

THE RELATIONSHIP BETWEEN AN INDUSTRIAL  
ARTS PROGRAM'S INFLUENCE AND  
CAREER MATURITY

BY

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## CHAPTER I

### NATURE OF THE PROBLEM

#### Introduction

The inception of education brought with it those educators who were eager to make learning more relevant and experiences more progressive. In 1971, with the above philosophy in mind, Industrial Arts administrators in the Oklahoma City public schools initiated an innovative type of program at the middle school level.

The program, entitled The Industrial Arts Curriculum Project, was introduced in both of its phases, the World of Construction and the World of Manufacturing, in two pilot schools approved by the Oklahoma City Board of Education. These schools were Rogers Middle School and Jefferson Middle School. This experimental implementation of the construction phase had the support of the Associated General Contractors of America, a professional association of building contractors.

Funding for the implementation of the program in the pilot schools was provided by the State Department of Vocational and Technical Education.

One of the major objectives of this exploratory program was to provide input to the individual for making

decisions relative to his or her career choice. Those involved in the program were under the impression that a substantial contribution was being made to meet this objective.

Administrators at both the local and state levels have voiced an interest in a study being made to evaluate the extent to which the program enhances career choices as compared to the Traditional Industrial Arts Program. Therefore the evaluation of this program relative to career choice is the subject of this study.

The program has many objectives in addition to the one related to career choice. Therefore this study is in no way meant to be a complete program evaluation; rather it is an evaluation of only one aspect and that is the development of career maturity.

#### Description of the Program

The Industrial Arts Curriculum Project, referred to as IACP, is the product of a dual effort initiated at Ohio State University with the cooperation of the University of Illinois. The project is divided into two phases, the World of Construction (WOC) and the World of Manufacturing (WOM).

Over a six year period the project underwent intensive research, development, field testing, and revision. This testing and development process included 13 states, 25

cities, 53 schools, and over 10,000 students (Liechti, 1973).

The software materials provided for the curriculum include textbooks, laboratory manuals, teachers guides, transparencies, film strips, and standardized tests which were evaluated by experts in the related fields to insure accuracy. The hardware, tools, materials, and supplies required for program operation are all identified in the curriculum package.

The World of Construction phase of the project, the subject of this study, is a one year exploratory course designed to provide opportunities for junior high or middle school youths to get a taste of the construction industry.

The informational units are integrated with the laboratory activities to reinforce the students's understanding of management practices, organizational practices, and control priorities employed to produce a constructed product. This integration of learning methods is applied to three major sections of study:

- (1) an analysis of the management, personnel practices, and production system of the construction industry,
- (2) a review of a comprehensive group of housing construction practices, and
- (3) a synthesis of city and regional planning practices (Lux and Ray, 1970).

## Statement of the Problem

This research study was initiated because information needed to evaluate the effectiveness of the WOC program regarding influence on career choice decision making was not available. Considering the funds, materials and human efforts currently being expended in the WOC in the middle schools, a study of its effectiveness regarding influence on career choice was deemed timely.

The basis for selection of this study topic had many facets:

- (1) the personal interest of the author because he was actively involved for five years in the training of teachers for this program,
- (2) the fact that a study of this curriculum had not been done in the Oklahoma City Schools, plus the fact that
- (3) administrators and teachers in the system and at the state level had expressed interest in the outcome of such a study.

Hopefully, this information regarding the relationship between this innovative exploratory career program and the development of mature career choice attitudes will be used as a reference by administrators, counselors, and teachers who are involved in work with junior high or middle school career exploration curriculums.

## Purpose of the Study

The purpose of this study was to determine the relationship of influence that the WOC program provided for the development of career maturity as compared to influence provided by the Traditional Industrial Arts Program.

## Research Questions

The Industrial Arts program completed, scholastic achievement, work experience, and socio-economic status measured by parents' occupation were considered as factors contributing to career maturity. These independent variables were included in the formulation of the ten research questions:

- (1) Was there a significant relationship between the total score on the Career Maturity Inventory Attitude Scale and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?
- (2) Was there a significant relationship between the total score on the Metropolitan Achievement Total Reading Test and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?
- (3) Was there a significant relationship between the total score on the Metropolitan Achievement Total Mathematics Test and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?

Industrial Arts students?

- (4) Was there a significant relationship between work experience and the total score on the Career Maturity Inventory Attitude Scale of Oklahoma City Public Schools' Industrial Arts students?
- (5) Was there a significant relationship between the total score on the Metropolitan Achievement Total Reading Test and the total score on the Career Maturity Inventory Attitude Scale of the Oklahoma City Public Schools' Industrial Arts students?
- (6) Was there a significant relationship between the total score on the Metropolitan Achievement Total Mathematics Test and the total score on the Career Maturity Inventory Attitude Scale of the Oklahoma City Public Schools' Industrial Arts students?
- (7) Was there a significant relationship between the choice of a career in the construction industry and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?
- (8) Was there a significant relationship between making a career choice and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?
- (9) Was there a significant relationship between parents' occupation and the total score on the



Career Maturity Inventory Attitude Scale obtained by Oklahoma City Public Schools' Industrial Arts students?

10. Was there a significant relationship between parents' occupation and the Industrial Arts program completed by the Oklahoma City Public Schools' Industrial Arts students?

#### Definition of Terms

The following terms are defined for clarification of their use in the study, and should not be regarded as an attempt to assign universal meaning to these terms.

- (1) World of Construction Program: A one-year exploratory course at the junior high or middle school level to provide an opportunity for learning and applying basic concepts employed in the construction industry.
- (2) Traditional Industrial Arts Program: A one or two year basic skills course in woodworking, metalworking, and drafting usually providing experiences in a "take home" project.
- (3) Middle School: A school consisting of sixth, seventh, and eighth grades. (Oklahoma City Public Schools have adopted the term middle school rather than junior high school).
- (4) Career Maturity: The level reached in the course of decision making relative to vocational choice

dependent on measurement of five variables identified by Crites (1973b) as:

- (1) Involvement in the choice process,
- (2) Orientation toward work,
- (3) Independence in decision making,
- (4) Preference for career choice, and
- (5) Conceptions of the choice process.

The Career Maturity Inventory Attitude Scale was designed with these specific variables in mind and results in a single score that is a composite of all five measures (Westbrook, 1976)

#### Limitations of the Study

Certain limitations on the study, either inherent to the subject or selected to make it practically feasible, are identified as follows: teacher experience, available subjects, socio-economic status and career maturity elements.

The effectiveness of teaching in both the WOC program and the traditional program was limited to those teachers in the Oklahoma City Public Schools available for observation. Teaching experience varied from one to twenty-five years. Approximately forty-five percent of the students surveyed in each program had teachers with sixteen or more years of experience. Thirty-six percent of the traditional program students and forty-four percent of the WOC program students had teachers with from four to sixteen years of experience.

The group of students attending the two high schools included in the study was limited to 171 ( $N = 171$ ). The sub-group of students who had experienced the WOC program at the Oklahoma City middle school level was limited to 84 ( $N_{WOC} = 84$ ). The sub-group of students who had experienced the Traditional Industrial Arts Program at the Oklahoma City middle school level was limited to 87 ( $N_{TIA} = 87$ ).

The socio-economic status, an independent variable in career choice maturity, is limited to the status of the respondents. The status of the respondents was categorized through identification of the occupation of the parents or guardians in an attempt to analyze its relationship. Socio-economic scores were assigned to each respondent's parents' or guardians' occupation from a list published by the United States Bureau of the Census (1963).

The elements of career maturity were limited to those measureable through the Career Maturity Inventory Attitude Scale. The occupational competency elements were not measured as they were beyond the objectives of either the WOC or the traditional programs. Therefore the Career Maturity Inventory Competence Test (Crites, 1973c) was considered inappropriate as a measuring device for this study.

## CHAPTER II

### REVIEW OF SELECTED LITERATURE

#### Introduction

This review of selected literature has been compiled to provide background information that establishes a need for this study. It also reports previous research and research methodology related to the problem of this study.

The review has been divided into five areas: Career Education, Industrial Arts Programs, Career Maturity, Measuring Career Maturity Attitudes and Program Evaluation.

#### Career Education

Career education has been defined many times by many people. An accepted authority, Ken Hoyt (1974) is often quoted with this definition:

Career education is the total effort of public education and the community to help all individuals become familiar with the values of a work-oriented society, to integrate these values into their personal value systems, and to implement these values into their lives in such a way that work becomes possible, meaningful, and satisfying to each individual (p. 15).

Career education is related to education in general by Mangum (1975) when he states: Career education has the same purposes that all education has: to aid the student

in understanding society and his relation to society while developing the necessary skills to function successfully and with satisfaction in the society.

More closely related to the subject of this study Drier (Magisos, ed., 1973), elaborates on the career exploration phase of career education:

In early adolescence, exploration should be stressed to provide the individual needed experiences and knowledge to begin internalizing and drawing initial general conclusions about himself in relation to possible life careers. Through intensified opportunities to test decision making capabilities, students begin to put into perspective what they have learned. They begin to see purpose and realize capabilities to plan and prepare for projected life roles. Educational and guidance programs need to be organized in a way to enable students to check initial career plans against reality in an environment that allows both success and failure to be perceived as positive (p. 77).

Then Tennyson (Magisos, ed., 1973) sums up the concept of career exploration saying:

Career exploration may be thought of schematically as an inverted pyramid in which career options available to the individual are deliberately kept open as he moves through adolescence. The primary objective of career exploration is not career selection, but rather to provide the student with experiences that enable him to look at himself and clarify his motives (p. 104).

Feldman (1976) thinks that it should be obviously dangerous for a young person to make a lifetime career choice too early, and he should realize this, but at the same time he should be consciously conceptualizing his career alternatives. The educator should think of the child as actively trying to find satisfying work to do, and at the same time wanting to become good at something.

. . . it may well be the main purpose of education to provide conditions under which each child will identify and find satisfaction through a chosen field or fields of work (p. 147).

Even in a state concerned with getting "back to the basics" the idea of career education is considered a matter of major importance. Brodinsky (1977) relates an example of this concern in the following manner:

In Oregon, where taxpayers have condemned "worthless" high school diplomas for nearly a decade, school systems are now deep in programs raising and tightening high school graduation requirements. As first mandated by Oregon's State Department of Education in 1972, graduation depends upon a student's ability to master competencies in three areas - personal development, social responsibility, and career development . . . (p. 526).

The Eighth Annual Gallup Poll of the Public's Attitudes Toward the Public Schools (Gallup, 1976) found that 80 percent of public school parents felt a need for more emphasis on career preparation in high school and 53 percent of public school parents felt elementary school curriculum should include information about jobs and careers. Just three years previous to that only 21 percent of the public school parents thought the latter was a necessity according to the Fifth Annual Gallup Poll of Public Attitudes Toward Education (Gallup, 1973).

The subject of this study, the WOC phase of the IACP project, has become a chief contributor to the exploratory segment of career education; Suess (Householder, ed., 1972) called the project a ". . . revolutionary reform of established practice (p. 130)."

## Industrial Arts Programs

An informal glimpse of the actual picture of Industrial Arts education is offered by Sues (Householder, ed., 1972), through the examination of catalogs from major suppliers to Industrial Arts programs. The emphasis is on woodworking tools, machines and materials with some attention given to metal working supplies. Sues said that his measure of the state of affairs may be as accurate as a formal study.

He describes the Traditional Industrial Arts Programs with the following statement:

Traditional Industrial Arts programs for the early adolescent may be classified into three categories. These programs are characterized on the bases of their relative instructional emphasis, rather than their formally stated objectives. As a result, there is a degree of overlap among the offerings in terms of activities and intended outcomes. Nevertheless, there are enough differences to make it possible to categorize them as: skills emphasis programs; pre-vocational programs, and leisure time emphasis programs (Householder, ed., p. 117).

In this point of time when technology is responsible for rapid social changes, it is ironic that Industrial Arts curriculum change has been almost non-existent. Entirely too many educators operate under the premise that the past, present, and future are synonymous. To these people change is unnecessary. Realistically though, the present period is that of constant change and therefore the future promises to be different from the past and immediate present. There is one sure expectation. The status quo will not

endure and a look at history will indicate it never has. These ideas expressed by DeVore and Lauda (Smalley, ed., 1976) are typical of Industrial Arts educators devoted to keeping the curriculum current and relevant.

The major innovative Industrial Arts programs share a common factor in their successes and that is the careful analysis of the body of knowledge to be taught and increased attention to concept development. The efforts have yielded carefully sequenced instructional materials, highly organized to reinforce learning. The net result of the activities in developing the innovative programs is a novel approach to junior high Industrial Arts instruction, as reported by Suess (Householder, ed., 1972).

The new programs are aimed at teaching concepts which will fulfill the role of Industrial Arts identified by Carrel (Householder, ed., 1972) when he listed the broadly stated goals developed by the Industrial Arts Division of the American Vocational Association. The suggested unique responsibilities of Industrial Arts are:

- Goal I --- Develop an insight and understanding of industry and its place in our culture.
- Goal II -- Discover and develop talents, aptitudes, interests, and potentialities of individuals for the technical pursuits and applied sciences.
- Goal III - Develop an understanding of industrial processes and the practical application of scientific principles.
- Goal IV -- Develop basic skills in the proper use of common industrial tools, machines, and processes.
- Goal V --- Develop problem-solving and creative abilities involving the materials, processes, and products of industry (p. 65).



The particular innovative Industrial Arts program studied in this research was described by Evans and Terry (1971) in this manner:

The IACP program is designed to reinforce student understanding of broad concepts and principles of technology. It provides for a two-year sequence in industrial technology for junior high school students. The first year's course, the World of Construction, is a study of man's managed-personnel-production system which produces constructed projects on a site. The second year's course, the World of Manufacturing, is a study of man's managed-personnel-production system which produces society's manufactured products in a plant. Both courses develop the general theme: "how to work efficiently with men, materials, tools, and techniques (p. 91)."

