8-1978

A Study of the Job Satisfaction of North Dakota Industrial Arts Teachers

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A STUDY OF THE JOB SATISFACTION OF NORTH DAKOTA INDUSTRIAL ARTS TEACHERS

by

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Bachelor of Science, University of North Dakota, 1977

A Thesis

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Science

Grand Forks, North Dakota

August
1978

This Thesis submitted by Ronald Dahl in partial fulfillment of the requirements for the Degree of Master of Science from the University of North Dakota is hereby approved by the Faculty Advisory Committee under whom the work has been done.

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Title Job Satisfaction of North Dakota Industrial Arts Teachers

Department Industrial Technology

Degree Master of Science

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ACKNOWLEDGEMENTS

The writer wishes to express his appreciation to his advisor, Dr. Myron Bender, and to the other members of his committee, Dr. Wan-Lee Cheng and Dr. Tom Basuray, for their helpful suggestions and constructive criticisms.

Thanks are also due to all industrial arts teachers in the state of North Dakota who supported this study and provided assistance.

TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

The purpose of this study was to determine if industrial arts teachers in North Dakota were satisfied with their jobs and to identify job related problem areas which might exist for the industrial arts teacher.

The objectives of this study were to: (1) Develop an instrument which would be used to identify possible problem areas of the industrial arts teacher in North Dakota, (2) Identify the factors of job satisfaction/dissatisfaction, (3) Correlate the degree of job satisfaction of industrial arts teachers as measured along selected dimension of their job by the JDI, (4) Determine what effect job satisfaction has upon teachers planning on leaving their present positions.

Procedure

The type of research employed in this study was descriptive, using a survey questionnaire developed by the researcher and the JDI (Job Descriptive Index) as data retrieval tools. Literature concerning theories of satisfaction, job satisfaction instrument development, and other studies concerning industrial arts teachers job satisfaction were reviewed for this study. Data was collected from the industrial arts teachers teaching at the elementary or secondary level in North Dakota for the 1977-1978 school term. This data was then tabulated and analyzed with statistical analysis.

Conclusions

The conclusions formulated concerning this study were based upon the statistical analysis performed.

1. The number of industrial arts teachers per school and hours of instruction were important factors in determining the satisfaction/dissatisfaction of industrial arts teachers in North Dakota.

2. The age of industrial arts teachers and hours of instruction were important factors in determining the satisfaction/dissatisfaction of industrial arts teachers in North Dakota.

3. An industrial arts teacher will most likely seek different employment in education but not as an industrial arts teacher if he was not satisfied with his present supervision and if he had taught in industrial arts for many years (the more years the more likely he would seek this employment).

4. An industrial arts teacher would most likely seek employment in industry if he received low pay (the lower the pay the more likely he would seek this employment), if he had small amounts of class preparation time, and if the industrial arts teacher was overall dissatisfied with his/her job.

5. Most industrial arts teachers in North Dakota were overall dissatisfied with their jobs. The least satisfying was pay and the most satisfying was their work.

CHAPTER I

INTRODUCTION

Education today is no longer limited to reading, writing, and arithmetic, it is so very much more. It now consists of many other experiences which have been determined by experts to be important in the growth and development of youth. With these experiences has also come the advent of new technologies to incorporate these experiences most efficiently into the curriculum. These new developments require the teacher to remain current with the ways for implementing these techniques. To accomplish this requires substantial additional education after graduation from college to insure that the instructor is prepared to implement these techniques. If the instructor is not properly prepared to implement these techniques it probably will result in frustration and dissatisfaction on the part of the teacher.

For industrial arts teachers the changing technology is of paramount importance because this area of study in recent years has increased its desire to provide the student with knowledge about industry, technology and management. To accomplish this requires not only education concerning innovative educational techniques, but also requires education concerning the latest innovations in industry. Accomplishing the task of preparing themselves for these two areas could no doubt be a very difficult job for instructors that might ultimately lead to dissatisfaction and frustration if these goals are not met.

Even with the pressures associated with the implementation of educational programs there appears to be an ample supply of teachers. In a study conducted by the Office of Education (Commissioners' Report on the Education Profession, 1976) concerning the projected supply and demand of teachers to 1980-81, it was reported that the supply will exceed the demand. It was projected for 1978-1979 that supply will exceed demand by 64,550 if a high (eight percent of the teachers employed in a year) teacher turnover rate occurs and supply will exceed demand by a much greater number if the turnover rate is lower.

