupational choice.
8. To compare the consistency of the theoretical and stated occupational choices of industrial arts students with those students not having the industrial arts experience.

Limitations

This study was limited to those seventh and eighth grade students enrolled in traditional industrial arts classes in the State of Oklahoma and one middle size school where the seventh and eighth grade students had not experienced industrial arts education.

Assumptions

The following are the assumptions for this study:

1. The students and programs involved in the study are representative of students and programs in other junior high and middle schools in the State of Oklahoma.
2. The instrument, the Harrington-O'Shea Career Decision Making System, was adequate and appropriate to identify stated and realistic career choices for this age group.

Definition Of Terms

Career Education - Marland (1974) defines career education as:

> An instructional strategy, aimed at improving educational outcomes by relating teaching and learning activities to the concept of career development. Career education extends the academic world to the world of work. (p. 105)

Industrial Arts Education - Bender (1982) describes industrial arts education as a study of the changes made by man in the forms of materials to increase their value and the problems of life related to these changes.

Industrial Arts/Technology Education - The Oklahoma State Department of Vocational and Technical Education (1985) states industrial arts technology as an instructional program that provides young men and women with daily hands-on exploratory experiences and insights into technology and career opportunities so that they can make meaningful occupational and educational choices. The program is structured around the occupational clusters of communications, construction, manufacturing and transportation.

Trade and Industrial Education - A vocational program designed to provide high school students and adults with entry level skills and knowledge in a trade so that they are employable upon completion of the program. Trade and industrial programs are provided at area vocational technical schools and in some comprehensive high schools (Osborn, 1986).

Realistic Educational and Occupational Choices - This statement is used extensively in industrial arts/technology education and also in career education. For the purpose of this study, the statement relates to the student making educational and occupational choices

that are significant and important.

Theoretical Occupational Choice - The occupational choice obtained from the interest survey part of the Harrington-O'Shea Career Decision-Making System.

Subject Preference - The students favorite subject taken from the classes they are presently enrolled.

Size of School Community - The size of the school community in which the junior high or middle schools was located was important to the study. The school community size was determined by using the average daily membership of the high school in the community as provided by the Oklahoma Secondary Activities Bulletin, 1985. The 36 largest schools were classified as large; the next 36 schools were classified as medium; and the remaining 360 were classified as small. The large school's population ranged from 813 to 2943. The medium school's population ranged from 435 to 797, and the small school's population ranged from 15 to 432 (see Figure 1, next page).

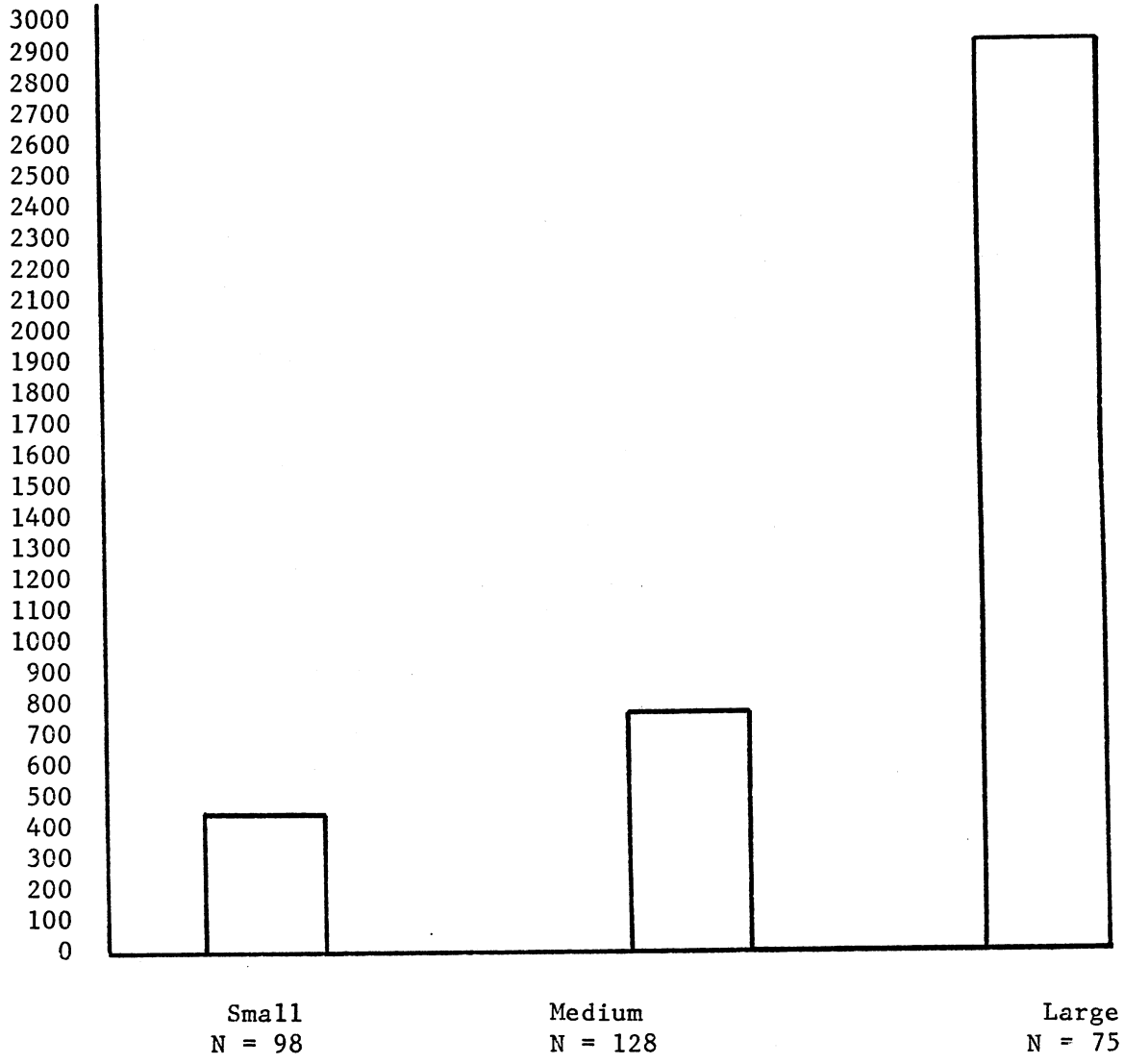


Figure 1. School Size Classification Showing Maximum Number of Students Enrolled

CHAPTER II

REVIEW OF LITERATURE

The review of literature indicates that there are two types of industrial arts education. The traditional industrial arts program and the new industrial arts/technology program. This study sought literature in the following areas:

1. Traditional industrial arts education.
2. Industrial arts/technology education.
3. Realistic career choices.
4. What students should be taught in industrial arts.
5. Summary

Traditional Industrial Arts Education

The traditional industrial arts program has revolved around the activities of individual projects and, on occasion, a group project. The reason for this has been the popularity of activity among students, the success of job analysis intruction in the classroom, and the community acceptance of the program.

The Random House College Dictionary's definition for the term traditional is "the handing down of statements, beliefs, legends, customs, etc., from generation to generation by word of mouth or by practice". This seems to be the history of industrial arts education as we have progressed from manual training to manual arts to industrial

arts with very little change in terms of content. A historical review by Devore, Maghan, and Griscom (1979) of Industrial Arts Programs indicates that manual training, in the last half of the 19th Century, was one of the first educational programs to recognize the need for change in public schools. Manual training evolved to what became known as manual arts and by 1900 became a significant program that enabled students to become familiar with the craft processes of that time. Educational leaders promoted manual arts as a part of the general education curriculum. The name changed to industrial arts around 1910 as did the philosophical view that, in addition to manipulative craft skills, the program should include the study of industrial materials and processes. The three courses commonly found in industrial arts programs were woodworking, metalworking, and drawing. By 1930, the addition of instruction in the areas of auto mechanics, electricity, and printing were a part of the industrial arts program. The expansion of programs has been evident, but the traditional courses of general industrial arts, woodworking, meatalworking, and drafting still dominate the curriculum in most schools today.

Traditional industrial arts classes have been characterized by manipulative activities and the use of projects to expose students to simple tool, machine, and manufacturing processes. Industrial arts instruction has been primarily applicative, and the project has played a central instructional role.

The project method as stated by Herschbach (1984) is widely used because the students enjoy making things and they can actively engage in planning, creating, and solving problems. They can see the results of these creative efforts in concrete terms. Many students, according

to DeVore, Maghan, and Griscom (1979), continue to take industrial arts mainly for the opportunity to make things. Herschbach (1984) also contends that the use of group projects and mass production, in which students plan and coordinate their work, has been successfully used in the traditional shop and is one of the ways that technology has been studied in the classroom.

One major reason for the lack of change in content according to LaPorte (1983) is that woodworking and drafting still attract students. We are not currently experiencing declining enrollments of serious consequence and we are not supplying enough teachers to meet the demands. The reasons industrial arts teachers are in demand according to Edmunds (1983) are increased industrialization, increased recognition of the value of industrial education by the public, increased demand and expansion of programs, and job opportunities outside education. LaPorte (1983) also states:

> Traditional industrial arts seems to focus primarily on the development of leisure-time, interests, and skills. This has been a defensible objective and one could argue that it will become even more defensible in the future with increased amounts of leisure-time among the populace. (pp. 76-77)

The relationship of industrial arts curriculum to the society of the past was compatable. Historically, the record is positive for industrial arts education in providing useful skills and knowledge; however, since society is rapidly changing, we must continually evaluate the role of industrial arts in society and modify its practices to meet both present and future needs of its students.

Industrial Arts/Technology Education

Industrial arts education is in the process of the name change

to industrial arts/technology education or technology education. The American Industrial Arts Association has changed its name, in the last year, to the International Technology Association. The new name reflects a change in content base and curriculum to emphasize the study of technology. This new name and new emphasis has created new challenges and increased interest and support from vocational education.