#### Career Maturity

Forrest and Others (n.d.) state that interest in exploratory behavior and taking advantage of opportunities for vocational planning and receiving occupational information are related to career maturity.

The minute students begin interacting with their environment, become involved in learning about materials and processes, are exposed to an energetic teacher with imagination, the more enormous their differences and needs become. The process of identifying career maturity as an evaluation of student and teaching performance becomes a complex problem possibly requiring the use of commercially developed instruments (Olson, 1972).

Crites (1973d) states that maturation of vocational behavior is a continuous process from late childhood through adolescence to early adulthood. The Career

Maturity Inventory Attitude Scale was designed as a measuring instrument for the maturity range indicated, grades six through twelve, therefore it was considered appropriate for gathering data for this study.

Career aspirations of adolescence are more realistic than those of earlier childhood, as studied by sociologists, DeFleur, D'Antonio and DeFleur (1973), although they usually exceed what they will eventually achieve. This verification of more realistic thinking in career choices reinforces the validity of a study concerned with career maturity at this age level.

The possible influence of racial background was considered a factor in the career choice process, but according to Katz and Gurin (1969) in Race and the Social Sciences, racial difference does not have a significant effect when social class is controlled.

Crites (1973d) indicates that the CMI Attitude Scale is so written that differences in socio-economic status do not have a significant relationship with scores on the Attitude Scale. This finding was based on socio-economic status rated by father's occupation, educational level and source of family income.

Efforts to improve career maturity through special educational programs have met with different success levels from no change to significant improvement. Crites (1973d) concluded that there is evidence of improvement in scores on the Attitude Scale attributable to some didactic inter-

ventions but not others.

### Measuring Career Maturity Attitudes

In general, attitude measurement is almost invariably a judgment of some kind about beliefs, either personal judgments made of belief statements or attributions to something or somebody we believe to be true (Sherif, 1976).

According to Kiesler (1969) the most common measure of attitude is a pencil and paper instrument, a measurement technique not requiring the direct use of overt behavior. Included in the pencil and paper instruments are attitude "scales", which according to Diab (Sherif, ed., 1967) are the most widely used techniques of all for the measurements of attitudes.

The scale chosen for this research, the Career Maturity Inventory Attitude Scale, consists of fifty attitudinal statements worded in both first and third persons. Third person expression of attitudes was said to be more subtle and therefore considered more valid although in validating the instrument no significant differences were found in the first and third person items (Crites, 1973d).

The Attitude Scale of the Career Maturity Inventory more closely approximates a survey questionnaire than an actual test. Persons completing the scale should be encouraged to indicate their feelings about each item rather than attempting to discern a "correct" answer (p. 6).

In his discussion of the instrument Crites (1973b) points out that the questionnaire reveals attitudes such as:

Is work seen as a meaningful focus of life or is it viewed as drudgery? How involved and independent is the individual in the choice process? What considerations are made in selecting a career? These and other cognitive aspects of decision making are stated in the items of the Attitude Scale as they have actually been verbalized by young people (p. 3).

### Evaluation of Programs

This synopsis includes a review of selected sources of information that have an influence on evaluation of exploratory programs at the middle school or junior high school level, and their relationship to career choice maturity.

Some educators feel that new or innovative programs tend to "water down" learning and there are losses in the basic fundamentals. Just the opposite should take place in well designed new programs. Liechti (1973) in an evaluation report for the Wichita Public Schools found that students achieved as well in basic knowledge and skills in pilot exploratory Industrial Arts programs as did the students in the traditional programs.

Other educators express concern that early adolescents are not ready to make career choices, therefore there is not a need for experiences in this area. Super and Forrest (1972) emphasize that early adolescence is an exploratory period in which young people have not progressed sufficiently to make sound directional vocational decisions. Yet they need chances to explore alternatives and acquire relevant information for a basis to make decisions later in life.

Exposure to careers and vocational programs will aid the students in making plans for the future. It was found that career choice attitudes and career choice competencies are closely related in a study conducted among ninth grade students in a school selected by Westbrook (1976).

In addition to making career choice decisions, exploratory programs serve as an orientation vehicle for future study. Tim Baker, an Oklahoma doctoral student in 1972, found that students who are vocationally oriented tend to improve their vocational skills more than other groups and they also tend more often to pursue vocational and technical curricula in higher education.

More specifically, an exploratory program in the WOC has been very effective in interesting young people in the world of work. A study was conducted by Young (1972) in Columbus, Ohio, to determine the interest generated by the WOC program. He found that this innovative program was very appealing to the students. So appealing, in fact, that the majority of the participants ranked their interests in the construction industry as above average.

A positive reaction is not the only benefit of this type of program as pointed out by Lux in an interview in 1972. It is just as important in career decision making for a student to learn that he is not interested in a field as it is for him to learn he is interested. This realization helps him to narrow down the alternatives.

## Summary

This chapter has sought to identify programs included in the study and describe them to the extent that the reader has a basic understanding of their operation, objectives and relationship to each other.

As a brief recapitulation of what has been said, career education was originated with everyone in mind. Its function is to instill values in each person so that work becomes "possible, meaningful, and satisfying to each individual (Hoyt, 1974, p. 15)."

Industrial Arts programs were categorized into two major types: the traditional and the innovative. The traditional program was identified with the functions of basic skill development, pre-vocational preparation, and productive use of leisure time. In contrast the innovative program concentrates on career exploration and concept development.

Career choice maturity was defined as a continuous process from early adolescence through early adulthood. The state of its development is measureable through the use of such instruments as the Career Maturity Inventory (Crites, 1973a).

Measurement of career maturity attitudes is usually accomplished through some written instrument such as the one mentioned above. These instruments are commonly in the form of scales and have been proven to be valid measuring devices.

The evaluation of programs associated with career education indicated students are interested in learning about careers and this new learning does not interfere with their mastering the "fundamentals."

## CHAPTER III

### METHODOLOGY

This chapter identifies the design for instrumentation, selection of participants, and statistical analysis of data to be used in this study.

#### Research Design

Two basic purposes are served through research design: (1) to provide the researcher with answers to research questions, and (2) to control external sources of variance (Kerlinger, 1973). The research design is what makes a study an effective tool for evaluation of data, without good design the resultant data may be without value. In regard to research design Kerlinger (1973) has this to say:

Research design sets up the framework for "adequate" tests of the relations among variables. Design tells us, in a sense, what observations to make, how to make them, and how to analyze the quantitative representations of the observations. Strictly speaking, design does not "tell" us precisely what to do, but rather "suggests" the directions of observation-making and analysis. An adequate design "suggests," for example, how many observations should be made, and which variables are active and which are attribute. We can then act to manipulate the active variables and to categorize the attribute variables. A design tells us what type of statistical analysis to use. Finally, an adequate design outlines possible conclusions to be drawn from the statistical analysis (p. 301).



The approach selected for this study is an ex-post-facto attitude scale. Statistical analysis includes the biserial coefficient, Pearson product-moment correlation coefficient, and the Phi coefficient. A paradigm of this research design is illustrated in Figure 1.

#### Purpose of the Study

The purpose of this study was to determine the relationship of influence that the WOC program provided for the development of career maturity as compared to influence provided by the Traditional Industrial Arts Program.

Specifically, the design was established to compare the career maturity level of the two groups of ninth graders in the Oklahoma City Public Schools, one that had completed the WOC program and one that had completed the Traditional Industrial Arts Program.

#### Instrumentation

To effectively and efficiently evaluate the success of the WOC program in influencing career choice decisions, a search was made to identify a standardized instrument that would fulfill the needs.

Forrest and Others (n.d.) made a study that resulted in the writing of an inventory of career development. Included in this inventory are questions to measure career planning attitude, resources for exploration, students' possession of information and decision making ability.

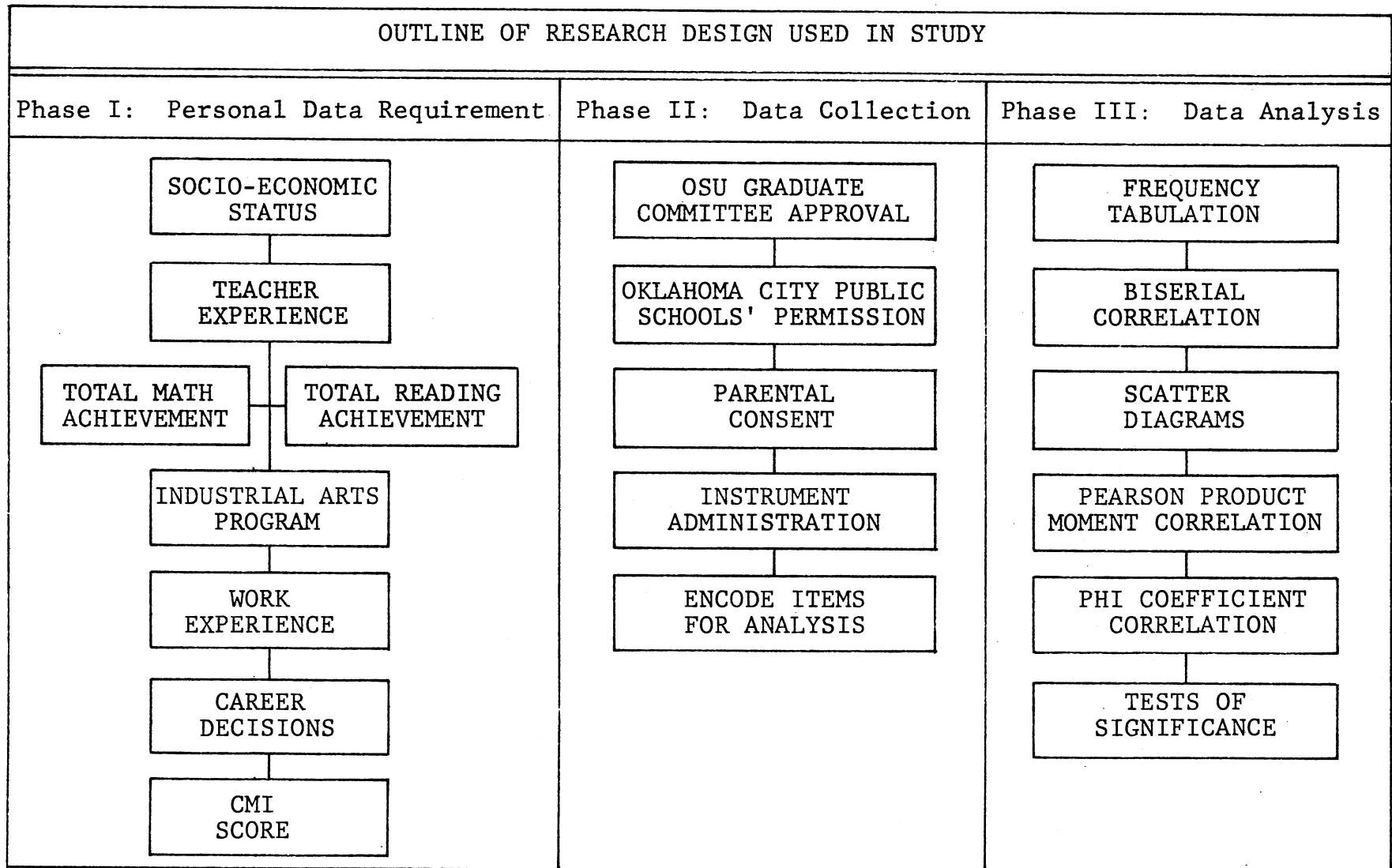


Figure 1. Outline of research design used in the study.

They titled it Career Development Inventory (CDI). It covers all areas mentioned thoroughly but the questions are rather lengthy and somewhat complicated, therefore a more practical approach seemed appropriate.

The Ohio Vocational Interest Survey (OVIS) (Maola, 1971) structured for grades eight through twelve includes many items suitable for this study. It also includes some items totally unrelated to this study, requires 60 to 90 minutes to administer, hand scoring keys are not available and the scoring cost is sixty cents per test. These limitations are too restrictive, therefore, this test was not considered applicable.

The Career Maturity Inventory (CMI), a standardized instrument, is structured for grades six through twelve and includes two tests; one an attitude scale and the other a competence test (Crites, 1973b). The development of career choice decision making capability and the degree of involvement in the career choice process are adequately measured using this instrument.

The attitude scale requires 20 to 40 minutes to administer. Scoring can be done by hand and the total cost is approximately one dollar per test.

Because exploration and concept learning are stressed and skill development is not, the competency test is considered inappropriate for evaluation of this program. As stated in the objectives of the WOC program (Lux and Ray, 1970, p. 4), students are expected to ". . . perform select-

ed production practices. . . as they apply to construction systems." Producing a competent skilled craftsman is not an objective of the program.

The CMI attitude scale "elicits the feelings, the subjective reactions, the dispositions that the individual has toward making a career choice and entering the world of work" (Crites, 1973b, p. 3). As stated by Westbrook (1976, p. 121), "Although it yields only one score, it aims to measure five different variables: (1) involvement in the process of vocational choice, (2) orientation toward the problem of vocational choice, (3) independence in decision-making, (4) preference for factors in vocational choice, and (5) conceptions of vocational choice."

The policy of CTB/McGraw-Hill prohibits the binding of test booklets in theses or dissertations. A limit of five sample test questions has been placed on duplication of any one test, and then written permission is required. The policy further states that test items may be included only in dissertations with limited distribution and not intended for commercial publication, nor can they be microfilmed. In compliance with this policy none of the Career Maturity Inventory Attitude Scale has been included in this study.