This does not appear to be the case for industrial arts teachers though. In the NEA Research Bulletin (1971), Industrial Arts was identified as a high demand area in relation to the available supply of qualified graduates. This causes certain questions to be raised concerning this difference in demand. In industrial technology education, the college graduate has basically two career alternatives; become employed in industry or accept a position in education. Even though many graduates do accept positions in education there is always a high demand for teachers in this field. This seems to indicate a high turnover rate for industrial arts teachers.

There are basically three sources of demand for teachers as pointed out by the Commissioners Report on the Education Profession (1976), 1974-1975. They are (1) changes in student enrollment, (2) changes in the ratio of teacher to pupils, (3) teacher turnover (the number of currently employed teachers leaving the profession). The last category appears to be the major cause for demand in the Industrial

Arts field. As Vroom (1964) points out, "the measure of job satisfaction reflects the attractiveness of the job to its occupant" (p. 175). If this is the case then we might assume industrial arts teachers may not be satisfied with their jobs. It was the purpose of this study to determine if job satisfaction/dissatisfaction exists for the industrial arts teacher, and if so, why.

Statement of the Purpose

The purpose of this study was to measure the job satisfaction of industrial arts teachers in North Dakota and identify job related problem areas which might exist for the industrial arts teacher.

Objectives

The objectives of this study were:

1. To develop an instrument which would be used to identify areas of the industrial arts teachers in North Dakota with regard to the status of job satisfaction/dissatisfaction.

2. To use this instrument in identifying the factors of job satisfaction/dissatisfaction for industrial arts teachers.

3. To correlate the degree of job satisfaction of industrial arts teachers as measured along selected dimensions of their jobs by the JDI (Job Description Index) in an attempt to identify possible causes of satisfaction/dissatisfaction.

4. To determine what effect job satisfaction has upon teachers planning on leaving their present industrial arts teaching position for other positions.

Significance of the Problem

Smith, Kendall, and Hulin (1969) have defined job satisfaction as the feeling a worker has about his job. This definition corresponds both with the worker's concept of the meaning of the word and with the definition implied by researchers investigating the phenomena of satisfaction. As stated in the book (Smith, Kendall, Hulin, 1969): The Measurement of Satisfaction in Work and Retirement, "We should not forget that the improvement of satisfaction is of humanitarian value. Trite as it may seem, satisfaction is a legitimate goal in itself. The topic, therefore, is of general importance" (p. 3).

In 1967 NEA study of teacher mobility (NEA Research Bulletin, 1968), it was determined that six out of every one-hundreed teachers in the nations public schools will leave the teaching profession. In a 1970 NEA study (NEA Research Bulletin, 1971) industrial arts teachers ranked first in relation to all other subject matter areas in attempts to fill vacancies. At the end of the 1976-1977 school year in North Dakota there were numerous industrial arts teaching positions open, several which remained open throughout the next school year. Once again at the end of the 1977-1978 school term numerous schools were seeking to fill industrial arts teaching positions. This problem leads us to ask why are turn over rates for industrial arts teachers high year after year. A logical investigation concerning this question would be to determine if this group of teachers are satisfied with their jobs and why or why not.

As Vroom (1964) states in his text, Work and Motivation, "If we assume the measure of job satisfaction reflects the attractiveness of

the job to its occupant, then it follows that job satisfaction should be related to the strength of the force on the person to remain in his job" (p. 175). The more satisfied a worker, the stronger the force on him to remain in his job and the less probability of his leaving it voluntarily.

With a number of job openings in the area of industrial arts teachers it would be safe to assume based on Vroom's analysis that job dissatisfaction may exist. Based upon this point the researcher saw the need to measure the job satisfaction of industrial arts teachers and determine if they are dissatisfied with their jobs, and if so, why.

The primary purpose of this study was to determine if industrial arts teachers in North Dakota were satisfied with their jobs. After determining to what degree this group of people were satisfied, it was the intent of this study to investigate the areas which may cause feelings of satisfaction or dissatisfaction.

It was also a primary purpose of this study to ascertain how many persons currently teaching Industrial Arts are looking for other forms of employment, either as industrial arts teachers in other schools, as educators or supervisors in courses other than Industrial Arts, or in professions outside of education. This will provide relevant data to the persons who are seeking alternative employment and possibly indicate reasons for leaving their present jobs. The data could be used by administrators to provide industrial arts teachers who are seeking different employment, greater satisfaction in their jobs and thus hold them in their positions longer.

Assumptions

The overall assumption made by this study was the JDI will

accurately measure the job satisfaction of industrial arts teachers in North Dakota. The JDI is an instrument developed by Dr. Patricia Cain Smith and her associates when at Cornell University. The instrument is universal in nature and can be used with widely varying groups of individuals working under quite different kinds of employment situations.