Wright (1981) explained technology education to the 43rd National and the 10th International Annual Conference of the American Industrial Arts Association in Washington, D.C. In his paper, he stated:

> Technology education means the study of technology; its history, growth, and future development in terms of industrial organization as it relates to materials, tools, processes, occupations, products, and problems. As part of general education, it includes multi and interdisciplinary academic and laboratory endeavors for the purpose of helping students explore their technological world, realize their responsibilities, therein, and enable them to better cope with cultural change caused by technological advance. (p. 3)

DeVore and Lauda (1976) explained that if industrial arts is to contribute in the future, the most appropriate discipline base is the study of technology. They suggest that work in the future will be knowledge-based and productivity will depend on employees' ability to utilize concepts, ideas, and theories, and to synthesize data. DeVore (1968) contends that we need to develop knowledgeable individuals who understand technological systems and how they perform. Burham (1974) makes an interesting point on social ontology: "We are now in transition from an object-oriented to a system-oriented culture." (p. 16) The mission of technology education as presented by Diaber (1980) is to make its content representative with the present stage of technology and provide students with an awareness of how technology affects society.

Numerous studies have been done about the concept of technology education and, according to Donald Lauda (1978), have arrived at basically the same conclusion:

> 1. The study of technology is multidiciplinary and interrelated. No single discipline is untouched by the realities of technological change.
> 2. The study of technology involves the study of a technical component and the socio-cultural dimension inherent within each.
> 3. It is convenient and efficient to study technology by dividing it into production, communication, and transportation.
> 4. The study of technology raises value questions which must be resolved through personal or institutional interactions.
> 5. The study of technology appears over and over as a primary determinant of cultural change. (p. 11)

A study by Hendricks (1982) implied that the move into technology education does not mean that industrial arts cannot be activity oriented. What it does mean is that there must be a change in the kinds of student activities, and teachers must employ a wider range of instructional and laboratory management techniques. Hendricks describes the use of learning stations where three students stay at one of the eleven stations for three weeks and then rotate. The stations are designed to implement the course outline. At the end of three weeks, students would turn in their completed lab project and take a comprehensive test covering the station's activities. At the end of the year all students will have received the same instruction, but in a different order. This does not produce students with a high level of skill development, but it does produce a broad-based knowledge in a variety of related technologies. Other strategies recommended by Hendrick (1982) were programmed instruction, computer-assigned instruction, study contracts, small and large group activities, and the use of games and simulations. The games and simulations often make difficult subjects both enjoyable and meaningful

for students.

Vocational education has been closely related to industrial arts and has profited from the prevocational nature of its content. In recent federal legislation and specifically the Carl D. Perkins Act, passed October 19, 1984, listed prevocational programs, including industrial arts, as a program for which the state may use federal funds, provided those programs are identified in a state plan, Osborn (1986). The Oklahoma State Department of Vocational and Technical Educations publication Industrial Arts Technology Education Programs (1985) listed 50 new industrial arts/technology programs in the 1985-86 school year and plans to implement a total of 250 in three years.

The challenges of the new name change to the profession according to LaPorte (1983) are:

> 1. A clear definition of technology education must be communicated to the various constituencies which are to be served.
> 2. The current major organization of production, communication and transportation must be discarded or revised because they are inclusive of industrial technology, not in toto.
> 3. A curriculum coordinating - monitoring system must be forthcoming.
> 4. The relationship of technology education related programs must be established and clarified. (p. 71)

The change to a technology base in industrial arts education will require a concentrated effort by all involved. DeVore and Lauda (1976) contend that if the industrial arts profession is to contribute to the study of technology, teacher education institutions must alter programs, inservice education must be provided for current teachers, and the American Industrial Arts Association must be encouraged to assume a leadership role in bringing about this development.

Bender (1982) in his study concluded:

The goal of technology education is to provide individuals

> with means to find order in a complex global society and to attain the knowledge, skills, tools, attitudes, and values required to participate effectively in the management and control aspects of a technological society. (p. 2)

Realistic Career Choices

The words meaningful, rewarding, useful, satisfying, and realistic have been used to describe the occupational choices that industrial arts/technology education should provide its students.

Gemmill (1984) states that industrial arts should help establish the rationale criteria that is needed for effective occupational decisions. An occupational choice should be selected after systematically considering the numerous alternatives instead of depending on chance, contingencies or external influences.

For this approach to succeed, and it does to some extent in many schools, there must be an extensive career exploration period in junior and early high school, and teachers must encourage students to formulate career decisions. Educators have developed a wide variety of terms and characteristics to explain and define the decision-making process. Hazler and Roberts (1984) listed several phases common to all established decision-making theories. These phases are:

1. An exploration of many alternatives;
2. A compilation of information dealing with possible outcomes that allow for limiting alternatives;
3. A selection based on outcomes;
4. Reality testing;
5. Information-processing styles; and
6. Further decisions based on evaluation of previous decision results. (p. 409)

The role of the instructor as facilitator is to plan and implement activities for the students to learn about themselves, industrial technology occupations, and the fundamental occupational skills

required. Gemmill (1984) identified thirty activities, including instructional resources to assist students with occupational exploration and selection. They are:

1. appraise and analyze their interest, talents, habits, and emotions through realistic involvement with other students in manipulating common tools and machines.
2. take aptitude tests or interest inventories to identify specific occupational strengths and weaknesses.
3. determine interests and aptitudes through the production of goods and services in selected work sample stations.
4. compile individual lists of personal characteristics that may be of interest to potential employers.
5. select occupations of individual interest, produce relevant projects, and analyze their aptitudes for and feelings toward the occupations.
6. consult guidance counselors about occupational information.
7. apply and interview for positions within a simulated industrial or business enterprise.
8. role play the tasks of management and labor within the personnel organization of a simulated line production or group project enterprise.
9. perform research, experimentation, and develop activities similar to those engaged in by the researcher, designer, and engineer.
10. prepare a company personnel organization chart showing job titles and relationships.
11. interview personnel in industry and business about occupational responsibilities, qualifications, working conditions, benefits, and methods of advancement.
12. write inquiry letters to personnel in industry, business, government, and education for occupational information.
13. invite personnel from industry and employment agencies to speak to the class about occupations, positions, and opportunities.
14. take field trips into industry and business to examine the occupational opportunities that exist.
15. investigate library and media resources on careers and occupations.
16. match the tasks of various occupations performed within the laboratory environment with actual occupational titles.
17. develop a laboratory clean-up and maintenance personnel organization with authentic occupational positions and relationships.
18. consult recent editions of the Dictionary of Occupational Titles and the Occupational Outlook Handbook relative to occupational titles, descriptions, working conditions, and requirements.
19. compare the basic competencies required for different occupations within a manufacturing, construction, communications, or transportation occupational cluster.

> 21. discuss the effects that such problems as materials shortages, energy shortages, equipment breakdowns, safety hazards, poor environmental controls, and strikes have on specific occupations.
> 22. role play the tasks of nontraditional occupations for each of the sexes.
> 23. identify occupational opportunities listed in newspapers, magazines, journals, and computer files.
> 25. request occupational information from employment agencies such as the local chamber of commerce or state employment service.
> 26. fill out employment applications, paychecks, and job-related forms.
> 27. prepare resumes and portfolios of educational, training, and work experiences.
> 28. develop marketable cognitive, psychomotor, and attitudinal skills relevant to an occupational cluster.
> 30. speculate on possible future occupations resulting from automation and other technological advancement. (p. 8-9)

Ralph Ressler (1978) described occupational psychology as that field which deals with our occupational growth and development with practitioners from guidance as well as educational psychology. He states:

> What occupational psychology is saying to industrial arts is simply the most pervasive, meaningful dimension of industrial arts, as far as occupational growth and development of young people is concerned, lies in its capacity to allow students to test 'self' within various work environments, especially the mechanical. (What we have commonly referred to as hands-on experiences.) (p. 22)

The literature clearly points out the role and importance of industrial arts/technology education in the career decision-making process.

What Should Students Be Taught In Industrial Arts/Technology Education

The purpose of education is to reflect and promote the values of the community it serves. The school belongs to and is a vital part of the community and it should meet the needs of the students in that community. Industrial arts should work with the community

to establish the needs of its students.

What should be taught in industrial arts is important according to Herschbach (1984) because the continued existence of industrial arts depends mainly on its acknowledged educational value as a school subject. To determine what the community wants and needs for its students, the researcher has looked at the public's opinion of what constitutes a good education and also the continuing change in the world of work.

Industrial arts education is influenced by public opinion. Bjorkquist (1985) states:

> The public's notion of what constitutes a good general education has been influenced by several national reports on the public schools and now people want something different for their educational dollar. (p. 13)

This is the modern era of technology, and traditional shop classes do not command the attention they once did. People who work with computers, robots, and lasers are not impressed with T-squares, drill presses, and table saws for their children.

Vocational education has moved into the world of high technology and the public's attitude toward vocational training remains high. A Gallop Poll (1985) commissioned by Phi Delta Kappan magazine shows that 75 percent of the public believe students who are not going to college should be required to have vocational training in high school and 27 percent think college bound students should also take vocational courses. The publication Industrial Arts Technology Education Programs (1985) indicates one of the primary objectives of industrial arts/technology education is to provide awareness and exploration of vocational education.

Industrial arts education is greatly influenced by the world of work. Ernest Boyer (1985) has stated: "One powerful way to understand any civilization is to ask about the nature of work in that culture." (p. 5) The National Alliance of Business in their study "Employment Policies: Looking To The Year 2000" (1986) implies that employment is the backbone of a healthy society and, therefore, it is critical to the success of our nation to develop a workforce that meets the requirements of the labor market.

The world of work is changing. According to the Bureau of Labor Statistics (1984), fewer than three out of ten jobs in the United States are now involved in the production of goods. The remaining are in service producing industries. The labor force is also changing. Carnevale (1984) states that the number of 25 to 40 year olds in the labor force will increase from forty million in 1975 to 65 million in 1990. A study by Bjorkquist (1985) explains this group can expect frustration as they compete for a decreasing number of intrinsically satisfying jobs. The National Alliance of Business report "Employment Policies: Looking To The Year 2000" (1986) also states:

> Our ability to improve education, training and retraining will affect all segments of the workforce and all sectors of the economy. No sector can afford a growing underclass that cannot get or keep jobs, nor can the nation afford to suffer losses in productivity and world competiveness because workers are unprepared for the changes in the workplace. (p. 1)

The study also contends that more jobs will require problem-solving, analytical, and communication skills. The nature of work will change as technology will alter how jobs are performed.

Technology has already affected many jobs and will continue to do so in the future as it helps in the humanization of the workplace.