#### Research Application to Oklahoma City Public Schools

To conduct any type of research in the Oklahoma City Public Schools clearance must be secured through the Department of Technical Services Research and Evaluation Unit

of the Oklahoma City Public Schools. The policies and procedures for conducting research in the Oklahoma City Public Schools and a copy of the research application form are included (Appendix D). Details of the procedure followed in obtaining permission to gather the data are also included (Appendix E).

### Subjects of the Study

The subjects to be included in the study were composed of two groups of ninth grade Industrial Arts students in the Oklahoma City Public Schools.

Lists of names of those ninth grade Industrial Arts students who had completed the WOC program or the Traditional Industrial Arts Program in the middle schools were obtained from counselors at Northwest Classen High School and from Southeast High School.

Standard procedures were followed and clearance was secured through the Oklahoma City Public Schools Central Office, the principal of each high school and finally through the counselors and each individual teacher involved.

In March of 1977, the participants were administered the CMI and asked to respond to the personal data items included in the questionnaire.

The group of ninth grade Industrial Arts students at Southeast High School totaled 92. The group at Northwest Classen High School totaled 85. From the grand total of 177 only 6 responses were unusable due to incompleteness or

multiple answers to the questions. For purposes of simplicity and clarity only usable responses will be included in tabulation and analysis of data. Table I illustrates the distribution of the respondents by school and program.

TABLE I  
DISTRIBUTION OF THE RESPONDENTS  
BY SCHOOL AND PROGRAM

School	Number of Students	Number in WOC	Number in Traditional
Northwest Classen High School	85	38	47
Southeast High School	86	46	40
Total Both Schools	171	84	87

The majority of the respondents were male, 163, with only 8 being female. In the Theory and Research Handbook for the CMI Crites (1973d) points out that response differences between the sexes were negligible. Therefore a majority of one sex or the other should not result in a biasing effect on the study.

The numbers of respondents in each group was dependent on enrollment and willingness to participate in the study.

Maximum numbers available from each school were included in the study. According to Rummel (1964) there are formulas to compute required sample size but if the individuals are representative of the population to be studied; a minimum rough rule of thumb would be 25 to 30 respondents. With a grand total of 171 complete and usable responses meeting minimum requirements did not present a problem.

#### Design of the Response Form

The physical design of the instrument response form was such that all required information could be recorded on one 8½ by 11 inch page (Appendix A). The upper three quarters of the sheet included items relating to personal data. The student's name was requested in this section to make it possible to relate his achievement test scores to the data. To aid in anonymity and compliance with the rights of privacy the blank for name was on a perforated portion of the form and was removed after the achievement test score had been recorded.

The lower portion of the response form provided for true-false responses to the Career Maturity Inventory Attitude Scale.

#### Data Collection Procedures

In ex-post-facto research, as in this study, control of independent variables is not possible; neither is randomization. Subjects tend to "assign themselves" to groups

or categories, according to Kerlinger (1973).

In an effort to have the subjects of this study "assign themselves" to groups they were asked to furnish the following information: (1) sex, (2) school presently attending, (3) middle school attended, (4) program completed (WOC or the Traditional Industrial Arts Program), (5) middle school Industrial Arts teacher's name, (6) type of work experience, if any, (7) choice of a career, and (8) parents' or guardians' occupation. This information was collected in an effort to identify and classify independent variables.

Scores on the Metropolitan Achievement Test total reading and total mathematics phases were obtained from existing school records for each respondent.

Crites (1973d) states that career maturity and educational achievement are related to each other. There were significant positive correlations between these two characteristics in studies cited by Crites. To identify the relationship in this study scores on the Metropolitan Achievement Test total reading and total mathematics phases were obtained from existing school records for each respondent and correlated with the CMI Attitude Scale score.

The parents' or guardians' occupations were identified and categorized socio-economically through a table of occupational scores provided by the U.S. Bureau of the Census (1963), Appendix (G). Category assignments of occupations not listed in the table were made by a team of



sociologists.

To facilitate prompt and complete return of responses the survey instruments were personally administered by the researcher at the two high schools involved in the study.

Hand scoring using a keyed stencil provided in the inventory packet from CTB/McGraw-Hill was the method used in processing the CMI.

The personal data provided by the respondents and the school record data were numerically coded in the left margin of the response form to enable the keypunch operator to transfer the information to computer cards.

Letters of appreciation were sent to directors, principals, teachers, counselors and others who were helpful in accomplishing the task of data collection (Appendix C).

#### Data Analysis

The data provided by the respondents were analyzed using the biserial coefficient, Pearson product-moment correlation coefficient, and the Phi coefficient. Guilford and Fruchter (1973) said:

The biserial  $r$  is especially designed for the situation in which both of the variables correlated are continuously measurable but one of the two is for some reason reduced to categories. This reduction to two categories may be a consequence of the only way in which the data can be obtained, as, for example, when one variable is whether or not a student passes or fails a certain standard (p. 293).

In this study, the continuous measure is the score on the Career Maturity Inventory Attitude Scale, and the

forced dichotomous measures are the personal data items included in the questionnaire.

McNemar (1962) gave this advice in regard to the appropriate use of the biserial coefficient technique:

If it can be assumed that underlying the dichotomy there is a continuous variable, we can obtain a measure of correlation which is an estimate of what the product moment correlation would be in case the dichotomous variable were measured in such a way as to produce a normal distribution (p. 189).

Continuing in his explanation of the biserial coefficient, McNemar (1962) stated:

In the derivation of  $r_b$  it is assumed not only that a normal distribution underlies the dichotomy but also that regressions would be linear if the dichotomized variable were measured. The latter assumption cannot be checked; it is apt to hold for ability variables but may be violated for personality traits. The former assumption has troubled many. Actually, the main issue is the question of continuity. Consider the pass-fail dichotomy; it is obvious that failing a test item represents anything from a dismal failure up to a near pass, whereas passing the item involves barely passing up to passing with the greatest of ease. Such a line of reasoning is certainly presumptive evidence for continuity, and a similar argument can be advanced as regards yes-no, like-dislike, and similar categories. Given a continuous trait, it is usually (if not always) possible to construct a test thereof which yields a normal distribution, and consequently we need not worry about the mathematical assumption of normality when using  $r_b$  (pp. 190-191).

The biserial analysis method was selected to test the following research questions:

- (1) Was there a significant relationship between the total score on the Career Maturity Inventory Attitude Scale and the Industrial Arts Program's influence on Oklahoma City Public Schools' Indus-

trial Arts students?

- (2) Was there a significant relationship between the total score on the Metropolitan Achievement Total Reading Test and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?
- (3) Was there a significant relationship between the total score on the Metropolitan Achievement Total Mathematics Test and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?
- (4) Was there a significant relationship between work experience and the total score on the Career Maturity Inventory Attitude of Oklahoma City Public Schools' Industrial Arts students?

Runyon and Haber (1976) make this generalization concerning the meaning of the Pearson product-moment correlation coefficient: "Pearson  $r$  represents the extent to which the same individual or events occupy the same relative position on two variables (p. 128)."

Guilford and Fruchter (1973) remind the researcher of some restrictions that should be observed in the use of the Pearson product-moment coefficient of correlation when they state:

The derivation of the formula for the Pearson  $r$  assumes that (1) the scores have been obtained in independent pairs, each pair being unconnected with other pairs; (2) the two variables correlated are continuous; and (3) the relationship between the two variables is rectilinear . . .

The most important requirement is the third, rectilinearity, a straight-line regression. This can often be determined by inspection of the scatter diagram. If the distribution of cases within the diagram appears to be elliptical, without any indications of a clear bending of the ellipse, the chances are that the relationship is rectilinear. Even if it is slightly bent, the departure from a straight-line relationship may be so small that  $r$  is still a good index of correlation (p. 95).

Scatter diagrams were developed from the questionnaire data relating to research questions five, six and nine to determine the appropriate application of the Pearson product-moment coefficient of correlation. The scatter diagrams are shown in Figures 2, 3, and 4.

The conclusion that these questions did fall within the assumptions underlying the product-moment correlation was the basis for this method of analysis. Research questions five, six and nine are:

- (5) Was there a significant relationship between the total score on the Metropolitan Achievement Total Reading Test and the total score on the Career Maturity Inventory Attitude Scale of the Oklahoma City Public Schools' Industrial Arts students?
- (6) Was there a significant relationship between the total score on the Metropolitan Achievement Total Mathematics Test and the total score on the Career Maturity Inventory Attitude Scale of the Oklahoma City Public Schools' Industrial Arts students?
- (9) Was there a significant relationship between parents' occupation and the total score on the

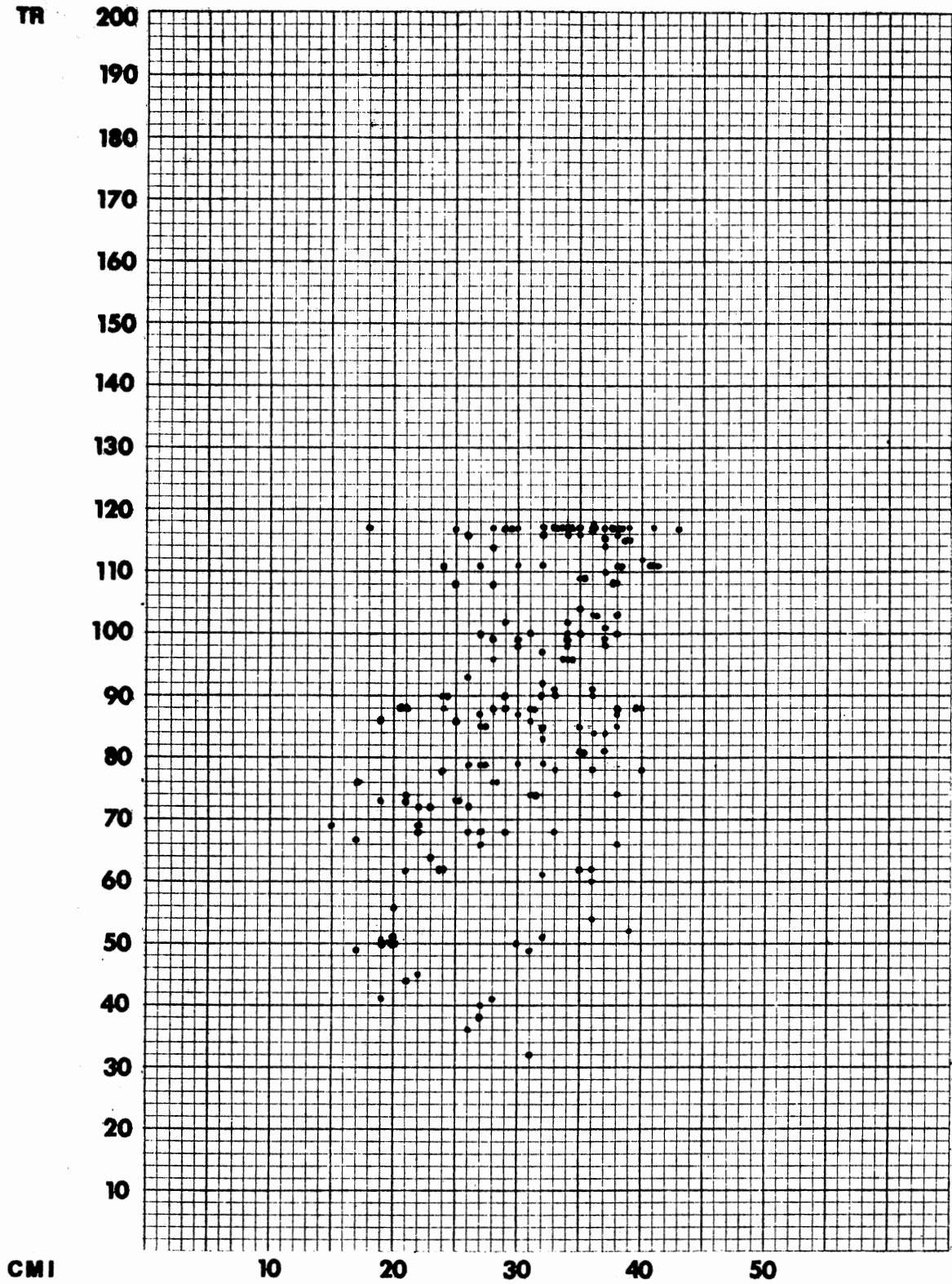


Figure 2. A scatter diagram of the Total Reading Achievement Test Scores and CMI scores.