It was further assumed that teacher dissatisfaction is a definite cause for concern which leads to serious problems for administrators and industrial arts teachers and that this warrants this investigation. It was also assumed the measure of job satisfaction reflects the attractiveness of the job to its occupants.

Delimitations

The study was limited to the geographic boundaries of North Dakota and was restricted to industrial arts teachers at the elementary and secondary school level during the 1977-1978 school term. This included all industrial arts instructors actively involved in the daily instruction of Industrial Arts courses, including teachers who share classroom teaching and administrative duties, such as heads of departments. Not included in this study were industrial arts directors, school administrators, counselors, and teachers who taught solely in other academic areas.

Limitations

This study was limited by the number of responses from industrial arts teachers which were correctly completed and received in time for analysis.

Definition of Terms

JDI - These initials were used to represent the "Job Description Index." This is an instrument which was developed by Patricia Cain Smith, Bowling Green State University, Lorne M. Kendall, Simon Fraser University, and Charles L. Hulin, University of Illinois, Urbana, to measure job satisfaction in a variety of different occupations.

Industrial Arts Teacher - This term is synonymous with Industrial Technology Teacher. It is a person who teaches courses deriving content from an industrial base and transmitting the knowledge, appreciation, and abilities from this base as education for becoming a contributing member in a technological society.

Industrial Education - All activities that are in some way connected with education about industry, whether the program be introductory or trade-skill oriented.

Active Teacher - A teacher who is employed by a public school system and who is actively teaching Industrial Arts courses at the secondary, junior high, or elementary level.

Job Satisfaction - A persons attitude as to how well his job meets the requirements of his idea what a perfect job is.

CHAPTER II

REVIEW OF LITERATURE

The literature reviewed for this study includes information concerning job satisfaction and theories associated with satisfaction, instruments for measuring satisfaction, the instrument known as the JDI for measuring job satisfaction, and several studies which have tried to measure the satisfaction of industrial arts teachers. Satisfaction as described by Websters Dictionary (1970) is: "fulfillment of a need or want, the quality or state of being satisfied, a cause or means of enjoyment." In reference to a job, satisfaction might mean a persons attitude as to how well his/her job meets the requirements of his/her idea of what a perfect job is. This is a very much over-simplified explanation of job satisfaction.

Maslow's Theory

A theory which attempts to identify the factors of satisfaction is that presented by Abraham Maslow (1970). According to Maslow's theory, a human being is motivated to behave in order to satisfy a series of needs. First he satisfies the most basic (physiological) needs and then other specific needs in order of importance. Maslow's five categories of need are presented below, with the most basic need listed first, the next most basic second, and so on:

1. Physiological needs - Basic to all are the needs for food,

water, rest, exercise, shelter (protection from the elements), and sex. Without the fulfillment of these needs, most persons are not motivated by higher needs. When one is cold and hungry, one cannot afford the luxury of concern for self-actualization.

2. Safety needs - Safety needs include freedom from bodily harm or threat of harm. They also include freedom from arbitrary deprivation of one's job.

3. Social needs - After physiological and safety needs are reasonably satisfied, the next motivator likely to become operative is the need for friendship, affection, and interaction with an acceptance by peers. Most humans need to be with others at least part of the time when they are at work, for no man is an island, (no woman, either).

4. Ego and esteem needs - The ego or esteem needs include the needs for self-respect and self-confidence and a stable and positive self-evaluation. They also include the need for respect, recognition, and appreciation from others. This results in status and a reputation for the focal person.

5. Self-actualization or self-fulfillment - The highest need is the need to realize one's potential for self-development, to be what one wants to be, to know one is using all one's talents well, and to be creative.

Maslow maintains that a satisfied need ceases to motivate behavior. Insufficient satisfaction of a need can result in increased motivation, but if the need cannot be satisfied, frustration can result.

Work

After determining what causes or does not cause satisfaction in the work place, we must attempt to find out why people work before we can deal with job satisfaction. For someone to remain satisfied or become satisfied, it would appear he should continue to try and satisfy his needs. A good way to attain these needs, it would seem, would be to work, which in our society gives a person a way to meet most of these needs. In past times, systems were developed where people could develop a craft and exchange the items he manufactured and get the essentials of life. For several centuries each craft had its place in the community, and each worker had his place in some craft. During this time restraints were placed upon the craftsman by guildes who restricted the competition and maintained order. This also restricted inventions that might have changed the way the craftsman did their work. Competition did not submit to restraint though and inventions came in spite of the guildes, alas the Industrial Revolution.