Miller (1985) explained the changing workplace in an American Vocational Association History and Philosophy Meeting. In his paper he states:

> The changing workplace, by contrast, is taking on conditions which are more humanizing and characterized by: (1) flexibility and variety in worker tasks; (2) participative management; (3) creative, problem-solving teams; (4) improved worker management communications; (5) valuing working experience; (6) increased productivity and profit sharing. (p. 5)

The world of work is changing and industrial arts/technology education should continually change and be flexible to meet the present and future needs of its changing community. The change of course content from an industrial base to a knowledge or technology base is timely and should be supported by education, industry, and community. This will require the purchasing of modern equipment and the retraining of instructors to meet the changing demands of a changing community.

Summary

In summarizing the review of literature concerning industrial arts, it appears that traditional industrial arts education is alive and well. The industrial base with the project and skill development at the focal point is popular among students and community although there is a shortage of teachers.

The industrial arts/technology education program is being implemented in many states, including Oklahoma, with the backing and support of vocational education. The use of clusters divided into teachable components provides students with exploration and exposure to many forms of technology. The program increases exploration at the expense of indepth skill development.

The traditional industrial arts program and the new technology program both provide students with the experiences to make occupational

and educational decisions. The traditional program provides industrial skills and knowledge and the technology program provides broad exploration of technology.

The decision of what is to be taught in industrial arts education will be decided by the students, the community, and the industrial arts leaders since industrial arts is an elective program in most schools. An increased enrollment in technology programs will give us a green light and decreased enrollment will indicate we had better check our goals, objectives, and course content. The future of industrial arts education is at stake and this researcher hopes that future research can expedite the decision of direction and teaching content for this important program.

CHAPTER III

METHODOLOGY

The purpose of this study is to determine the effect of school size and enrollment in traditional industrial arts programs on realistic career choices, as measured by the Harrington-O'Shea Career Decision-Making System, among seventh and eighth grade students.

In order to accomplish the purpose of the study the following objectives are set forth:

1. To determine changes in stated occupational preferences of students.
2. To determine changes in subject preference of students.
3. To determine changes in job values held by students.
4. To determine changes in self-perceived abilities of students.
5. To determine changes in career interest of students.
6. To compare those changes among students in small, medium, and large size schools.
7. To compare the consistency of students' theoretical occupational choice with their stated occupational choice.
8. To compare the consistency of the theoretical and stated occupational choices of industrial arts students with those students not having the industrial arts experience.

Types of Research

Due to the purpose, objectives, and methods used for obtaining data this study is categorized as a pre-experimental design. The specific design of this study for objectives one through eight is a one-group pretest-posttest design as explained by Campbell and Stanley (1966) as an observation followed by an experience and then a second observation. The hypothesis is that the experience caused the difference. The schematic is shown as follows:

$$O_1 \times O_2$$

Key: X = Treatment (enrollment in industrial arts)

O_1 = Observation pretest (Harrington O'Shea)

O_2 = Observation posttest (Harrington O'Shea)

The strength of the design was improved by utilizing a random selection for the group.

The specific design of this study for objective eight is a static group comparison as defined by Campbell and Stanley (1966):

> This is a design in which a group which has experienced X is compared with one which has not, for the purpose of establishing the effect of X.

The group comparison is schematically shown as follows:

$$\begin{matrix} R & X & \text{---------} & O_1 \\ R & & & O_2 \end{matrix}$$

Key: X = Treatment (enrollment in industrial arts)

O_1 = Observation (Harrington O'Shea) of students in industrial arts program

O_2 = Observation (Harrington O'Shea) of students not in industrial arts program

R = Random selection

The strength of the design was improved by utilizing a random selection for both groups.

Population

Because of the junior high seventh through ninth grade and the middle schools sixth through eighth grade configuration, both containing a seventh and eighth grade, and since this is the beginning of most students' exploration of industrial arts in Oklahoma, the researcher determined the seventh and eighth grade would be an appropriate population to survey.

Sample

The researcher chose a stratified nonproportional random sample. VanDalen (1979) states:

> When employing this technique, one divides the population into strata by some characteristic which is known from previous research or theories to be related to the phenomenon under investigation, and from each of these smaller homogeneous groups one draws at random a predetermined number of units. (p. 133)

The researcher stratified the junior high and middle school communities in the State of Oklahoma into small, medium, and large using the average daily membership of the high school as provided by the Oklahoma Secondary Activities Bulletin, 1985. The 36 largest schools were classified as large; the next 36 schools were classified as medium; and the remaining 360 were classified as small. The large school's population ranged from 813 to 2943. The medium schools population ranged from 435 to 797 and the small schools population ranged from 15 to 432. The researcher then randomly selected six schools from each strata or group. Eighteen instructors were contacted

by telephone and agreed to participate in the research study. The study consisted of six small schools, six medium schools, and five large schools (see Figure 2, next page).

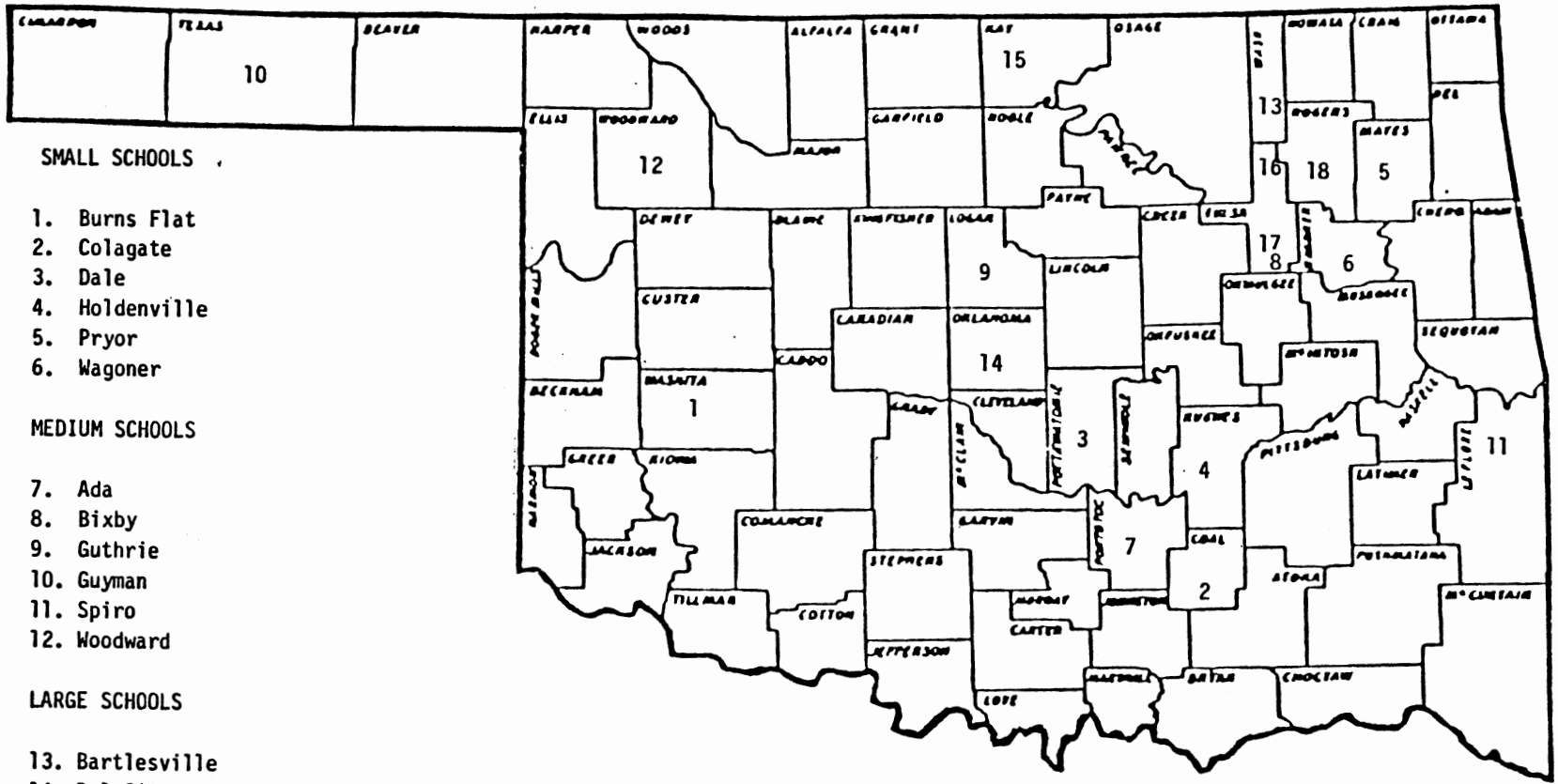
The large schools chosen were Bartlesville Central Middle School, Del City Kerr Junior High, Ponca City East Junior High, Tulsa Foster Middle School, and Tulsa Union Middle School. The medium schools chosen were Ada Middle School, Bixby Junior High, Guthrie Junior High, Guyman Central Junior High, Spiro Middle School, and Woodward Junior High. The small schools chosen were Burns Flat Junior High, Coalgate Middle School, Dale Junior High, Holdenville Junior High, and Wagoner Junior High.

The eighth grade students at Claremore Junior High, not enrolled in an industrial arts program, were chosen to represent the observation group O_2. Those students had not been exposed to the industrial arts experience. The school was medium sized.

Instrumentation

The Harrington-O'Shea Career Decision Making System (CDM) is a comprehensive, easily interpreted measure of vocational interests that combines interests, abilities, and values with interpretive information (see Appendix C). The CDM was chosen as the instrument for the collection of data because it provided indications of occupational preference, was appropriate for the age level, and has an established record of standardization, reliability, and validity. The instrument is also establishing a predictive valildity.

The CDM manual (1982) explains that in September, 1981, the CDM was administered in 32 school districts and 27 colleges and universities



SMALL SCHOOLS

1. Burns Flat
2. Colagate
3. Dale
4. Holdenville
5. Pryor
6. Wagoner

MEDIUM SCHOOLS

7. Ada
8. Bixby
9. Guthrie
10. Guyman
11. Spiro
12. Woodward

LARGE SCHOOLS

13. Bartlesville
14. Del City
15. Ponca City
16. Tulsa Foster
17. Tulsa Union

CONTROL SCHOOLS

18. Claremore

Figure 2. Location and Size of Schools Surveyed

as part of a nationwide standardization program. The CDM was administered to 9,650 students in grades seven through twelve. The districts were selected by stratifying all United States school districts by enrollment and socioeconomic status (SES). The SES index used was median years of school completed by adults 25 years of age and over within the school districts. The five SES levels are quintiles based on a tabulation of median school years completed in each of more than 15 thousand United States school districts enrolling 300 or more pupils. Enrollment classification was based on the 1977-78 school year and SES was based on the 1970 census. Each randomly selected district was asked to administer the CDM to 50 to 75 students at each grade, grades seven through 12, for a total sample size of 250 to 375 students per district. Using a target N of 1500 for each grade in the total school sample, the target N per grade for each sampling frame was determined by cross-multiplication of specified row and column percentage. In filling the sampling frames, selection was systematically rotated among the four major United States geographic regions to insure adequate geographic representation. Ethnic and racial composition was controlled for indirectly by SES.