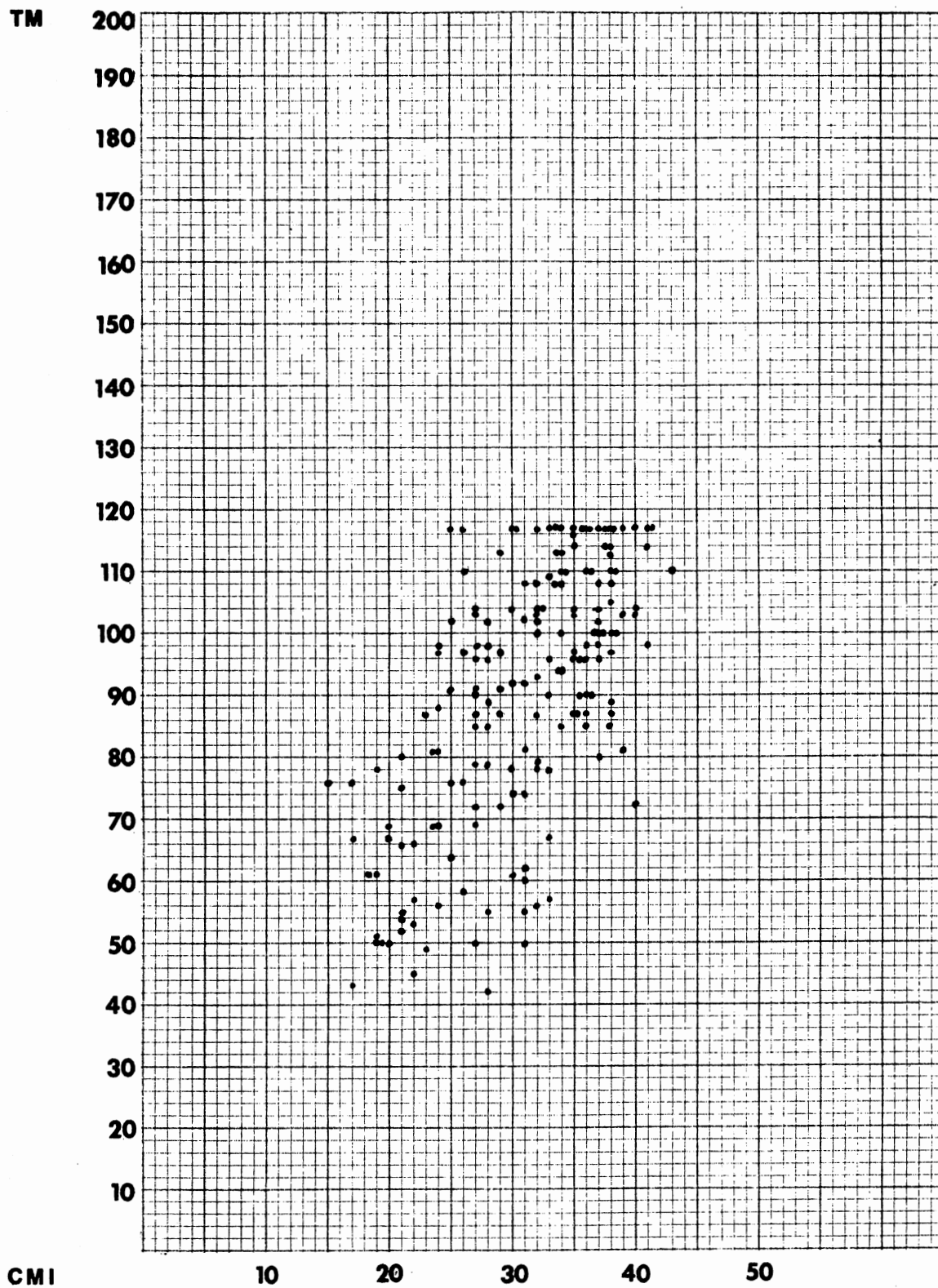


Figure 3. A scatter diagram of the Total Math Achievement Test scores and CMI scores.

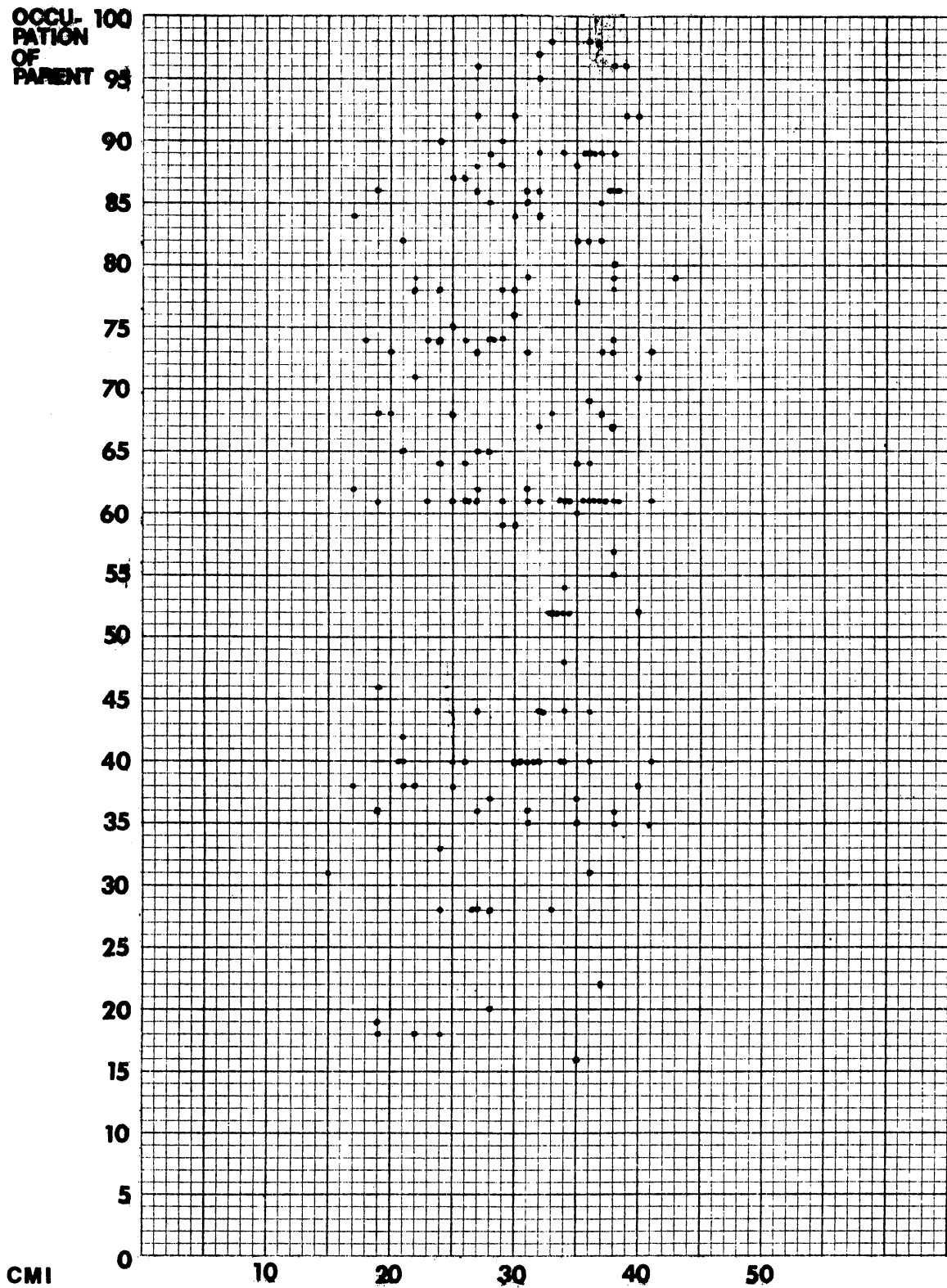


Figure 4. A scatter diagram of the Parent's Occupation scores and the CMI scores.

Career Maturity Inventory Attitude Scale obtained  
by Oklahoma City Public Schools' Industrial Arts  
students?

Guilford and Fruchter (1973) advise the use of the Phi coefficient when correlations are to be made between genuinely dichotomous or forced dichotomous variables. They explained:

When the two distributions correlated are genuinely dichotomous--when the two classes are separated by a real gap between them, and previously discussed correlational methods do not apply--we may resort to the Phi coefficient. This coefficient was designed for so-called point distributions, which implies that the two classes have two point values or merely represent some qualitative attribute. The method can be applied, however, to data that are measurable on continuous variables if we make certain allowances for the continuity. . . (p. 306).

In his discussion of the Phi coefficient application, Glass (1970) states that variables measured dichotomously may be analyzed appropriately using this method. The technique is useful when the variables can be arranged in two categories of yes-no responses.

In relation to the Pearson product-moment coefficient Glass (1970) said: "The Pearson product-moment coefficient calculated on nominal-dichotomous data is called the Phi coefficient and is denoted by  $\phi$  (p. 158)."

Research questions seven and eight are appropriate for analysis using the Phi coefficient, as the variables in these two questions are of a dichotomous nature. The questions are:

(7) Was there a significant relationship between the



choice of a career in the construction industry and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?

- (8) Was there a significant relationship between making a career choice and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?

## CHAPTER IV

### RESULTS AND ANALYSIS OF DATA

This chapter contains the data collected through the personal information items of the questionnaire and the career maturity level as measured by the Career Maturity Inventory Attitude Scale. The data will be used to describe the influence of the Industrial Arts program on career maturity. A statistical analysis will also be made in relation to the research questions of the study.

At the conclusion of data collection 177 responses had been tallied, of these only six were unuseable due to incompleteness or other improper responses. The 171 useable responses totaled 96.6 percent of the original survey.

The 171 respondents were identified with the middle school attended and the teacher who taught them the WOC or Traditional Industrial Arts Program at the middle school level. The result of this tabulation is illustrated in Table II. It was hoped that teacher experience could be identified and treated as an independent variable influencing career maturity. The teacher experience varied from one year to twenty-five years and the percentage of the students studying under one teacher varied from less than one percent to slightly more than twenty-two percent. The

TABLE II  
 DISTRIBUTION OF RESPONDENTS AMONG  
 MIDDLE SCHOOL TEACHERS AND  
 TEACHERS' EXPERIENCE

Teacher	Years Teaching	Respondents Traditional	in Program WOC	Total	Percentage of Total Respondents
1	2	0	1	1	0.58
2	4	6	1	7	4.09
3	22	19	0	19	11.11
4	10	0	9	9	5.26
5	3	2	0	2	1.17
6	2	3	0	3	1.76
7	5	0	1	1	0.58
8	1	3	0	3	1.76
9	---	1	0	1	0.58
10	5	0	4	4	2.34
11	15	1	0	1	0.58
12	---	1	0	1	0.58
13	9	0	8	8	4.68
14	25	0	38	38	22.22
15	---	1	0	1	0.58
16	2	0	3	3	1.76
17	5	18	8	26	15.21
18	20	4	0	4	2.34
19	12	4	3	7	4.10
20	16	20	7	27	15.79
*21	---	4	1	5	2.93
Totals	---	87	84	171	100.00

\*Teacher's name unknown

large number of teachers and the wide variation in percentage of contact with the respondents made an analysis of this variable meaningless. For this reason the statistical analysis of the teachers' experience variable was not carried out.

The sex of the respondent was requested on the questionnaire in an effort to include it as an independent variable in measuring career maturity. Considering only 8 of the 171 respondents (less than 5 percent) were female, adequate numbers for valid statistical analysis were not available.

Seven of the ten research questions required correlations of the CMI score with one of the personal data items on the questionnaire. Two research questions called for a correlation of the CMI score and an achievement test score. Five of the research questions were analyzed by the biserial correlation coefficient technique. Two questions were analyzed using the Phi coefficient and three using the Pearson product-moment coefficient techniques. An independent t test was used to determine significance among the means at the .05 level of confidence for those questions analyzed using biserial and Pearson correlation coefficients. The Phi coefficient was converted to a corrected Chi square to determine significance at the .05 level of confidence.

### Research Questions Tested Using Biserial Analysis

Tables III, IV, V, VI and VII illustrate the results of analyzing research questions one, two, three, four and ten using the biserial correlation coefficient.

Data in Table III presents the comparison of the CMI Attitude Scale scores with the influence on career maturity provided by an Industrial Arts program. In the comparison of the programs' influence, the 84 students who responded that they had completed the WOC program had a mean CMI Attitude Scale score of 33.33. Those 87 students who indicated that they had completed the Traditional Industrial Arts Program had a mean CMI Attitude Scale score of 28.28. The biserial correlation coefficient was .50, and the  $t$  ratio was 5.68, with 159 degrees of freedom,  $t(159)=5.68$ ,  $p<.01$ . This information supports the statement that there is a significant difference at the .01 level in Career Maturity Inventory Attitude Scale scores of students who had completed the WOC program and those students who had completed the Traditional Industrial Arts Program. The mean CMI Attitude Scale score of students who had completed the WOC program was higher than that of students who had completed the Traditional Industrial Arts Program. This finding is consistent with the rationale that students who complete a career exploration program would attain a higher career maturity level than those who did not have the program.

Table IV shows the comparison of the Metropolitan

TABLE III

COMPARISON OF CMI ATTITUDE SCALE SCORES OF STUDENTS  
 WHO COMPLETED THE WOC PROGRAM AND STUDENTS  
 WHO COMPLETED THE TRADITIONAL  
 INDUSTRIAL ARTS PROGRAM

Program	Number	Mean	Standard Deviation	Biserial Correlation Coefficient	t
WOC	84	33.33	4.95	.50	*5.68
Traditional	87	28.28	6.60		

\*  $p < .01$

Achievement Total Reading Test scores with the influence provided by an Industrial Arts program. In the comparison of the programs' influence, the 84 students who responded that they had completed the WOC program had a mean total reading achievement test score of 87.51. Those 87 students who responded that they had completed the Traditional Industrial Arts Program had a mean total reading achievement test score of 89.84. The biserial correlation coefficient was .06, and the t ratio was .67, with 168 degrees of freedom,  $t(168) = .67$ ,  $p > .05$ , indicating there is no significant difference in the total reading achievement test scores between students who completed the WOC program and those students who completed the Traditional Industrial Arts Program. The mean scores for both groups were slightly below their grade level.

A comparison of the Metropolitan Achievement Total Mathematics Test scores and the influence provided by an Industrial Arts Program is shown in Table V. In the comparison of the programs' influence, the 84 students who responded that they had completed the WOC program had a mean total mathematics achievement test score of 89.73. Those 87 students who responded that they had completed the Traditional Industrial Arts Program had a mean total mathematics achievement test score of 90.61. The biserial correlation coefficient was .03, and the t ratio was .27, with 169 degrees of freedom,  $t(169) = .27$ ,  $p > .05$ . This indicates there is no significant difference in total mathe-

TABLE IV

COMPARISON OF THE METROPOLITAN ACHIEVEMENT TOTAL READING  
TEST SCORES OF STUDENTS WHO COMPLETED THE WOC  
 PROGRAM AND STUDENTS WHO COMPLETED THE  
 TRADITIONAL INDUSTRIAL ARTS PROGRAM

Program	Number	Mean	Standard Deviation	Biserial Correlation Coefficient	t
WOC	84	87.51	21.43	.06	.67
Traditional	87	89.84	23.65		



matics achievement test scores between students who completed the WOC program and those students who completed the Traditional Industrial Arts Program. The mean scores for both groups were slightly below their grade level.