As Lauda and Ryan (1971) point out Industrialism was not a division of labor along craft lines; the crafts themselves were subdivided, in some cases, to extinction. In fact, "division of labor" hardly applies to what took place and is still taking place in the industrialization of work. In the process the craftsman's occupation became fragmented beyond recognition, while its mysteries and lore were brushed aside. Only naked work remained, something that could be described in terms of multiple motions; lifting, pushing, pulling, turning, and so on. But subdivision and simplification called for work organization, which meant functional interdependence. In an elementary way the work

of the craftsman had been organized, but in relation to him and his tools.

Today this is very much so evident in many facets of work as we know it, such as assembly lines, specialization of persons and such. As DeVore (1975) stated: "There is evidence that more people are rejecting work as it exists in our society" (p. 12). Workers are reluctant to commit themselves to work. Work has for many, lost its meaning. This is shown by high absenteeism, turnover rates, wildcat strikes, sabotage, and poor quality products. Work is no longer the central interest in life. One gives some of his time to it, but does not feel responsible for it.

DeVore said there has been a separation of life space from work space which throughout most of history was never separated before, man was what he did. A man's work provided him with an identity, an identity that was recognized readily both by others and by himself. This current trend suggests frustration will result because man's identity and work are separated and in turn leads to dissatisfaction with his work.

Another view of work and why people might become dissatisfied with their employment is presented by Dunnette (1973). He presents a view of work very similar to that presented by DeVore. He says: "Workers are seen as necessary evils, merely instruments that generate a valuable commodity called 'work'. It is not surprising that workers resent having their work valued highly while they as individuals, are not. Little wonder that some feel insecure, faceless, or exploited."

He goes on to say:

> The modern worker finds that not only is he unable to identify with and take pride in his product, he cannot even identify with his work. He is simply a payroll number, a cost, a kind of liability. It is the job or the performance of the job duties - that is, the work - that counts. Under such circumstances, the worker sometimes comes to regard work on the job as a necessary evil, something to be endured for a certain number of hours every week in return for money that can be exchanged for something he really values (pp. 2-3).

Once again this points out how the life space and work space have been separated which results in the frustration of the worker, and dissatisfaction with his job.

The views just presented revolve around the development of work and what they believe is the major difference between work after the industrial revolution and what it was before. They contend that people are frustrated with work now because of its dehumanization, but people continue to work. If people are not receiving what they want from work, why do they continue to do so? According to Vroom (1964) there are two types of conditions that affect the likelihood that people will work. One is economic in nature. In order for people to work there must be some opportunity to work. There must be a demand on the part of members of a society for goods and services and a demand on the part of employers for people to produce these goods and perform these services. The second type of condition is motivational. People must prefer working to not working. Our model leads us to predict that given the opportunity a person will choose to work when the degree of desire for the outcomes

which he expects to attain from working are more positive than the degree of desire for the outcomes which he expects to attain from not working.

Two-factor Theory

Now that it has been speculated why people work, it must be determined how to keep workers satisfied in order to keep them working. In order to determine this satisfaction it was necessary to develop a way of measuring this satisfaction. To measure an occupants satisfaction with a job it must be determined what aspects of a job are most important in reference to a job. Many theories have been presented as to what factors are important for these measures. Frederick Herzberg and his associates (1959) have presented a theory referred to as the Two-factor Theory, which says:

> People are motivated to work when job satisfiers (motivators) are present in the work situation. These motivators are: (1) the nature of the work itself, (2) the achievement of an important task, (3) responsibility at work, (4) recognition for work, and (5) opportunity for advancement. Other working conditions, called hygiene factors, do not affect job satisfaction (and thus indirectly motivate) when they are minimally present at work. Hygiene factors are: (1) supervisory style, (2) interpersonal relations, (3) salary, (4) organizations personnel policies, (5) physical working conditions, and (6) job security (p. 180).

Instrument Development

In developing an instrument to measure job satisfaction one must

keep in mind all the motivational factors of the work place. Several important aspects which must be kept in mind while developing an instrument to measure job satisfaction are stated by Ryan and Smith (1954): "(1) the question is understood in the same way by the worker and the investigator, (2) that the question is phrased in such a way as to deal with specific occasions and events and not with abstractions" (p. 66).