The internal consistency reliability and the retest reliability was reported in the CDM manual (1986). The manual states: "Alpha coefficients (a), as recommended by Cronbach (1951), were used as measures of internal consistency for the interest scales". Alpha is the means of all split-half coefficients resulting from different splittings of a scale. It is, therefore, an estimate of the correlation between two random samples of items from a universe of items like those in the scale. The coefficients obtained for the standardization

sample of 12,575 junior high, high school, and college students are high, with medians of .92 for grades seven through nine, .94 for grades 10 through 12, and .93 for college freshmen. Retest reliability samples were obtained after intervals of 30 days. The coefficients given indicate good to high stability over a short time period, especially with older students.

The CDM has a primary objective to help people learn more about themselves, relate increased awareness to occupations, and acquire skills in the career decision-making process. As an instrument with these objectives, the CDM must establish construct and concurrent validity. The CDM manual (1986) addresses the issue of construct validity by stating the CDM theoretical basis is the Holland hexagonal model of vocational development, and establishes the construct validity of the CDM by clearly illustrating the CDM interest survey exhibits the expected correlation patterns of the hexagonal model.

Concurrent validity data for the CDM was gathered by administering the inventory to occupational and curricular groups. The CDM manual (1986) presents the following:

> ...the average CDM codes obtained by 17 groups representing a variety of occupations. The average codes were calculated by assigning a weight of 3 to each person's highest CDM scale score, 2 to the second highest, and 1 to the third highest. The sum of the weights for each of the six CDM scales was obtained for each occupational group. The three scales with the highest totals provided a summary code for each group. Average summary codes for each occupational group were compared with the codes assigned by Holland (1974). In each instance there is exact or close agreement, evidence of high concurrent validity for the CDM. (p. 54)

The predictive ability of the CDM, although not its major objective, has substantial validity. The authors are gathering predictive validity data. Since the instrument is relatively new,

The percentages of subjects whose late 1980 job or educational statue agreed with their 1975-76 CDM scale scores and stated occupational preferences. The CDM interest scales were a somewhat more powerful predictor of current occupational or training statues than stated occupational preferences.

Data Collection Procedure

After the stratified nonproportional random sample was drawn the industrial arts instructor at each chosen school was telephoned and asked for their help and cooperation in the study. Most were interested in the study and agreed to participate (see Appendix A). The pretest instruments (Harrington-O'Shea CDM) were sent to each participating school (see Appendix B). The completed instruments were returned during the first month of school. A letter of appreciation was sent to each participating program. Each of the participating instructors was called the first week of April and informed that the posttest CDM was being mailed and needed to be completed by May 1, 1987. The returned instruments were followed by a second letter of appreciation to each participating program.

Data Analysis

The data from the CDM was tabulated to analyze the differences in responses of students from small, medium, and large schools as well as the differences in responses of students without industrial arts programs and students enrolled in an industrial arts program. The frequencies compared were the first choices made in occupational preference, subject preference, job values, self-perceived abilities,

and career interests, and the consistency of their theoretical occupational choice and their stated occupational choice.

After examining and analyzing the data with descriptive statistics, frequency counts, and percentages, the Chi-Square Test was used to determine the significance of differences between the two groups at the .05 level. Siegle (1956) indicated the hypothesis under test is usually that the two groups differ with respect to some characteristic and therefore with respect to the relative frequency with which group members fall into several categories.

The data from the CDM pretest and posttest was analyzed to determine change in students from small, medium, and large schools. The Chi-Square Test was used to determine if the differences were significant at the .05 level. The Chi Square ($X^{2)}$ Test as explained by Popham and Sirotnik (1973) is a nonparametric technique which may be used to test the difference between the distribution of one sample and some other hypothetical or known distribution. If a marked difference exists between the observed or actual frequencies falling in each category and the frequencies expected to fall in each category on the basis of chance or a previously established distribution, then the X^2 Test will yield a numerical value large enough to be interpreted as statistically significant.

CHAPTER IV

RESULTS OF THE STUDY

The results of this study to determine the effect of school size and enrollment in traditional industrial arts programs on realistic career choices are described in this chapter.

The findings of this study will be reported in the format consistent with the stated objectives which are:

1. To determine changes in stated occupational preferences of students.
2. To determine changes in subject preference of students.
3. To determine changes in job values held by students.
4. To determine changes in self-perceived abilities of students.
5. To determine changes in career interest of students.
6. To compare those changes among students in small, medium, and large size schools.
7. To compare the consistency of students' theoretical occupational choice with their stated occupational choice.
8. To compare the consistency of the theoretical and stated occupational choices of industrial arts students with those students not having the industrial arts experience.

Analysis Of Data With Respect To Objectives

Objective 1: To determine changes in occupational preferences

of students. A frequency distribution was constructed in order to illustrate these changes (see Table I). It was found that 188 or 62 percent of the 301 industrial arts students surveyed changed their occupational preference during the school year. The students from small schools changed the most at 70 percent. The students from medium schools changed the least at 54 percent while students from large schools changed 67 percent.

TABLE I

NUMBER AND PERCENT OF CHANGES IN STATED OCCUPATIONAL PREFERENCES OF STUDENTS BY SIZE OF SCHOOL

SIZE	CHANGE	NO CHANGE	% CHANGE
Small N=98	69	29	70
Medium N=128	69	59	54
Large N=75	50	25	67
TOTAL N=301	188	113	67

Chi-Square for the categories, "School Size", and "Change and No Change", is 7.2004 (see Table II). With df=2, Chi-Square must be 5.99 with p = .05 to be significant. Thus, the association between the variables is significant beyond which could happen by chance.

To answer objective six concerning school size, the school size does make a significant difference in the change of stated occupational

preference of students.

TABLE II

CHI-SQUARE CALCULATIONS FOR CHANGES IN STATED OCCUPATIONAL PREFERENCES OF STUDENTS BY SIZE OF SCHOOL

SIZE	CHANGE	NO CHANGE	TOTAL
Small	69	29	98
Medium	69	59	128
Large	50	25	75
TOTAL	188	113	301
	$X^2 = 7.2004$	df = 2	

X^2 p.05 = 5.99

Objective 2: To determine change in subject preference of students. A frequency distribution was constructed (see Table III). The data shows that 71 percent of the industrial arts students surveyed changed their subject preference during the school year. The most change occured with the students from small schools at 78 percent. The medium school students changed 71 percent and the large school students changed 61 percent.

Chi-Square for the categories, "School Size" and "Change and No Change", is 5.4129 (see Table IV). This is not the 5.99 needed to prove significance of association between the variables.

The analysis with concern to Objective six and school size indicates there is no statistical significance, but there is educational

importance, in school size and the degree of change in student's subject preference.

TABLE III

NUMBER AND PERCENT CHANGES IN SUBJECT PREFERENCES OF STUDENTS BY SIZE OF SCHOOL

SIZE	CHANGE	NO CHANGE	% CHANGE
Small N=98	76	22	78
Medium N=128	91	37	71
Large N=75	46	29	61
TOTAL N=301	213	88	71

TABLE IV

CHI-SQUARE CALCULATIONS FOR CHANGES IN SUBJECT PREFERENCES OF STUDENTS BY SIZE OF SCHOOL

SIZE	CHANGE	NO CHANGE	TOTAL
Small	76	22	98
Medium	91	37	128
Large	46	29	75
TOTAL	213	88	301

$X^2 = 5.4129$ df = 2

X^2 p.05 = 5.99

Objective 3: To determine changes in the job values held by students. A frequency distribution was constructed (see Table V). The analysis of data indicates that 68 percent of the industrial arts students surveyed had changes in their job values during the school year. The small school students had a 68 percent change. The medium school students had a 66 percent change and the large school had a 73 percent change.

TABLE V

NUMBER AND PERCENT OF CHANGES IN JOB VALUES HELD BY STUDENTS BY SIZE OF SCHOOL

SIZE	CHANGE	NO CHANGE	% CHANGE
Small N=98	67	31	68
Medium N=128	84	44	66
Large N=75	55	20	73
TOTAL N=301	206	95	68

A low Chi-Square score of 1.302 for the categories, "School Size" and "Change and No Change", indicates that the association between the variables is not statistically significant, but is educationally important and worth noting (see Table VI).

Objective 4: To determine changes in self-perceived abilities of students. A frequency distribution was constructed (see Table

VII). The industrial arts students surveyed changed their self-perceived abilities 66 percent during the school year. The students from large schools showed the most change at 71 percent, the small school students changed 67 percent, and the medium school's students 63 percent.

TABLE VI

CHI-SQUARE CALCULATIONS FOR CHANGES IN JOB VALUES HELD BY STUDENTS BY SIZE OF SCHOOL

SIZE	CHANGE	NO CHANGE	TOTAL
Small	67	31	98
Medium	84	44	128
Large	55	20	75
TOTAL	206	95	301
	$X^2 = 1.3012$	df = 2	

X^2 p.05 = 5.99

Chi-Square for the categories, "School Size" and "Change and No Change", is 1.2099 and not significant at the .05 level with df = 2 (see Table VIII). Thus, the association between the variables is not significant beyond that which could happen by chance.

The Chi-Square scores for the individual groups indicate there is no statistical significance, but there is a practical importance, in school size and the changes in self-perceived abilities of students (see Table VIII).