Table VI presents the comparison of the CMI Attitude Scale scores with the influence of work experiences. In the comparison of the scores, the 132 students who responded they had work experience had a mean CMI Attitude Scale score of 30.30. Those 39 students who indicated that they had not had work experience received a mean CMI Attitude Scale score of 32.31. The biserial correlation coefficient was .18, and the t ratio was 1.88, with 71 degrees of freedom,  $t(71)=1.88$ ,  $p>.05$ , which indicates there is no significant difference at .05 level in CMI Attitude Scale scores of students who responded that they had work experience and those students who responded that they had not had work experience.

Table VII shows the comparison of the Parents' Occupation score with the completion of an Industrial Arts program. In the comparison of program completed, the 84 students who responded that they had completed the WOC program had a mean Parents' Occupation score of 66.05. Those 87 students who indicated that they had completed the Traditional Industrial Arts Program had a mean Parents' Occupation score of 59.46. The biserial correlation coefficient was .19, and the t ratio was 2.05, with 169 degrees of freedom,  $t(169)=2.05$ ,  $p<.05$ , indicating there is a

TABLE V

COMPARISON OF THE METROPOLITAN ACHIEVEMENT TOTAL MATHEMATICS  
TEST SCORES OF STUDENTS WHO COMPLETED THE WOC  
PROGRAM AND STUDENTS WHO COMPLETED THE  
TRADITIONAL INDUSTRIAL ARTS PROGRAM

Program	Number	Mean	Standard Deviation	Biserial Correlation Coefficient	t
WOC	84	89.73	20.60	.03	.27
Traditional	87	90.61	22.30		

TABLE VI  
 COMPARISON OF CMI ATTITUDE SCALE SCORES OF STUDENTS  
 WHO HAD WORK EXPERIENCE AND STUDENTS  
 WHO HAD NOT HAD WORK EXPERIENCE

Work Experience	Number	Mean	Standard Deviation	Biserial Correlation Coefficient	t
Yes	132	30.30	6.51	.18	1.88
No	39	32.31	5.63		

significant difference in Parents' Occupation scores between students who completed the WOC program and those students who completed the Traditional Industrial Arts Program.

#### Research Questions Tested Using Pearson Product-Moment Analysis

Tables VIII, IX and X present the results of analyzing research questions five, six and nine using the Pearson product-moment correlation coefficient technique.

Data in Table VIII presents the comparison of the CMI Attitude Scale scores with the Metropolitan Achievement Total Reading Test scores. In the comparison of the scores, the 171 respondents had a mean CMI Attitude Scale score of 30.76 and a mean Metropolitan Achievement Total Reading Test score of 88.70. The Pearson product-moment correlation coefficient was .48, and the t ratio was 7.12, with 169 degrees of freedom,  $t(169)=7.12$ ,  $p<.01$ . This finding supports the statement that there is a significant correlation, at the .01 level, between CMI Attitude Scale scores and scores received on the Metropolitan Achievement Total Reading Test. Those students who scored higher on the CMI Attitude Scale also scored higher on the Metropolitan Achievement Total Reading Test.

Table IX shows the comparison of the CMI Attitude Scale scores with the Metropolitan Achievement Total Mathematics Test scores. In the comparison of the scores,

TABLE VII

COMPARISON OF PARENTS' OCCUPATION SCORES OF STUDENTS WHO  
 COMPLETED THE WOC PROGRAM AND STUDENTS  
 WHO COMPLETED THE TRADITIONAL  
 INDUSTRIAL ARTS PROGRAM

Program	Number	Mean	Standard Deviation	Biserial Correlation Coefficient	t
WOC	84	66.04	20.10	.19	*2.05
Traditional	87	59.46	21.94		

\*p<.05

TABLE VIII  
 COMPARISON OF CMI ATTITUDE SCALE SCORES  
 WITH THE METROPOLITAN ACHIEVEMENT  
TOTAL READING TEST SCORES

Score	Number	Mean	Standard Deviation	Pearson Correlation Coefficient	t
<u>CMI Attitude Scale</u>	171	30.76	6.36	.48	*7.12
<u>Total Reading Test</u>	171	88.70	22.53		

\*p<.01

the 171 student respondents had a mean CMI Attitude Scale score of 30.76 and a mean Metropolitan Achievement Total Mathematics Test score of 90.18. The Pearson product-moment correlation coefficient was .63, and t ratio was 10.5, with 169 degrees of freedom,  $t(169)=10.5$ ,  $p<.01$ . This finding supports the statement that there is a significant correlation, at the .01 level, between CMI Attitude Scale scores and scores received on the Metropolitan Achievement Total Mathematics Test. Those students who scored higher on the CMI Attitude Scale also scored higher on the Metropolitan Achievement Total Mathematics Test.

A comparison of the CMI Attitude Scale score and the Parents' Occupation score is shown in Table X. In the comparison of the scores, the 171 student respondents had a mean CMI Attitude Scale score of 30.76 and a mean Parents' Occupation score of 62.70. The Pearson product-moment correlation coefficient was .17, and the t ratio was 2.28, with 169 degrees of freedom,  $t(169)=2.28$ ,  $p<.05$ . This finding supports the statement that there is a significant correlation, at the .05 level, between CMI Attitude Scale scores and the scores assigned to Parents' Occupations. Those students who scored higher on the CMI Attitude Scale also had parents with occupations that were rated higher on the Parents' Occupation Scale.

TABLE IX  
 COMPARISON OF CMI ATTITUDE SCALE SCORES WITH  
 THE METROPOLITAN ACHIEVEMENT TOTAL  
MATHEMATICS TEST SCORES

Score	Number	Mean	Standard Deviation	Pearson Correlation Coefficient	t
<u>CMI Attitude Scale</u>	171	30.76	6.36	.63	*10.50
<u>Total Mathematics Test</u>	171	90.18	21.42		

\*p<.01



TABLE X  
 COMPARISON OF CMI ATTITUDE SCALE SCORES  
 WITH PARENTS' OCCUPATION SCORES

Score	Number	Mean	Standard Deviation	Pearson Correlation Coefficient	t
<u>CMI Attitude Scale</u>	171	30.76	6.36	.17	*2.28
<u>Parents' Occupation</u>	171	62.70	21.25		

\*p<.05

## Research Questions Tested Using Phi Coefficient Analysis

Tables XI and XII present the results of analyzing research questions seven and eight using the Phi coefficient.

Data in Table XI illustrates the comparison of a career choice in the construction industry with the influence on the decision provided by an Industrial Arts program. In the comparison of the programs' influence, 84 students responded that they had completed the WOC program. Forty-two (50 percent) of the students indicated that they were considering a career in the construction industry. Eighty-seven of the students responded that they had completed the Traditional Industrial Arts Program. Thirty-one (43 percent) of the 87 students indicated that they were considering a career in the construction industry. The Phi coefficient was .15. The corrected Chi square was 3.04, with 1 degree of freedom,  $\chi^2 = 3.04$ ,  $p > .05$ . This indicates that there is no significant difference in choosing a career in the construction industry between those students who completed the WOC program and those students who completed the Traditional Industrial Arts Program.

Table XII presents the comparison of simply making a career choice with the influence on the decision provided by an Industrial Arts program. In the comparison of the programs' influence, 84 students responded that they had completed the WOC program. Forty-nine (58 percent) of the 84 students indicated that they had made a career choice.

Thirty-eight (43 percent) of the 87 respondents who had completed the Traditional Industrial Arts Program indicated that they had made a career choice. The Phi coefficient was .15. The corrected Chi square was 3.11, with 1 degree of freedom,  $X^2 = 3.11$ ,  $p .05$ . This indicates that there is no significant difference in making a career choice decision between those students who completed the WOC program and those students who completed the Traditional Industrial Arts Program.

#### Summary of Results

Summarizing the results of statistical testing reveals that half of the correlations were significant at the .05 level of confidence. Based on the analysis procedures the following statements can be made:

1. There is a significant relationship between CMI Attitude Scale scores and the influence of an Industrial Arts program.
2. There is not a significant relationship between scores on the Metropolitan Achievement Total Reading Test and the influence of an Industrial Arts program.
3. There is not a significant relationship between scores on the Metropolitan Achievement Total Mathematics Test and the influence of an Industrial Arts program.
4. There is not a significant relationship between

TABLE XI

COMPARISON OF CAREER CHOICE IN THE CONSTRUCTION  
INDUSTRY TO AN INDUSTRIAL ARTS  
PROGRAM'S INFLUENCE

	Number in Program			Phi Coefficient	Chi Square
	WOC	Traditional	Total		
Yes	42	31	73	.15	3.04
No	42	56	98		
Total	84	87	171		

TABLE XII

COMPARISON OF A CAREER CHOICE DECISION TO AN  
INDUSTRIAL ARTS PROGRAM'S INFLUENCE

	Number in Program			Phi Coefficient	Chi Square
	WOC	Traditional	Total		
Yes	49	38	87	.15	3.11
No	35	49	84		
Total	84	87	171		

CMI Attitude Scale scores and students work experiences.

5. There is a significant relationship between CMI Attitude Scale scores and Metropolitan Achievement Total Reading Test scores.
6. There is a significant relationship between CMI Attitude Scale scores and Metropolitan Achievement Total Mathematics Test scores.
7. There is not a significant relationship between choosing a career in the construction industry and the influence of an Industrial Arts program.
8. There is not a significant relationship between making a career choice and the influence of an Industrial Arts program.
9. There is a significant relationship between CMI Attitude Scale scores and Parents' Occupation scores.
10. There is a significant relationship between Parents' Occupation scores and the completion of an Industrial Arts program.

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Summary

The purpose of this study was to determine the relationship of influence that the WOC program provided for the development of career maturity as compared to influence provided by the Traditional Industrial Arts Program.

The main research effort was addressed to the problem of providing needed information to evaluate the effectiveness of the WOC program regarding influence on career maturity.

Career maturity was measured through a standardized instrument, the Career Maturity Inventory Attitude Scale. An ex-post-facto research method was employed in data collection. The respondents included in the study were limited to those ninth grade Industrial Arts students in two Oklahoma City Public High Schools who had completed an Industrial Arts course at the middle school level. A survey of Northwest Classen High School and Southeast High School resulted in a combined total of 171 useable responses.

The following eight personal data items were reques-

ted: (1) sex, (2) school presently attending, (3) middle school attended, (4) indication of completion of WOC or Traditional Industrial Arts Program, (5) middle school Industrial Arts teacher's name, (6) type of work experience, if any, (7) choice of a career and (8) parents' or guardians' occupation. This information along with achievement test scores from existing school records and the CMI score provided input for statistical analysis.

The statistical analysis consisted of the biserial correlation coefficient, Pearson product-moment correlation coefficient, and the Phi correlation coefficient. An independent t test was used to determine significance among the means at the .05 level of confidence for those questions analyzed using the biserial and Pearson correlation coefficients. The Phi coefficient was converted to a corrected Chi square to determine significance at the .05 level of confidence. These techniques were utilized on the following ten research questions which had been formulated for consideration and study:

- (1) Was there a significant relationship between the total score on the Career Maturity Inventory Attitude Scale and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?
- (2) Was there a significant relationship between the total score on the Metropolitan Achievement Total Reading Test and the Industrial Arts Program's



influence on Oklahoma City Public Schools' Industrial Arts students?

- (3) Was there a significant relationship between the total score on the Metropolitan Achievement Total Mathematics Test and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?
- (4) Was there a significant relationship between work experience and the total score on the Career Maturity Inventory Attitude Scale of Oklahoma City Public Schools' Industrial Arts students?
- (5) Was there a significant relationship between the total score on the Metropolitan Achievement Total Reading Test and the total score on the Career Maturity Inventory Attitude Scale of the Oklahoma City Public Schools' Industrial Arts students?
- (6) Was there a significant relationship between the total score on the Metropolitan Achievement Total Mathematics Test and the total score on the Career Maturity Inventory Attitude Scale of the Oklahoma City Public Schools' Industrial Arts students?
- (7) Was there a significant relationship between the choice of a career in the construction industry and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?
- (8) Was there a significant relationship between mak-

ing a career choice and the Industrial Arts Program's influence on Oklahoma City Public Schools' Industrial Arts students?

- (9) Was there a significant relationship between parents' occupation and the total score on the Career Maturity Inventory Attitude Scale obtained by Oklahoma City Public Schools' Industrial Arts students?
- (10) Was there a significant relationship between parents' occupation and the Industrial Arts program completed by the Oklahoma City Public Schools' Industrial Arts students?

Results of the analysis for the ten research questions were tested for significance at the .05 level of confidence. This test indicated five of the ten correlations were significant. Those correlations which were significant included: (1) the relationship between CMI Attitude Scale scores and the influence of an Industrial Arts program, (2) the relationship between CMI Attitude Scale scores and both reading and (3) mathematics achievement, (4) the relationship between CMI Attitude Scale scores and Parents' Occupation scores and (5) the relationship between Parents' Occupation scores and the completion of an Industrial Arts program.

Those correlations which were not significant included: (1) the relationship between both reading achievement and (2) mathematics achievement test scores and the

influence of an Industrial Arts program, (3) the relationship between CMI Attitude Scale scores and work experience, (4) the relationship between choosing a career in the construction industry and the influence of an Industrial Arts program and (5) the relationship of making a career choice and the influence of an Industrial Arts program.

### Conclusions

As a result of this study, it can be concluded the innovative Industrial Arts program, WOC, does make a significant contribution toward the development of career maturity. This finding is consistent with Tennyson's (Magisos, ed., 1973) concept of career exploration when he said the main objective of career exploration is ". . . to provide the student with experiences that enable him to look at himself and clarify his motives (p. 104)."