TABLE VII

NUMBER AND PERCENT CHANGES IN SELF-PERCEIVED ABILITIES OF STUDENTS BY SIZE OF SCHOOL

SIZE	CHANGE	NO CHANGE	% CHANGE
Small N=98	66	32	67
Medium N=128	81	47	63
Large N=75	53	22	71
TOTAL N=301	200	101	66

TABLE VIII

CHI-SQUARE CALCULATIONS FOR CHANGES IN SELF-PERCEIVED ABILITIES OF STUDENTS BY SIZE OF SCHOOL

SIZE	CHANGE	NO CHANGE	TOTAL
Small	66	32	98
Medium	81	47	128
Large	53	22	75
TOTAL	200	101	301
	$X^2 = 1.2099$	df = 2	

X^2 p.05 = 5.99

Objective 5: To determine changes in career interest of students. A frequency distribution was constructed (see Table IX). The students

participating had a 36 percent change in career interest during the school year. The large school students had a 41 percent change. The medium school students had a 33 percent change and the small school students a 37 percent change.

TABLE IX

NUMBER AND PERCENT CHANGES IN CAREER INTEREST OF STUDENTS BY SIZE OF SCHOOL

SIZE	CHANGE	NO CHANGE	% CHANGE
Small N=98	36	62	37
Medium N=128	42	86	33
Large N=75	31	44	41
TOTAL N=301	109	192	36

The three groups were consistant with a small 8 percent range. The Chi-Square score of 1.5036 for the categories, "School Size" and "Change and No Change", meant there was no significance in the association between the variables (see Table X).

The data indicates there is no statistical significance, but there is practical importance, between school size and changes in career interest during the school year.

Objective 6: To compare those changes among students in small, medium, and large size schools. This objective has been discussed

in each of the previous objectives.

TABLE X

CHI-SQUARE CALCULATIONS FOR CHANGES IN CAREER INTEREST OF STUDENTS BY SIZE OF SCHOOL

SIZE	CHANGE	NO CHANGE	TOTAL
Small	36	62	98
Medium	42	86	128
Large	31	44	75
TOTAL	109	192	301

$X^2 = 1.5036$ df = 2

X^2 p.05 = 5.99

Objective 7: To compare the consistency of students' theoretical occupational choice with their stated occupational choice. A frequency distribution was constructed (see Table XI). The consistency of students' theoretical occupational choice and their stated choice was 59 percent among the industrial arts students surveyed. The students from small schools were 63 percent consistent. The students from mediuim schools were 59 percent consistent and students from large schools were 53 percent consistent.

The Chi-Square score for categories, "School Size" and "Change and No Change", is 1.9073. Thus, the association between the variables is not significant.

TABLE XI

NUMBER AND PERCENTAGE OF STUDENTS' CONSISTENCY BETWEEN THEIR THEORETICAL OCCUPATIONAL CHOICE AND THEIR STATED OCCUPATIONAL CHOICE

SIZE	CHANGE	NO CHANGE	% CONSISTENCY
Small N=98	36	62	63
Medium N=116	48	68	59
Large N=90	42	48	53
TOTAL N=304	126	178	59

Analysis concerning school size indicated there is no statistical significance, but there is educational importance, in school size and the consistency of students' theoretical occupational choice and stated occupational choice (see Table XII).

Objective 8: To compare the consistency of the theoretical and stated occupational choices of industrial arts students with those students not having the industrial arts experience. The three school sizes were all put into the same group for this calculation to be compared with the control group (not having the industrial arts experience). A frequency distribution was constructed (see Table XIII). The industrial arts students had a consistency rate of 59 percent. The students not having the industrial arts experience had a 52 percent consistency rate. The 59 percent average is the same as the middle size schools compared.

TABLE XII

CHI-SQUARE CALCULATIONS FOR CONSISTENCY BETWEEN STUDENTS THEORETICAL OCCUPATIONAL CHOICE AND THEIR STATED OCCUPATIONAL CHOICE

SIZE	CHANGE	NO CHANGE	TOTAL
Small	36	62	98
Medium	48	68	116
Large	42	48	90
TOTAL	126	178	304

$X^2 = 1.9073$ df = 2

X^2 p.05 = 5.99

TABLE XIII

NUMBER AND PERCENTAGE TO COMPARE THE CONSISTENCY OF THE THEORETICAL AND STATED OCCUPATIONAL CHOICES OF INDUSTRIAL ARTS STUDENTS WITH THOSE STUDENTS NOT HAVING THE INDUSTRIAL ARTS EXPERIENCE

GROUPS	CHANGE	NO CHANGE	% CONSISTENCY
With IA N=304	126	178	59
Without IA N=60	29	31	52
TOTAL N=364	155	209	57

To determine if the industrial arts experience was significant in the higher consistency rate the researcher used the control group

(students without industrial arts) results as the expected frequencies in the Chi-Square one sample case (see Table XIV). The experimental groups (having industrial arts) results were used as the observed frequency. A Chi-Square score of 5.25 was computed. A score of 3.841 was needed for significance at the .05 level with df = 1. Thus, the industrial arts experience was significant in the higher consistency rate between theoretical and stated occupational choices.

TABLE XIV

CHI-SQUARE CALCULATIONS TO COMPARE CONSISTENCY OF THE THEORETICAL AND STATED OCCUPATIONAL CHOICES OF INDUSTRIAL ARTS STUDENTS AND THOSE STUDENTS NOT HAVING THE INDUSTRIAL ARTS EXPERIENCE

GROUP	CHANGE	NO CHANGE	TOTAL
Control Without IA	29	31	60
Experimental With IA	126	178	304
TOTAL	155	209	364
	$X^2 = 5.25$	df = 1	

X^2 p.05 = 3.841

Summary

The analysis of data from the 360 survey instruments indicates that seventh and eighth grade industrial arts students make many changes, pertaining to careers, during the school year. There was a 61.6 percent change made by students in the areas of occupational

preference, subject preference, job values, self-perceived abilities, and career interest.

The size of school was not found statistically significant, but it was found educationally important, in the amount of change recorded. The changes ranged from 57 percent for medium schools, 62 percent for large schools, and 64 percent for small schools.

The industrial arts experience had a significant effect on the consistency of the students' theoretical occupational choice and their stated occupational choice. Those students with industrial arts during the year had a 59 percent consistency rate while those without the industrial arts experience registered a 52 percent consistency rate.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to determine the effect of school size and enrollment in traditional industrial arts programs on realistic career choices, as measured by the Harrington-O'Shea Career Decision-Making System, among seventh and eighth grade students.

In order to accomplish the purpose of the study the following objectives were set forth:

1. To determine changes in stated occupational preferences of students.
2. To determine changes in subject preference of students.
3. To determine changes in job values held by students.
4. To determine changes in self-perceived abilities of students.
5. To determine changes in career interest of students.
6. To compare those changes among students in small, medium, and large size schools.
7. To compare the consistency of students' theoretical occupational choice with their stated occupational choice.
8. To compare the consistency of the theoretical and stated occupational choices of industrial arts students with those students not having the industrial arts experience.

To determine the stated objectives, 304 students enrolled in traditional industrial arts classes and 60 students not having the

industrial art experience were administered the Harrington-O'Shea Career Decision-Making System.

Summary

Analysis of data from the 360 survey instruments indicates that seventh and eighth grade students make many changes concerning careers during the school year. The changes made by these students were not always found to be statistically significant, but the fact that they are changing is worth noting and has educational importance. Students from industrial arts programs make more realistic career choices than those students not having the industrial arts experience. Industrial arts is more effective in helping students to explore and make realistic career choices in smaller schools than in larger schools.

Conclusions

The specific conclusions of this study were formed from the analysis of data collected and fall into two categories: the conclusions that are statistically significant, and the conclusions that are not statistically significant but are educationally important.

The conclusions that are statistically significant are:

1. It can be concluded that students from industrial arts programs make more realistic career choices than those students not having the industrial arts experience.
2. It can be concluded that industrial arts is more effective in helping students explore and make realistic career choices in smaller schools than in larger schools.

The conclusions that are not statistically significant but

educationally important are:

1. It can be concluded that industrial arts programs in small and medium schools are more effective in creating change in students subject preference than industrial arts programs in large schools.
2. It can be concluded that industrial arts programs in large schools have more impact on students changing job values than programs in small or medium size schools.
3. It can be concluded that industrial arts programs in large schools have more influence on changing students' self-perceived abilities than programs in small and medium size schools.
4. It can be concluded that industrial arts programs in large schools create more changes in students' career interest than programs in medium or small schools.
5. It can be concluded that industrial arts programs in small and medium size schools have more impact on helping students to make more realistic career choices than students from large schools.

Recommendations

Due to the analysis of this study, and the author's experience while conducting this study, the following recommendations are made:

1. A similar study be conducted using the new industrial arts/technology education program to evaluate the direction taken by industrial arts in the State of Oklahoma.
2. A study be conducted to identify the factors of industrial arts programs which are considered important to students by

parents, counselors, and industrial arts instructors.

3. A study be conducted to determine student attitudes toward industrial arts curriculum content and teaching methods.
4. The State Department of Vocational and Technical Education should make career decision-making materials easily accessible to all industrial arts programs.

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APPENDIX A

PARTICIPATING SCHOOLS AND FACILITATORS

PARTICIPATING SCHOOLS AND FACILITATORS

SMALL SCHOOLS

1.	Dale Junior High	Joe Fullbright
2.	Burns Flat	Don E. Gunter
3.	Coalgate Middle School	Stanly Hickman
4.	Holdenville	Eddie Gooden
5.	Spiro Middle School	Edwin Anderson
6.	Wagoner	James Cooper

MEDIUM SCHOOLS

1.	Ada Middle School	Garry McBroom
2.	Bixby Junior High	Ray Bond
3.	Guthrie Junior High	John McNutt
4.	Guymon Central Junior High	Steve Munson
5.	Pryor Junior High	Paul Statham
6.	Woodward Junior High	Darrell Jones

LARGE SCHOOLS

1.	Bartlesville Central Middle School	Jo Ellan Basler
2.	Del City Kerr Junior High	Robert Cossairt
3.	Ponca City East Junior High	James Armstrong
4.	Tulsa Foster Junior High	Vernon Norman
5.	Union Middle School	J. L. Roach

CONTROL SCHOOL

1.	Claremore Junior High	George Blevins

APPENDIX B

LETTER TO FACILITATORS

PARTICIPATING TEACHERS

Enclosed you will find:

1. Instruction Manual
2. Survey Booklets
3. Interpretive Folders
4. Return Envelope

Instructions:

1. Have each student in the participating class fill out a survey booklet and an interpretive folder.

2. The survey booklets will be returned to me.

3. Use the interpretive folders for class discussion and comparison with pretest taken in September.

Thank you for your help on this research project, and I hope your students profit from the experience. If you have any questions, call me collect in the evening.