Young (1972), in a study in Columbus, Ohio, found that the WOC was quite effective in interesting young people in the world of work.

Forrest and Others (n.d.) reinforce the effectiveness of career exploration's influence on career maturity when they say taking advantage of opportunities for vocational planning and receiving occupational information are related to career maturity.

Crites (1973d) found evidence that some didactic interventions did improve CMI Attitude Scale scores. The results of comparing the Traditional Industrial Arts

Program's CMI Attitude Scale scores to the WOC Program's scores indicate this evidence is meaningful as illustrated in Figure 5.

Contrary to Crites' claim, this study provided sufficient substantiation that socio-economic level does influence career maturity level. Crites (1973d) indicated that the CMI Attitude Scale is so written that differences in socio-economic status do not have a significant relationship with scores on the Attitude Scale.

There was a significant correlation between the Parents' Occupation scores and the Industrial Arts program. This correlation may explain the deviation from Crites' previous findings that socio-economic status does not influence Attitude Scale scores. A coincidence may exist, placing higher socio-economic level students in the WOC program and, actually, the program may be the major influence on the score. This explanation is in accordance with other findings of Crites (1973d) that special programs do, in some cases, improve career maturity.

The conclusion can be drawn that career maturity and scholastic achievement are related. There was a significant correlation between CMI Attitude Scale scores and both reading and mathematic achievement test scores. The computer print out reported a significant correlation between these two at the .0001 level. Crites (1973d) states, ". . . educational achievement and career maturity are related to each other."

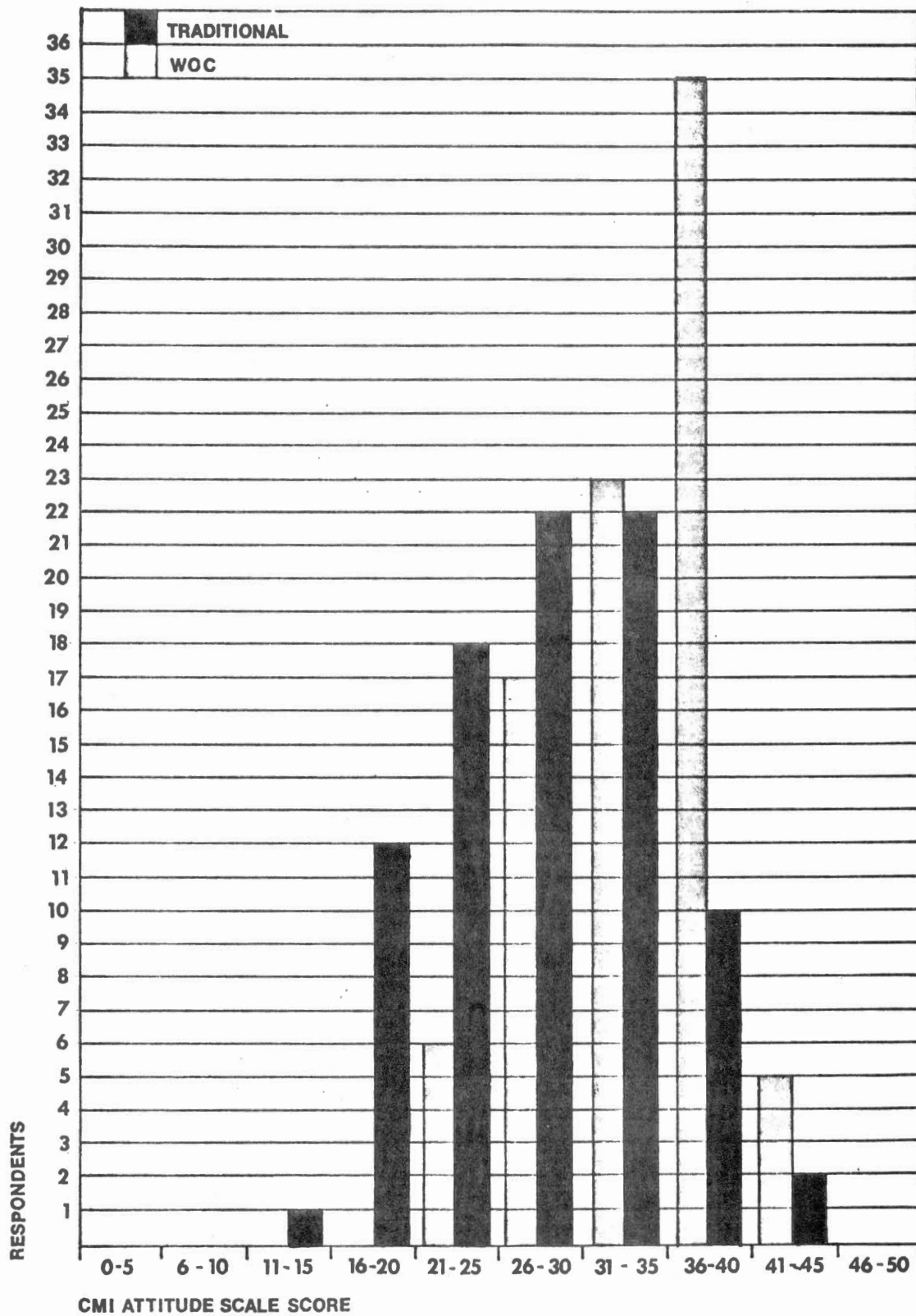


Figure 5. Histogram of CMI scores by program.

There was not a significant relationship between either reading or mathematics achievement test scores and the Industrial Arts program completed by the respondents in this study. This fact allows the conclusion that the two groups were matched on achievement level. This is an important factor as indicated by Crites (1973d) in the above statement.

Another conclusion resulting from data analysis is that the CMI Attitude Scale score is not improved by work experience. The correlation between the two was not significant at the .05 level.

There was not an acceptable significance level of .05 reached in the relationship between choosing a career in the construction industry and the influence of an Industrial Arts program. The significance level for this correlation was .08. A comparison of percentages from this data reveals some interesting information. Nearly 58 percent of those respondents that indicated they were considering a career in the construction industry had completed the WOC program. WOC students interested in a construction career made up nearly 25 percent of all respondents. The Traditional Industrial Arts Program students interested in a construction career comprised 18 percent of the total respondents.

The response to a career decision was similar to that of the interest in a construction career. There was no significant relationship at the .05 level between a career

decision and the influence of an Industrial Arts program. The percentages again favor the WOC; 56 percent of the respondents who had made a career choice had completed the WOC program compared to 44 percent who had completed the Traditional Industrial Arts Program. Twenty-eight percent of all respondents indicated they had made a career choice also had completed the WOC, while only 22 percent of the total respondents indicated a career choice and completion of the Traditional Industrial Arts Program.

#### Additional Information Resulting From The Study

The following information was not a part of the study but was brought to the attention of the researcher during the data collection.

The general public's concern for career education availability in the public schools is increasing. Public school parents have voiced an increasing interest in career education as evidenced by the Gallup polls of 1973 and 1976 (Gallup, 1973, 1976). Concern is also being expressed in Oklahoma City according to public school administrators there.

There is interest, at both the local and state levels, in a study similar to this one for the WOM. This would determine the relationship between the WOM phase of the IACP program and career maturity.

A decision was made to teach the WOC and WOM in all the middle schools in Oklahoma City by the school year 1978-79.

Concern has been expressed by administrators in the system for training availability to meet the demand generated by the decision. According to the Oklahoma City Public School administrators the keen competition for jobs in metropolitan areas, such as Oklahoma City, has been responsible for general public interest in career education. This was also a factor in the decision to teach the WOC and WOM in all middle schools in Oklahoma City.

Kansas requires completion of a WOC or WOM workshop for middle school Industrial Arts certification. This also creates a demand on teacher education institutions to provide this program.

#### Recommendations

Several recommendations appear to be appropriate as a result of the study. The following recommendations are aimed at curriculum improvement and enhancement of the exploratory career education concept:

1. Teachers, principals, curriculum specialists and superintendents who consider career maturity development an important outcome of Industrial Arts programs should consider the WOC program. This study indicated that, at the 0.01 level, there is a significant relationship between a student's completion of an Industrial Arts program and career maturity.
2. Teacher educators should include innovative career



education programs in their curriculums. Goals, purposes, objectives and outcomes of these and the traditional programs should be compared.

Future teachers could make use of information such as that resulting from this study in making value judgments on relevance of Industrial Arts programs.

3. Teacher educators should offer summer institutes, inservice training programs and workshops to train new and experienced teachers to meet the demand for innovative program teachers. The Oklahoma City Public Schools plan to fully adopt the WOC and WOM programs in all the middle schools by 1978.
4. The general public should be made aware of innovative programs such as the WOC to keep them informed of the schools' efforts to provide career education. This need was identified by the Gallup polls of 1973 and 1976, and at the local level by parental requests.
5. A replication of this study should be made with the higher socio-economic status respondents in the Traditional Industrial Arts Program. This would provide information for determining the influence of this variable on career maturity. This study indicated a significant relationship between socio-economic status and career maturity. Previous studies by Crites (1973d) indicated that differences in socio-economic status do not have a

significant relationship with scores on the Career Maturity Inventory Attitude Scale.

6. A replication of this study on as large a scale as is practically feasible should be conducted to determine the relationship of a student's completion of the WOC program and career maturity in other school systems. This would serve as a test of reliability of the results of this study.
7. A similar study should be conducted for the WOM, the second phase of the IACP program, to evaluate its influence on career maturity. Interest in such a study has been expressed by administrators at both local and state levels.

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## APPENDICES

APPENDIX A  
INSTRUMENT RESPONSE FORM

NAME \_\_\_\_\_

MALE \_\_\_\_\_ FEMALE \_\_\_\_\_ ATS (LEAVE BLANK) TR \_\_\_\_\_ TM \_\_\_\_\_

DATE \_\_\_\_\_ SCHOOL \_\_\_\_\_

WHAT MIDDLE SCHOOL DID YOU ATTEND? \_\_\_\_\_

HAVE YOU COMPLETED THE WORLD OF CONSTRUCTION PROGRAM IN YOUR  
MIDDLE SCHOOL INDUSTRIAL ARTS CLASS? YES \_\_\_\_\_ NO \_\_\_\_\_

IF YES, WHAT GRADE? 7TH \_\_\_\_\_ 8TH \_\_\_\_\_

WHAT WAS YOUR WORLD OF CONSTRUCTION OR INDUSTRIAL ARTS TEACHER'S  
NAME? \_\_\_\_\_

HAVE YOU HAD ANY TYPE OF WORK EXPERIENCE? (A JOB) YES \_\_\_\_\_ NO \_\_\_\_\_

IF YES, WHAT TYPE OF WORK? \_\_\_\_\_

AT THIS TIME ARE YOU CONSIDERING A CAREER IN THE CONSTRUCTION  
INDUSTRY? YES \_\_\_\_\_ NO \_\_\_\_\_

HAVE YOU DECIDED ON A CAREER? \_\_\_\_\_

WHAT ARE YOUR PARENTS' OR GUARDIANS' OCCUPATIONS?

FATHER \_\_\_\_\_ MOTHER \_\_\_\_\_

GUARDIAN \_\_\_\_\_ GUARDIAN \_\_\_\_\_

# CMI

1	<u>T</u>	<u>F</u>	5	<u>T</u>	<u>F</u>	9	<u>T</u>	<u>F</u>	16	<u>T</u>	<u>F</u>	23	<u>T</u>	<u>F</u>	30	<u>T</u>	<u>F</u>	37	<u>T</u>	<u>F</u>	44	<u>T</u>	<u>F</u>
2	<u>T</u>	<u>F</u>	6	<u>T</u>	<u>F</u>	10	<u>T</u>	<u>F</u>	17	<u>T</u>	<u>F</u>	24	<u>T</u>	<u>F</u>	31	<u>T</u>	<u>F</u>	38	<u>T</u>	<u>F</u>	45	<u>T</u>	<u>F</u>
3	<u>T</u>	<u>F</u>	7	<u>T</u>	<u>F</u>	11	<u>T</u>	<u>F</u>	18	<u>T</u>	<u>F</u>	25	<u>T</u>	<u>F</u>	32	<u>T</u>	<u>F</u>	39	<u>T</u>	<u>F</u>	46	<u>T</u>	<u>F</u>
4	<u>T</u>	<u>F</u>	8	<u>T</u>	<u>F</u>	12	<u>T</u>	<u>F</u>	19	<u>T</u>	<u>F</u>	26	<u>T</u>	<u>F</u>	33	<u>T</u>	<u>F</u>	40	<u>T</u>	<u>F</u>	47	<u>T</u>	<u>F</u>
						13	<u>T</u>	<u>F</u>	20	<u>T</u>	<u>F</u>	27	<u>T</u>	<u>F</u>	34	<u>T</u>	<u>F</u>	41	<u>T</u>	<u>F</u>	48	<u>T</u>	<u>F</u>
						14	<u>T</u>	<u>F</u>	21	<u>T</u>	<u>F</u>	28	<u>T</u>	<u>F</u>	35	<u>T</u>	<u>F</u>	42	<u>T</u>	<u>F</u>	49	<u>T</u>	<u>F</u>
						15	<u>T</u>	<u>F</u>	22	<u>T</u>	<u>F</u>	29	<u>T</u>	<u>F</u>	36	<u>T</u>	<u>F</u>	43	<u>T</u>	<u>F</u>	50	<u>T</u>	<u>F</u>



**APPENDIX B**

**RAW DATA**

TABLE XIII  
DISTRIBUTION OF THE RESPONDENTS BY SCHOOL

School	Respondents
Northwest Classen High School	85
Southeast High School	86
Total	171