Clifford Shea
(918) 622-9181

APPENDIX C

SURVEY INSTRUMENT

SURVEY BOOKLET
Self-Scored Edition

The Harrington-O'Shea

CAREER DECISION-MAKING® SYSTEM

THOMAS F. HARRINGTON, PH.D.
Professor of Counseling Psychology,
Rehabilitation and Special Education
Northeastern University

ARTHUR J. O'SHEA, PH.D.
Professor of Psychology, Boston State College

GENERAL DIRECTIONS

1 This booklet is to be used with the separate Interpretive Folder. **2** It is best to use pencil in case you wish to change your answer. **3** This is NOT a test. There are no right or wrong answers. Ask questions if there are words or directions you do not understand. **4** PRINT your name in the space at the top of this page. **5** At the top of the first page of the separate Interpretive Folder, you will find a Summary Profile. Print again your name, plus today's date, in the spaces provided. You will be using this Summary Profile to record your answers.

A 10 9 8 7 6 5 4 3 2 1

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Circle Pines, Minnesota 55014-1796

THE FOLLOWING QUESTIONS
BEGIN YOUR CAREER EXPLORATION

[1] Occupations

Below are 18 job groupings that you might enjoy. Read the 18 groups and decide which group best describes the kind of work you would like to do.

Now, find [1] **Stated Occupational Preferences** in the Summary Profile of the separate Interpretive Folder. In the space marked First Choice, indicate your first choice by writing in the name of the group that you like best. For example, if your first choice were 16, *Customer Services*, you would write *Customer Services* after First Choice as shown in the sample below.

Now, decide which one of the 18 groupings you like second best. In the space marked Second Choice in the Summary Profile, write the name of the group that you like second best. If your second choice were 6, *Data Analysis*, you would write it as shown in the example below.

SAMPLE

[1] Stated Occupational Preferences FIRST CHOICE *Customer Services*

SECOND CHOICE *Data Analysis*

1. Skilled Crafts — for example, carpenter, electrician, cook, tailor, auto mechanic, jeweler, electronic assembler, farmer, TV repairer, dental laboratory technician, military service

2. Technical — for example, drafter, airplane pilot, electronic technician, quality-control technician, surveyor, air traffic controller, technical illustrator

3. Legal Work — for example, lawyer, judge, claim adjuster (insurance), FBI agent, paralegal assistant, customs inspector

4. Manual Work — for example, truck driver, animal caretaker, sewing machine operator, machine tool operator, bricklayer, construction equipment operator

5. Math-Science — for example, chemist, physicist, mathematician, computer programmer, architect, engineer, biologist

6. Data Analysis — for example, accountant, auditor, computer operator, bank loan officer, payroll clerk

7. Art Work — for example, commercial artist, clothes designer, interior decorator, photographer, painter, illustrator

8. Literary Work — for example, reporter, playwright, editor, novelist, poet, translator

9. Musical Work — for example, musician, conductor, singer, composer, dancer

10. Management — for example, president or other officer of a business organization, hotel-motel manager, store manager, banker, office manager, government administrator, farm manager, restaurant manager

11. Clerical Work — for example, secretary, mail clerk, dispatcher, stenographer, typist, receptionist, hotel-motel clerk, cashier, bank teller, telephone operator, keypunch operator, medical record clerk

12. Medical-Dental — for example, dentist, doctor, veterinarian, optometrist, chiropractor

13. Personal Service — for example, coach, recreation leader, vocational instructor, physical education teacher, emergency medical technician, nurse aide, orderly, county agricultural agent

14. Sales Work — for example, sales agent (real estate, insurance, auto, stocks and bonds), buyer, manufacturer's representative, travel agent

15. Entertainment — for example, actor/actress, model, radio/ television announcer, comedian, public relations representative

16. Customer Services — for example, barber (hair stylist), beautician, police officer, gas station attendant, taxi driver, bus driver, waiter/waitress, security guard, flight attendant, food counter worker

17. Social Services — for example, counselor, psychologist, probation officer, social worker, nurse, dental hygienist, sociologist, clergy, historian, physical therapist, x-ray technologist

18. Education Work — for example, elementary and high school teacher, librarian, college professor, home economist, nursery school teacher, school and college administrator

2 Subjects

Study the following list of school subjects. Which group have you liked most? Indicate your first choice at 2 in the Summary Profile. In the space marked First Choice, write in the name of the group you have liked best. Which have you liked second best? Write in your second choice in the Second Choice space.

1. Mathematics — arithmetic, algebra, geometry, calculus

2. Science — biology, physics, chemistry, earth science

3. English — English composition, literature, journalism

4. Foreign Languages — French, Spanish, German, Latin

5. Social Studies — history, sociology, psychology, political science, civics

6. Art — drawing, art history, sculpture, interior decorating

7. Music — band, orchestra, choir, music appreciation

FOR ADULTS

You should base your responses not only on your school experiences but also on your total life experiences, for example, training, work, reading, television, movies.

8. Clerical — typing, shorthand, office practice

9. Business Finance — bookkeeping, accounting, business law, economics

10. Business Management — merchandising and sales, management, labor relations, personnel work

11. Home Economics — cooking, clothing, child care, cosmetology (beauty care), food science

12. Shop or Crafts — metal work, machine shop, woodworking, electricity, printing, automotive

13. Agriculture — farming, animal husbandry, horticulture, forestry

14. Technical Studies — drafting or mechanical drawing, engineering, electronics

3 Future Plans

What kind of further education or training are you planning? Answer by writing in *one* of the plans below at 3 in the Summary Profile. If you are somewhat uncertain about the future, choose the statement that best describes your present planning.

FOR ADULTS

Even though you have had post high school training, you should respond on the basis of your current planning. This section asks if you see the need for further training for a different career area from the one you have previously pursued. For example, persons who had already graduated from college would write "Graduate School" (No. 1) if they intended to return to education to earn a graduate degree; those who felt that their undergraduate degree qualified them for jobs they might be seeking in the near future would write "No additional education" (No. 9). If you are currently in a training program, write the statement that best describes the program.

1. Graduate school or professional school such as law or medicine
2. Four-year college or university
3. Two-year community or junior college
4. Vocational or technical school (non-college)
5. Business school (non-college)
6. Nursing school (non-college)
7. Military service
8. On-the-job training or apprenticeship
9. No additional training or education

4 Values

Below are 14 job values, that is, things people look for in a job, things that bring job satisfaction. Study the list and choose the four (4) you consider most important to you. Indicate your choices in the Summary Profile at 4 by writing the values in the spaces provided, one to each space. Write only the name of the value, not its definition, for example, write *good salary* or *leadership*. Select exactly four values.

1. Job security — having a steady job from which you are unlikely to be fired

2. Prestige — having a job which gives you a great deal of status and respect

3. Good salary — being well paid for your work

4. High achievement — being able to do things of importance or to succeed on a job that is difficult

5. Routine activity — work that is uncomplicated and organized with the same tasks repeated frequently

6. Variety-diversion — having the chance to do many different things and not doing boring work

7. Creativity — having a job where you can use your imagination and be inventive

8. Working with your mind — work that offers intellectual stimulation and allows use of your mental capabilities

9. Independence — work that lets you be your own boss, follow your own convictions, and do the job the way you want without someone watching over you

10. Working with people — working in close contact with people, being able to comfort and assist others through your work

11. Leadership — being responsible for and directing the work of others, making decisions affecting others, and managing

12. Physical activity — work that calls for moving about and using physical strength

13. Work under supervision — working under the direction of others, being told what to do

14. Work with your hands — having a job where you can use your hands, machines, or tools to make or repair things

5 Abilities

Below are 14 abilities or talents. Study them carefully and choose the four (4) you consider to be your strongest abilities. You should estimate your strongest abilities using information from your school work, test results, and especially your experiences in jobs and hobbies. Indicate your choices in the Summary Profile at 5 by writing the abilities in the spaces provided, one to each space. Write only the name of the ability, not its definition, for example, write *math ability* or *manual ability*. Select exactly four abilities.

1. Artistic ability — drawing, decorating, designing, painting

2. Musical ability — singing, playing a musical instrument, writing music, dancing

3. Computational ability — speed and accuracy in working with numbers

4. Math ability — solving math problems and understanding arithmetic reasoning

5. Scientific ability — doing lab experiments and understanding scientific principles

6. Language ability — writing, speaking, using correct English grammar

7. Mechanical ability — working with machines or tools, repairing things, and understanding how things work

8. Manual ability — working with your hands as in physical work or sewing and knitting

9. Spatial ability — seeing differences in size, form, and shape and visualizing their relationships

10. Social ability — getting along with others, ability to work with people, considered friendly by others

11. Teaching ability — helping others learn, instructing people to perform an activity

12. Persuasive ability — able to talk easily with people, to influence others, to sell a product or service

13. Leadership ability — leading group activities, able to get things started, others usually look to you for help in getting things done

14. Clerical ability — typing, operating business machines, shorthand, providing or collecting information either in person or by telephone, accurate record keeping

6 Interests

Many activities and occupations are listed below. You are to indicate how you feel about each activity by writing in the box after the activity the number 2, 1, or 0.

Write "2" if you LIKE the activity	**FOR EXAMPLE** ➡ Solve crimes	2
Write "1" if you CAN'T MAKE UP YOUR MIND	**FOR EXAMPLE** ➡ Design clothes	1
Write "0" if you DISLIKE the activity	**FOR EXAMPLE** ➡ Sell cars	0

Do not be concerned about whether you have the ability or training for the activity or job. Just decide whether you would LIKE to do it. Work rapidly. Your first reactions will produce the best results.

	1	2	3	4	5	6
1. Repair watches and jewelry						
2. Be a bank teller, a person who receives and pays out money in a bank						
3. Interview people about community problems						
4. Carry out scientific experiments						
5. Manage a large office building						
6. Sing on the stage						
7. Repair automobile engines						
8. Keep the financial records for a company						
9. Help the physically handicapped train for a job						
10. Use microscopes to study cells and bacteria						
11. Buy merchandise for a large department store						
12. Be an artist						
13. Make furniture and cabinets						
14. Operate adding or duplicating machines in an office						
15. Be a social worker						
16. Read books or magazines about science						
17. Be a sales manager						
18. Write short stories						
19. Operate a building crane						
20. Make plane and hotel reservations in a travel bureau						
21. Teach in an elementary school or high school						
22. Do research work in a physics lab						
23. Interview workers who have complaints about their company						
24. Draw cartoons						
TOTAL Page 5 ➡						
	1	2	3	4	5	6

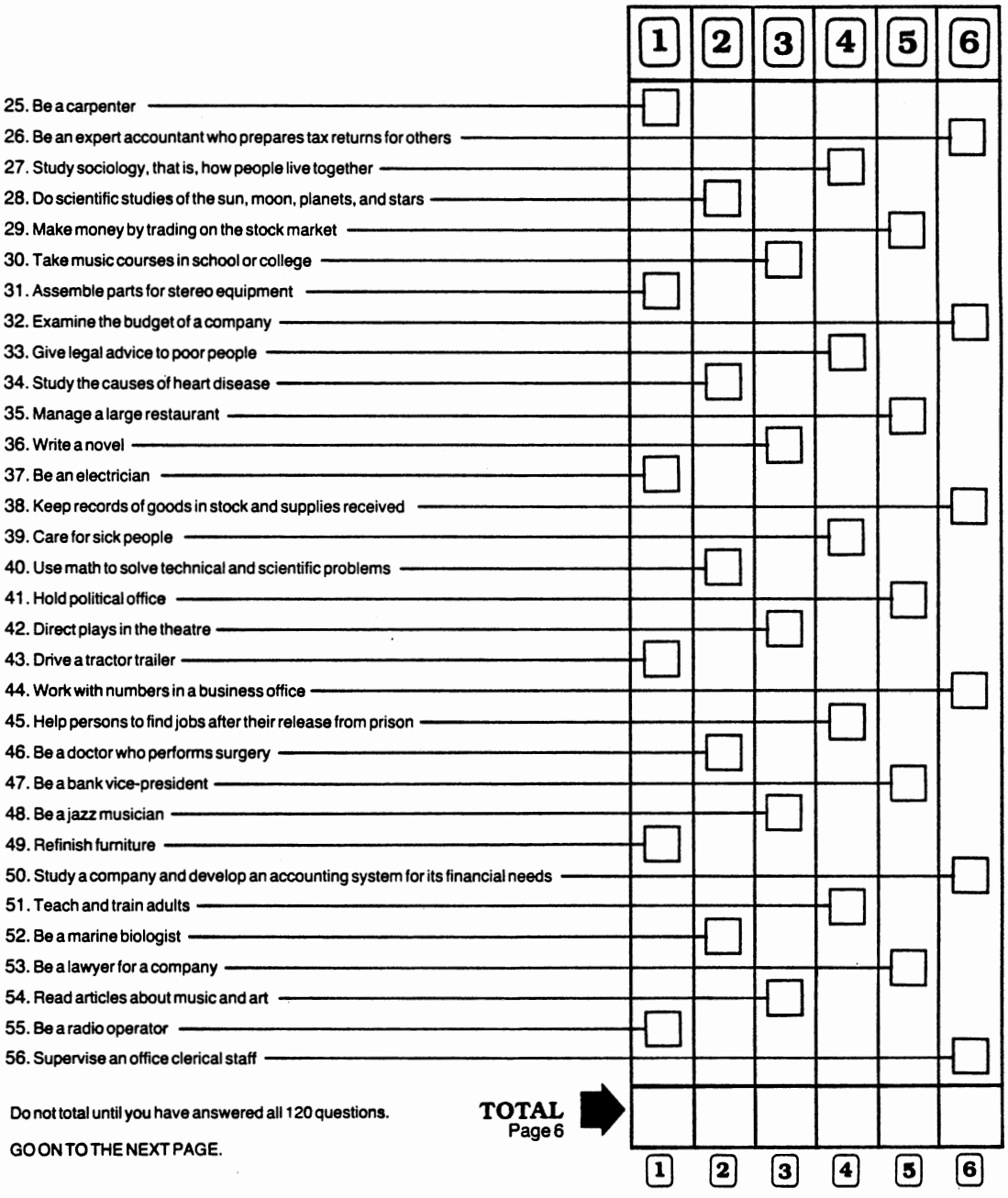
Do not total until you have answered all 120 questions.

GO ON TO THE NEXT PAGE.

Remember: "2" *if you LIKE the activity*

"1" *if you CAN'T MAKE UP YOUR MIND*

"0" *if you DISLIKE the activity*



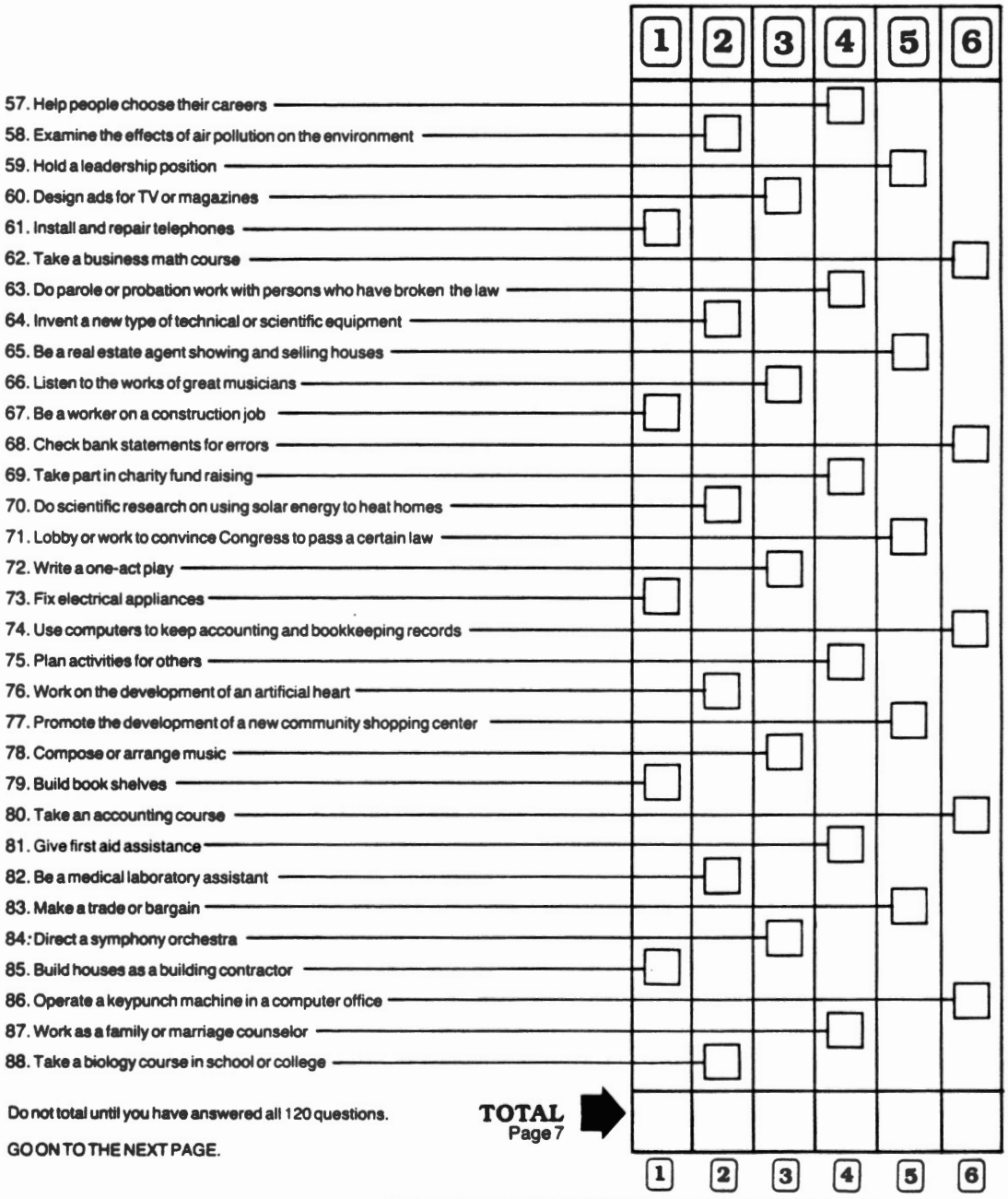
Do not total until you have answered all 120 questions.

GO ON TO THE NEXT PAGE.