TABLE XIV  
DISTRIBUTION OF THE RESPONDENTS BY PROGRAM

Program	Respondents
WOC	84
Traditional Industrial Arts	87
Total	171

TABLE XV  
DISTRIBUTION OF THE RESPONDENTS BY WORK  
EXPERIENCE AND PROGRAM

Work Experience	Program		Total
	WOC	Traditional	
Yes	60	72	132
No	24	15	39
Total	84	87	171

TABLE XVI  
DISTRIBUTION OF RESPONDENTS BY CONSTRUCTION  
CAREER CHOICE AND PROGRAM

Career In Construction	Program		Total
	WOC	Traditional	
Yes	42	31	73
No	42	56	98
Total	84	87	171

TABLE XVII  
DISTRIBUTION OF RESPONDENTS BY CAREER  
DECISION AND PROGRAM

Career Decision Made	Program		Total
	WOC	Traditional	
Yes	49	38	87
No	35	49	84
Total	84	87	171

TABLE XVIII  
 DISTRIBUTION OF RESPONDENTS BY CMI ATTITUDE  
SCALE SCORE AND PROGRAM

CMI Score	Number	WOC	Total	Traditional	Total	Total Score
43	1	0	0	1	43	43
41	4	3	123	1	41	164
40	4	3	120	1	40	160
39	3	3	117	0	0	117
38	16	9	342	7	266	608
37	9	8	296	1	37	333
36	13	12	432	1	36	468
35	9	5	175	4	140	315
34	11	4	136	7	238	374
33	6	4	132	2	66	198
32	11	5	160	6	192	352
31	8	5	155	3	93	248
30	7	4	120	3	90	210
29	6	1	29	5	145	174
28	8	3	84	5	140	224
27	12	6	162	6	162	324
26	6	3	78	3	78	156
25	5	2	50	3	75	125
24	7	1	24	6	144	168
23	2	0	0	2	46	46
22	4	2	44	2	44	88
21	6	1	21	5	105	126
20	3	0	0	3	60	60
19	5	0	0	5	95	95
18	1	0	0	1	18	18
17	3	0	0	3	51	51
15	1	0	0	1	15	15
Total --	171	84	2800	87	2460	5260
Mean --	---	---	33.33	---	28.28	30.76

TABLE XIX

DISTRIBUTION OF RESPONDENTS BY METROPOLITAN ACHIEVEMENT  
TOTAL READING TEST AND PROGRAM

Total Reading Score	Number	WOC	Total	Traditional	Total	Total Score
117	25	8	936	17	1989	2925
116	5	4	464	1	116	580
115	2	1	115	1	115	230
114	3	1	114	2	228	342
112	1	1	112	0	0	112
111	9	4	444	5	555	999
110	1	1	110	0	0	110
109	1	1	109	0	0	109
108	4	1	108	3	324	432
103	3	2	206	1	103	309
102	2	0	0	2	204	204
101	1	1	101	0	0	101
100	6	4	400	2	200	600
99	4	1	99	3	297	396
98	4	2	196	2	196	392
97	1	0	0	1	97	97
96	4	2	192	2	192	384
93	1	0	0	1	93	93
92	1	0	0	1	92	92
91	2	2	182	0	0	182
90	6	2	180	4	360	540
88	8	3	264	5	440	704
87	5	3	261	2	174	435
86	3	1	86	2	172	258
85	4	3	255	1	85	340
84	2	2	168	0	0	168
81	3	2	162	1	81	243
79	5	5	395	0	0	395
78	4	3	234	1	78	312
76	3	1	76	2	152	228
74	5	4	296	1	74	370
73	3	1	73	2	146	219
72	3	1	72	2	144	216
69	2	0	0	2	138	138
68	5	5	340	0	0	340
67	1	0	0	1	67	67
66	2	1	66	1	66	132
64	1	0	0	1	64	64
62	4	1	62	3	186	248
61	2	1	61	1	61	122
60	1	1	60	0	0	60
56	1	0	0	1	56	56
54	1	1	54	0	0	54
52	1	1	52	0	0	52
51	2	1	51	1	51	102
50	4	1	50	3	150	200
49	2	1	49	1	49	98
45	1	0	0	1	45	45
41	2	0	0	2	82	82
40	1	1	40	0	0	40
38	1	0	0	1	38	38
36	1	1	36	0	0	36
32	1	1	32	0	0	32
Total---	171	84	7,363	87	7,804	15,169
Mean ---	---	---	87.65	---	89.70	88.71

TABLE XX

DISTRIBUTION OF RESPONDENTS BY METROPOLITAN ACHIEVEMENT  
TOTAL MATHEMATICS TEST AND PROGRAM

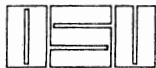
Total Math Score	Number	WOC	Total	Traditional	Total	Total Score
117	21	9	1053	12	1404	2457
116	2	1	116	1	116	232
114	3	2	227	1	114	342
113	5	1	113	4	452	565
110	8	3	339	5	550	880
109	1	0	0	1	109	109
108	6	1	108	5	540	648
105	1	1	105	0	0	105
104	7	3	312	4	416	728
103	4	3	309	1	103	412
102	5	1	102	4	408	510
100	6	4	400	2	100	600
99	2	2	198	0	0	198
98	4	3	294	1	98	392
97	5	2	194	3	291	485
96	6	5	480	1	96	576
93	1	1	93	0	0	93
92	2	1	92	1	92	184
91	3	1	91	2	182	273
90	5	4	360	1	90	450
89	2	2	178	0	0	178
88	1	1	88	0	0	88
87	9	4	348	5	435	783
85	6	4	340	2	170	510
81	5	2	162	3	243	405
80	2	1	80	1	80	160
79	2	1	79	1	79	158
78	3	1	78	2	156	234
76	4	2	152	2	152	304
75	1	0	0	1	75	75
72	4	4	288	0	0	288
69	4	0	0	4	276	276
67	3	1	67	2	134	201
66	2	0	0	2	132	132
64	2	1	64	1	64	128
62	1	1	62	0	0	62
61	3	1	61	2	122	183
60	1	1	60	0	0	60
57	2	2	114	0	0	114
56	1	1	56	0	0	56
55	3	3	165	0	0	165
54	1	0	0	1	54	54
53	1	0	0	1	53	53
52	1	0	0	1	52	52
51	1	0	0	1	51	51
50	4	1	50	3	150	200
49	1	0	0	1	49	49
45	1	1	45	0	0	45
43	1	0	0	1	43	43
41	1	0	0	1	41	41
33	1	1	33	0	0	33
Total ---	171	84	7,548	87	7,872	5,420
Mean ---	---	---	89.86	---	90.48	90.18

TABLE XXI  
 DISTRIBUTION OF RESPONDENTS BY PARENTS'  
 OCCUPATION SCORE AND PROGRAM

Occupation Score	Number	WOC	Total	Traditional	Total	Total Score
98	2	1	98	1	98	196
97	1	1	97	0	0	97
96	3	3	288	0	0	288
95	1	0	0	1	95	95
92	4	3	276	1	92	368
90	2	0	0	2	180	180
89	8	6	534	2	178	712
88	3	1	88	2	176	264
87	2	1	87	1	87	174
86	7	2	172	5	430	602
85	3	2	170	1	85	255
84	3	1	84	2	168	252
82	4	3	246	1	82	328
80	1	1	80	0	0	80
79	3	0	0	3	237	237
78	5	4	312	1	78	390
77	1	1	77	0	0	77
76	1	0	0	1	76	76
75	1	1	75	0	0	75
74	8	2	148	6	444	592
73	6	4	292	2	146	438
71	2	1	71	1	71	142
69	1	1	69	0	0	69
68	5	3	204	2	136	340
67	2	0	0	2	134	134
65	3	0	0	3	195	195
64	3	2	128	1	64	192
62	3	1	62	2	124	156
61	19	15	915	4	244	1159
60	2	1	60	1	60	120
59	2	1	59	1	59	118
57	1	1	57	0	0	57
55	1	0	0	1	55	55
54	1	1	54	0	0	54
52	7	2	104	5	260	364
48	1	0	0	1	48	48
46	1	0	0	1	46	46
44	5	3	132	2	88	220
42	1	0	0	6	42	42
40	13	6	240	7	280	520
38	5	1	38	4	152	190
37	2	0	0	2	74	74
36	4	1	36	3	108	144
35	4	2	70	2	70	140
33	1	0	0	1	33	33
31	2	1	31	1	31	62
28	4	2	56	2	56	112
22	1	0	0	1	22	22
10	1	1	20	0	0	20
18	3	1	18	2	36	54
17	1	0	0	1	17	17
16	1	0	0	1	16	16
Total ---	171	84	5548	87	5173	10721
Mean ---	---	---	66.04	---	59.46	62.70



APPENDIX C  
LETTERS OF APPRECIATION



# Oklahoma State University

SCHOOL OF OCCUPATIONAL AND ADULT EDUCATION

STILLWATER, OKLAHOMA, 74074  
CLASSROOM BUILDING 406  
(405) 372-6211, EXT. 6287

April 1, 1977

Mr. Harold Meredith, Principal  
Southeast High School  
5401 Shields  
Oklahoma City, OK 73129

Dear Mr. Meredith:

Thank you for allowing me to conduct the Industrial Arts Study at Southeast High School this week.

Your staff, Mr. Easlick, Mr. Shields, Mrs. Kellogg and Mrs. Tilberg were very helpful in communicating with the students, which I certainly appreciated.

The data collection went very smoothly and I wanted to express my appreciation to you. Thank you again.

Sincerely,



Emmet Osgood,  
Graduate Student

Similar letters of appreciation were sent to the following people:

Mrs. Irma Bottger, Secretary, Northwest Classen High School  
Mr. Jim Cox, Woods Instructor, Northwest Classen High School  
Dr. June Dawkins, Principal, Northwest Classen High School  
Mr. Adrian Easlick, Woods Instructor, Southeast High School  
Mr. Gary Hornish, Drafting Instructor, Northwest Classen High School  
Mrs. Anna Grace Kellogg, Counselor, Southeast High School  
Dr. Virginia Lamb, Vocational Education Coordinator, Oklahoma City Public Schools  
Mr. Harold Meredith, Principal, Southeast High School  
Mr. Loren Meritt, Metals Instructor, Northwest Classen High School  
Mr. Troy Milburn, Counselor, Northwest Classen High School  
Mrs. Barbara Mitchell, Research Associate, Oklahoma City Public Schools  
Mr. John Sadberry, Director of Secondary Schools, Oklahoma City Public Schools  
Mr. Tony Scott, Electronics Instructor, Northwest Classen High School  
Mr. Marvin Shields, Head of Industrial Arts, Southeast High School  
Mrs. Kay Tilberg, Activities Director, Southeast High School  
Mr. Harold Wood, Consultant for Industrial Arts, Oklahoma City Public Schools

APPENDIX D  
OKLAHOMA CITY PUBLIC SCHOOLS RESEARCH  
POLICY AND APPLICATION FORMS

OKLAHOMA CITY PUBLIC SCHOOLS  
DEPARTMENT OF TECHNICAL SERVICES  
RESEARCH AND EVALUATION UNIT

POLICIES AND PROCEDURES FOR CONDUCTING RESEARCH IN THE  
OKLAHOMA CITY PUBLIC SCHOOLS

Recognizing the necessity for research that will help to improve the education of children, this system will attempt to cooperate with the endeavors of individuals or agencies to meet this objective. The following are policies and procedures for requesting approval to conduct research in this district.

1. Any study that involves data collection through observations, interviews, surveys, tests, etc., from students and personnel in the Oklahoma City Public Schools is defined as "research" and is subject to the present policies and procedures.
2. Any individual or group must submit application for approval to collect information for:
  - a. Individual research
  - b. Class projects
  - c. Master's theses
  - d. Doctoral dissertations
  - e. Test norming
  - f. Other related studies
3. Exempt for applying are the following:
  - a. Employees of the Oklahoma City Public Schools, when conducting official studies assigned by the Oklahoma City Board of Education and/or Administration. These studies are usually conducted by the Research and Evaluation Unit of the Department of Technical Services.
  - b. Department of Pupil Services personnel who are assigned to administer standardized tests for purposes of placement and reporting.
  - c. Local school staff members who are collecting data, testing students, etc., as part of their regularly assigned administrative or instructional duties.

(If these same employees classify in categories listed in 2 a-f, s/he must also apply.)

WHAT IS THE PROCEDURE FOR MAKING APPLICATION?

1. Complete in detail four copies of the form, RESEARCH APPLICATION TO OKLAHOMA CITY PUBLIC SCHOOLS, and return them to the following address:

Research and Evaluation Unit  
Technical Services  
Oklahoma City Public Schools  
900 North Klein  
Oklahoma City, Oklahoma 73106

2. A graduate student must obtain the signature of his major advisor on the application before the request will be considered.

3. If the instrument(s) has been standardized nationally and is listed in Buros' Handbook, then furnishing the name and form of the instrument is sufficient. A copy of original instruments must be enclosed, along with any instruments, standardized ones included, which deal with attitudes, beliefs, values, etc.

WHAT ARE THE CRITERIA FOR APPROVING STUDIES?

A research proposal that meets the following criteria will be considered for approval:

1. Is not in violation of the Family Educational Rights and Privacy Act of 1974.
2. Must attempt to improve the quality of education for children in the classroom or other learning activities.
3. Is not offensive to the values and standards of the school community, e.g., does not inquire into areas of religion, sex, home or family life.
4. Does not seriously interrupt the regular school program.
5. Makes no undue demands upon the time of students, teachers, administrators, or other school personnel.
6. Is planned well in advance to avoid conflicts in scheduling; no studies will be approved after April 1st.
7. Respects the confidentiality of personal data concerning pupils and employees.
8. Does not require that school personnel administer tests, collect data, perform analyses, etc.
9. Involves no expense to the Oklahoma City Schools, e.g., no instruments will be purchased by this system.
10. Will be supervised by the building principal or other personnel designated by the Oklahoma City Schools.

A copy of the final thesis or report and abstracts for each building principal concerned will be forwarded to the Research and Evaluation Unit at the completion of the study. Failure to do so will result in the dean of the applicant's college being informed of the oversight. Further studies will not be approved until the applicants comply with this criterion.

WHAT SERVICES ARE PROVIDED BY THE RESEARCH AND EVALUATION UNIT?

The Research and Evaluation Unit of the Department of Technical Services, Oklahoma City Public Schools will be responsible for:

1. Acting as the receiving agent for all applications to conduct research in the Oklahoma City Public Schools.
2. Maintaining all records relating to research applications.
3. Selecting the Screening Committee.
4. Notifying applicants in writing as to the decisions of the Screening Committee.

5. Re-submitting to the Screening Committee any applications which have been modified after a previous disapproval.
6. After a study has been approved, assisting the applicant in making the necessary arrangements to conduct the study.

WHAT ARE THE FUNCTIONS OF THE RESEARCH SCREENING COMMITTEE?

1. At least three persons who would be directly concerned with the study are selected. Persons to be selected are directors, assistant superintendents, coordinators, or consultants. The Director of Elementary, Middle, or High Schools must be one of the members of each committee.

Employees of the Research and Evaluation Unit are not eligible to participate as members of the Screening Committee. This unit is responsible for the process and, therefore, must remain objective.

2. A memo from the Research Unit along with application forms and instruments are sent to each member of the committee. This memo summarizes briefly the involvement of the District in the study.
3. Each committee member is given one week to approve, disapprove, or suggest changes in the study.
4. The Screening Committee reviews each application in light of:
  - a. Criteria in the present policy and procedures statement.
  - b. Extensive knowledge of the educational environment in which the research is to be conducted.
  - c. Awareness of other constraints on the school system, site, or classroom, e.g., legal decisions, State Regulations, Board policies, and parental interests.
5. The vote must be unanimous to approve a study.
6. The decision of the Committee is never disregarded. Another Committee will not be formed to approve a rejected study.
7. If the Committee cannot approve a proposal as submitted, it may take one or more of the following actions:
  - a. Suggest that certain changes be made in the procedures and/or design and ask that the applicant submit a modified proposal.
  - b. Invite the applicant to meet with the Committee member(s) to discuss the proposal.
  - c. Deny approval on the grounds that, in the judgment of the Screening Committee, it would be inappropriate to conduct the proposed research study. Criterion deficiencies will be outlined for the applicant.

WHAT FOLLOW-UP MAY BE DONE BY AN APPLICANT WHOSE RESEARCH REQUEST HAS BEEN DISAPPROVED?

1. If the reason(s) for disapproval need further clarification, it will be the responsibility of the applicant to initiate conferences with members of the Screening Committee.
2. When changes in the procedure and/or design of the study have been suggested and may result in later approval of the study, the applicant may submit a modified proposal.
3. Modified proposals will be processed in the same manner as first applications.





APPENDIX E  
MECHANICAL DETAILS OF RESEARCH PROCEDURE

## MECHANICAL DETAILS OF RESEARCH PROCEDURES

In the spring of 1976 the coordinator of Industrial Arts in the Oklahoma City Public Schools was contacted about the feasibility of conducting a study to compare the World of Construction (WOC) program to the Traditional Industrial Arts Program in the Oklahoma City Public Schools. At that time he indicated a strong interest in the study and offered to help obtain approval for the study.

Preparing the proposal for the study required a number of inquiries concerning details of the two programs such as appropriate schools to be surveyed, the date the WOC was started, the source of funds for the program, and etc. When these inquiries were made there was no indication of any problem in securing approval for the study.

Approval for the study given by the Oklahoma State University graduate committee in November of 1976. Plans were made to gather the data early in the spring of 1977.

A call was made to the Industrial Arts Coordinator in January to determine the exact procedure to use and the personnel to contact regarding research in the Oklahoma City Public Schools.

A research application form was requested from the Research Department at the Central Office of the Oklahoma City Public Schools. The form was completed and approval for submission granted by the graduate committee chairman at OSU. The form was submitted on February 9, 1977.

Copies of the Career Maturity Inventory and use man-

uals were ordered from CTB/McGraw-Hill on February 3, 1977, allowing ample time for order processing, shipping and etc. A check for twenty dollars was enclosed with the order; including an excess of \$4.25 for postage, handling and insurance.

Eleven days later the order was returned stating there was an underpayment of \$1.83; instructions were given to resubmit the order with the correct amount. Why wasn't the order sent balance COD? Who knows? The order was resubmitted February 14 with a check for the proper amount.

When the instruments had not arrived on February 25, a long distance phone call was made to Monterey, California, to check the status of the order. The clerk reported, "The order had been shipped parcel post a few days earlier."

February 25, the same day, the mail brought some good news and some bad news. The good news first; the order from McGraw-Hill arrived, a wait of half an hour would have saved a long distance call. The bad news; a letter arrived from the Oklahoma City Public Schools' Research Department stating that only a part of the study had been approved. Achievement test scores could not be released, and one principal declined having his school participate in the study.

Immediately an appeal was set in action to the Research Screening Committee. One member was out of town due to an illness in the family. Upon his return a similar problem with another member of the research department re-

sulted in an additional delay. Obligations to routine business of the school that had become backlogged during these peoples' absence postponed action on this problem a few days.

On March 10, a letter arrived stating permission was granted to conduct the study at Northeast and Southeast High Schools if parental consent was obtained for each student involved. A procedures booklet describing the policy of the Oklahoma City Board of Education in reaction to the Family Educational Rights and Privacy Act of 1974 was followed in preparing a parental consent form (Appendix F).

Meetings were scheduled with two principals on March 14, at their respective schools, one in the morning and one in the afternoon. The principal at Northeast High School welcomed the research but pointed out that there were no feeder schools to Northeast offering the WOC program. This automatically eliminated Northeast from the study. The principal at Southeast High School approved the study and contacted his staff that would be involved in the data collection.

A second appeal was made through the Central Office to reconsider the inclusion of Northwest Classen High School in the study. After a personal contact was made with the principal, permission was granted.

Previous to the actual data collection parental consent forms were distributed to the students by the Industrial Arts teachers involved.

At Northwest Classen High School qualified students were brought to the drafting room by their Industrial Arts teachers each hour to participate in the study. This method resulted in 100 percent complete and usable responses.

At Southeast High School an assembly was called to administer the survey to the students. This arrangement appeared to be ideal, but after experiencing it, the procedure used at Northwest Classen proved to be better. Students in groups of 10 to 20 are more manageable and the small size allows time to check each instrument for completion. This method resulted in slightly less than 94 percent usable and complete returns.

After all was said and done the data was in, the administrators, teachers and counselors had cooperated and a researcher was relieved.

One bit of advice for gathering data: **START EARLY!**  
If anything can cause a delay, it will.

APPENDIX F  
PARENTAL CONSENT FORM

DEAR PARENTS:

A STUDY IS BEING CONDUCTED IN THE INDUSTRIAL ARTS CLASSES TO DETERMINE THE EFFECTIVENESS OF AN INDUSTRIAL ARTS PROGRAM. YOUR CHILD'S ACHIEVEMENT TEST SCORE IS NEEDED TO FIGURE THE AVERAGE OF THE GROUP BEING STUDIED. HIS (HER) NAME WILL NOT BE RELEASED. PLEASE COMPLETE THE FORM BELOW IF WE MAY USE THE TEST SCORE IN THE STUDY.

THANK YOU FOR YOUR COOPERATION.

Oklahoma City Public Schools  
800 North Main  
Oklahoma City, Oklahoma 73105

FORM 3  
(P.L. 93-380)

CONSENT FOR RELEASE OF STUDENT INFORMATION

\*TO: \_\_\_\_\_ Address \_\_\_\_\_ Date: MAR. 1977  
(Addressee)

Reason for Request INDUSTRIAL ARTS STUDY

I hereby give my permission to release information contained in any portion, or all portions of my child's record to OKLAHOMA STATE UNIVERSITY STILLWATER  
(School or Department) (Address)

\_\_\_\_\_  
(Student's full name)

\_\_\_\_\_  
(Date of birth)

\_\_\_\_\_  
Chart number, if applicable

\_\_\_\_\_  
Signature of Parent, Legal Guardian,  
or 18 Year Old student

\*ATTENTION: According to Family Education Rights and Privacy Act of 1974 (P.L. 93-380) the Parent, Guardian or 18 Year Old student has the right to make a written request to view any records released.

Distribution: Original copy to Addressee  
Duplicate to School or  
Department making request

APPENDIX G  
PARENTS' OCCUPATION SCORES



## SCORES FOR CATEGORIES OF OCCUPATION COMPONENT

The following list has been selected from the scores of socio-economic status as reported by the U. S. Bureau of the Census (1963). This abbreviated list contains only scores for occupations included in this study.

Score	Category
92	Accountants and auditors
60	Athletes
89	Chiropractors
67	Clergymen
87	Draftsmen
97	Engineers, Aeronautical
96	Engineers, Civil
96	Engineers, Mechanical
79	Foresters and conservationists
98	Lawyers and judges
71	Nurses, professional
85	Social and welfare workers, except group
71	Surveyors
89	Teachers
80	Technicians, electrical and electronic
86	Professional, technical, and kindred workers
	Managers, officials, and proprietors -- Salaried
84	Construction
95	Manufacturing
78	Food and dairy products store
84	Other retail trade
	Managers, officials, and proprietors -- Self-
	employed
79	Construction
88	Manufacturing
54	Food and dairy products store
89	Motor vehicles and accessories retailing
75	Other retail trade
68	Automobile repair services and garages
76	All other industries
69	Cashiers
73	Dispatchers and starters, vehicle
82	Secretaries
82	Stenographers
73	Clerical and kindred workers
90	Advertising agents and salesmen
89	Insurance agents, brokers, and underwriters
20	Newsboys
86	Real estate agents and brokers
88	Manufacturing sales workers

Score	Category
85	Wholesale trade sales workers
61	Retail trade sales workers
77	Other industries sales workers
35	Carpenter
74	Electricians
82	Manufacturing Foremen, Electrical machinery, equipment and supplies
57	Glaziers
68	Machinists
79	Mechanics and repairmen, Airplane
52	Mechanics and repairmen, Automobile
52	Mechanics and repairmen, Railroad and car shop
61	Mechanics and repairmen, not elsewhere classified
37	Painters, Construction and maintenance
84	Photoengravers and lithographers
64	Plumbers and pipe fitters
22	Shoemakers and repairers, except factory
40	Tailors
68	Tinsmiths, coppersmiths, and sheet metal workers
62	Craftsmen and kindred workers
65	Bus drivers
61	Checkers, examiners, and inspectors, mfg.
59	Delivery routemen
38	Packers and wrappers
40	Truck and tractor drivers
62	Welders and flame -- cutters
48	Fabricator, misc. fabricated metal products
	Manufacturing operatives
62	Electrical machinery, equipment and supplies
38	Bakery products
60	Printing, publishing and allied industries
55	Misc. chemicals and allied products
38	Construction
36	All other industries not reported
37	Barbers
46	Bartenders
31	Cooks, except private household
18	Janitors and sextons
73	Firemen, fire protection
38	Guards, watchmen, door keepers
44	Marshals and constables, policemen and detectives
16	Carpenters helpers, except logging and mining
28	Warehusmen
	Manufacturing laborer
42	Motor vehicles and motor vehicle equipment
17	Misc. food preparations and kindred products
18	Misc. chemicals and allied products
18	Nonmanufacturing laborer, Transportation, except railroad
33	Occupation not reported

## VITA<sup>2</sup>

Emmet Osgood

Candidate for the Degree of  
Doctor of Education

**Thesis:** THE RELATIONSHIP BETWEEN AN INDUSTRIAL  
ARTS PROGRAM'S INFLUENCE AND CAREER  
MATURITY

**Major Field:** Vocational-Technical and Career Education

**Biographical:**

**Personal Data:** Born in Oklahoma City, Oklahoma,  
January 26, 1938, the son of O.E. and Johanna K.  
Osgood. Married to Virginia Mary, January 19,  
1963. Have two sons, Chris and Steve.

**Education:** Attended Rosary School, Oklahoma City,  
Oklahoma, grades 1-8. Attended McGuinness High  
School 9-12 and graduated from high school in  
1956. Attended Central State University, Edmond,  
Oklahoma, 1956-1965, received the Bachelor of  
Science in Education Degree in 1962 and the  
Master of Teaching Degree in 1965. Enlisted in  
the United States Air Force Reserve in 1960 and  
received an honorable discharge in 1966. Atten-  
ded Oklahoma State University, Stillwater, Okla-  
homa, 1964-1969. Attended University of Northern  
Colorado, Greeley, Colorado, 1966. Completed the  
requirements for the Doctor of Education at Okla-  
homa State University, Stillwater, Oklahoma, in  
July, 1977.

**Professional Experience:** Owner-Operator, Television  
Repair Service Business, Oklahoma City, Oklahoma,  
1955-1970; Electronics Instructor at Draughons  
School of Business, Oklahoma City, Oklahoma,  
1961-1962; General Contractor of Residential Con-  
struction, Norman, Oklahoma, Edmond, Oklahoma,  
1970-1975; Assistant Professor of Industrial Edu-

cation, Central State University, Edmond, Oklahoma, 1962-present.

Professional Organizations: American Industrial Arts Association, Oklahoma Industrial Arts Association, Oklahoma Vocational Education Association, Higher Education Alumni Council of Oklahoma, Oklahoma Council of Industrial Arts Teacher Educators, Iota Lambda Sigma, and Phi Delta Kappa.