Remember: "2" *if you LIKE the activity*

"1" *if you CAN'T MAKE UP YOUR MIND*

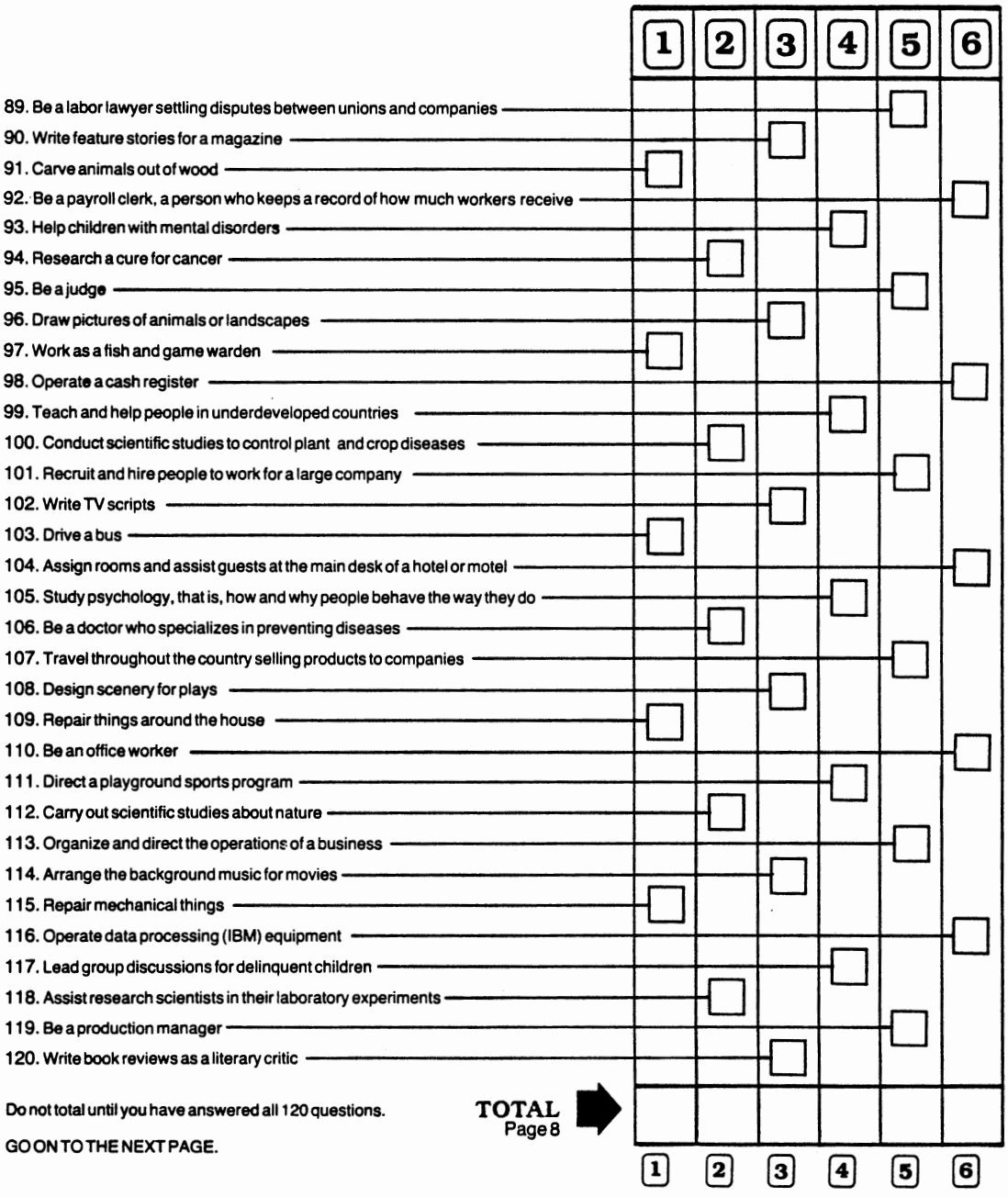
"0" *if you DISLIKE the activity*



Remember: "2" *if you LIKE the activity*

"1" *if you CAN'T MAKE UP YOUR MIND*

"0" *if you DISLIKE the activity*



DIRECTIONS FOR SCORING YOUR

Interest Survey

Step 1 Return to page 5 and add up the numbers in the boxes in each of the six columns containing your answers. Place the totals at the bottom of the columns in the *shaded* spaces marked TOTAL Page 5.

Step 2 Do the same for pages 6, 7, and 8.

Step 3 Transfer the totals at the bottom of each page to the SUMMARY TABLE below. Be careful to put the column 1 totals under 1 in the Summary Table, column 2 under 2, etc.

SUMMARY TABLE

	1	2	3	4	5	6
Page 5						
Page 6						
Page 7						
Page 8						
Total Scale Scores						
Career Interest Areas	Crafts	Scientific	The Arts	Social	Business	Clerical

Step 4 Add up each column in the Summary Table above.

Step 5 Transfer your Total Scale Scores from the Summary Table above to 6 on your Summary Profile in the separate Interpretive Folder.

Step 6 **Finding Your Career Code**

A CAREER CODE is a combination of one's *two* highest scores. Thus a person's Career Code might be Crafts-Scientific or Business-Social.

To find *your* Career Code, print in the boxes below the *names* of the CAREER INTEREST AREAS with the *two* highest numbers from the Summary Table above, the highest in the first box, the second highest in the second box.

IMPORTANT: If your highest scores are *tied*, leave these boxes blank and go at once to STEP 7 on the next page.

Your Career Code ➡ [ ] — [ ]

Highest Interest Area — Second-Highest Interest Area

You now have your career code. For example, if you wrote *Business* in the first box and *Social* in the second box, your code is *Business-Social.*

GO TO STEP 8 ON PAGE 11. DO NOT GO TO STEP 7. IT IS FOR TIES ONLY.

THIS PAGE FOR TIES ONLY

Step 7: TIES

In the case of ties, there will be more than one Career Code, such as Social-Clerical AND Clerical-Social. To find *your* Career Codes:

Use *RULE A* if you have two or more CAREER INTEREST AREAS in the Summary Table *tied for highest.*

Use *RULE B* if you have *one* highest score and two or more scores *tied for second highest.*

RULE A

If two or three Career Interest Areas are tied for highest, print all the *names* in the boxes below. If four or more are tied for highest, you will not be able to receive meaningful results and should retake the survey at a later date.

In the spaces below print *all* your code combinations.

EXAMPLE: If Social and Clerical were tied, you would have two codes to write: Social-Clerical and Clerical-Social.

If Social, Clerical and Crafts were tied, you would have six codes to write: Social-Clerical; Clerical-Social; Social-Crafts; Crafts-Social; Crafts-Clerical; and Clerical-Crafts.

Your Career Codes _____ _____ _____

_____ _____ _____

GO TO STEP 8 ON THE NEXT PAGE. DO *NOT* USE RULE B.

RULE B

If you have one highest score and two or more tied for *second* highest, print the *name* of the Career Interest Area (see the Summary Table on Page 9) with the highest score in the *first* box below. Print the *names* of the Career Interest Areas which are tied for second in the other boxes.

Highest Interest Area

Tied for Second Highest

In the spaces below, print *all* your code combinations by combining your highest interest area with each of those tied for second.

EXAMPLE: If Crafts was your highest score and Business and Clerical were tied for second, your Career Codes would be Crafts-Business and Crafts-Clerical.

Your Career Codes _____ _____ _____

_____ _____

GO TO STEP 8 ON THE NEXT PAGE.

Step 8

In the left-hand column below marked CAREER CODE, find *your* Career Code (in the case of ties, *all* your Career Codes). Put a check (✓) in the box in front of your Code(s) in the space provided. Be sure to check the Career Code which lists the Career Interest Areas in the correct order. If your code is Social-Crafts, check Social-Crafts, not Crafts-Social. Remember that your Career Code is found either in the boxes at Step 6 or, in the case of *ties*, in the spaces marked *Your Career Codes* at Step 7.

CAREER CODE	CAREER CLUSTERS
☐ Crafts-Scientific	Technical, Skilled Crafts, Math-Science
☐ Crafts-The Arts	Skilled Crafts, Art Work, Technical
☐ Crafts-Social	Customer Services, Personal Service, Skilled Crafts
☐ Crafts-Business	Skilled Crafts, Customer Services, Management
☐ Crafts-Clerical	Skilled Crafts, Clerical Work, Manual Work
☐ Scientific-Crafts	Math-Science, Technical, Skilled Crafts
☐ Scientific-The Arts	Math-Science, Medical-Dental, Literary Work
☐ Scientific-Social	Medical-Dental, Math-Science, Social Services
☐ Scientific-Business	Math-Science, Management, Technical
☐ Scientific-Clerical	Math-Science, Data Analysis, Technical
☐ The Arts-Crafts	Art Work, Skilled Crafts, Technical
☐ The Arts-Scientific	Literary Work, Math-Science, Art Work
☐ The Arts-Social	Social Services, Musical Work, Education Work
☐ The Arts-Business	Entertainment, Legal Work, Management
☐ The Arts-Clerical	Art Work, Clerical Work, Literary Work
☐ Social-Crafts	Personal Service, Social Services, Customer Services
☐ Social-Scientific	Social Services, Medical-Dental, Math-Science
☐ Social-The Arts	Social Services, Education Work, Musical Work
☐ Social-Business	Social Services, Management, Sales Work, Legal
☐ Social-Clerical	Social Services, Clerical, Management
☐ Business-Crafts	Management, Skilled Crafts, Customer Services
☐ Business-Scientific	Management, Sales Work, Math-Science
☐ Business-The Arts	Legal Work, Entertainment, Management
☐ Business-Social	Management, Sales Work, Social Services, Legal
☐ Business-Clerical	Management, Sales, Data Analysis, Clerical
☐ Clerical-Crafts	Clerical Work, Data Analysis, Skilled Crafts
☐ Clerical-Scientific	Data Analysis, Math-Science, Clerical Work
☐ Clerical-The Arts	Clerical Work, Data Analysis, Art Work
☐ Clerical-Social	Clerical Work, Data Analysis, Social Services
☐ Clerical-Business	Data Analysis, Clerical Work, Management

NOTE: If The Arts is one of the scales in your Career Code, you might want to explore beyond what is suggested above and consider additional artistic clusters. The four artistic clusters are Art Work, Literary Work, Music Work, and Entertainment.

Step 9

Next to the Career Code(s) you have checked above, you will find the names of three or four CAREER CLUSTERS. Write the name of each of these career clusters at 7 in your Summary Profile on the separate Interpretive Folder.

EXAMPLES:

ONE CODE (no ties)
CODE: Business-Social

1st *Management*
2nd *Sales Work*
3rd *Social Services*
4th *Legal*

MORE THAN ONE CODE (in case of ties)
CODES: Crafts-Business, Crafts-Clerical

1st *Skilled Crafts*
2nd *Customer Services*
3rd *Management*
4th *Clerical Work*
5th *Manual Work*

GO ON TO THE NEXT PAGE.

NAME _____ GRADE (if any) _____

COUNSELOR (if any) _____ DATE _____

Transfer the information in your Summary Profile to the counselor's copy. (Do this even if you do not have a counselor, because it will be helpful to you in using your Interpretive Folder.)

SUMMARY PROFILE

Counselor's Copy

1 Stated Occupational Preferences

FIRST CHOICE _____

SECOND CHOICE _____

2 Subject Preferences

FIRST CHOICE _____

SECOND CHOICE _____

3 Future Plans

_____

4 Job Values

1. _____
2. _____
3. _____
4. _____

5 Abilities

1. _____
2. _____
3. _____
4. _____

6 Interest Scale Scores

Crafts _____ Social _____

Scientific _____ Business _____

The Arts _____ Clerical _____

7 Career Clusters Suggested for Careful Exploration

1st _____

2nd _____

3rd _____

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Turn now to your Interpretive Folder and begin to read *Introduction to Career Decision Making* on page 1.

VITA

Thomas Clifford Shea

Candidate for the Degree of

DOCTOR OF EDUCATION

Thesis: THE EFFECT OF SCHOOL SIZE ON REALISTIC CAREER CHOICES OF TRADITIONAL INDUSTRIAL ARTS STUDENTS

Major Field: Occupational and Adult Education

Biographical:

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Professional Organizations: National Education Association, Oklahoma Education Association, Oklahoma Technology Education Association, and Tulsa Classroom Teachers Association.