To begin an investigation to determine job satisfaction in a specific occupation it is important to remember certain aspects about this particular job. These points are presented by Vroom (1964):

> There is no reason to believe that working serves the same purpose for different individuals. People differ in their desires and aversions, and for this reason simple generalizations about why people work are meaningless. We should also not lose sight of the extensive differences existing among work values. All work roles may provide financial renumerations, but some provide more than others. Similarly, work roles differ in the amount and kind of energy expenditures they require, in the content of the functions performed, in the social interaction they permit or require, and in the social status they afford. These work role differences are exceedingly important for a consideration of satisfaction and performance (pp. 29-30).

In the search for an acceptable instrument to use to determine job satisfaction for industrial arts teachers the text Measures of Occupational Characteristics was suggested. The authors (Robinson, Athanasiou, Head, 1974) comment on one instrument which was used for this study was:

Some scales contained in this section manage an adequate coverage of the field without requiring an excessive amount of the respondents' time. Of these few, the instrument which appears to us to have the best credentials is the Job Description Index. Lengthy, extensive and competent research went into the construction of this instrument, which has been administered to workers at all organizational levels on a nationwide basis. In reservation, it must be noted the scales may be subject to minor response set problems and that only one of the five job factors covered is intrinsic (see Chapter III). While very impressive reliability and validity data are given for this instrument, normative data (scale means and standard deviations) are available only from the author (p. 101).

JDI

The researchers (Smith, Kendall, Hulin, 1969) comments on the purpose of this instrument are:

Our plan has been a simple one: to construct a series of scales, measuring satisfaction on the job within both evaluative-general-long-term framework and a descriptive-specific-short-term framework, and covering the important area of satisfaction. We have gathered data concerning responses to these scales for a wide variety of jobs and a wide variety of responses to these scales for a wide variety of jobs and a wide variety of people. On the basis of these data, we have then attempted to establish a basis for a very generally applicable series of measurements of

satisfaction (p. 10).

Oregon and New Mexico Studies

Two studies which measured the job satisfaction of industrial arts teachers were reviewed. The populations for these studies were the industrial arts teachers in the states of Oregon and New Mexico.

In the Oregon study (Kenneke, 1969) it was determined Oregon industrial education teachers are in significant agreement regarding the major factors and specific aspects affecting their job satisfactions and dissatisfactions. The primary sources of job satisfaction involve (1) conditions under which the teacher must carry out his instruction, (2) working with and helping youth, and (3) social and professional relationships with fellow faculty members. The leading causes of job dissatisfaction include (1) poor economic considerations, (2) conditions not conducive to effective instruction, and (3) administrative procedures and policies. The grade level at which a teacher taught and the number of industrial arts classes taught per day were the major variables affecting an appreciable difference from the significant consensual ordering of leading satisfiers and dissatisfiers.

The New Mexico study (Cunico, Field, Cervantes, 1977) found, respondents in each of the four groups (those seeking different positions as industrial arts teachers, those seeking administrative jobs, those leaving the education field, those remaining in their present position), were satisfied with, or derived satisfaction from the following factors at the 70 percentile or higher levels:

- - personal satisfaction in teaching usually comes from the students.

- - adequate preservice preparation for teaching promotes a positive attitude toward teaching.
- - administrative evaluations do not present a threat.
- - industrial arts teachers enjoy equal status with teachers from other disciplines.

Respondents in each of the four groups were dissatisfied with, or indicated dissatisfaction was produced by the following factors at the 70 percentile or higher level:

- - peer group pressure had a negative effect on the behavior patterns of students.
- - class loads should be held to a maximum of 25 students.
- - communications at all levels and between individuals was seriously lacking.
- - teaching salaries were less than desired.

This study also includes data for the four groups concerning what was satisfying and dissatisfying for each group about their jobs. It can be seen from this data that a significant negative aspect in each of the two studies was economic. A significant positive aspect in both of these studies was co-workers.

CHAPTER III

PROCEDURES AND METHODOLOGY

Currently in education many disciplines have experienced an ample supply of teachers resulting in high unemployment rates. This was not the case however for industrial arts teachers. In past years in many states the industrial arts instructor was the most sought after teacher with many schools unable to fill industrial arts teacher positions. The industrial arts teacher education institutions have continued to graduate qualified industrial arts teachers but yet the supply never seems able to meet the demand. This situation can indicate several things; one possibility is that industrial arts teachers are not staying in their teaching positions for extended periods and leave the field after a few years of employment. The turnover may be ascribed partly to dissatisfaction with current employment and leaves to seek different employment.

As previously stated by Vroom (1964) in this paper, the measure of job satisfaction reflects the attractiveness of the job to its occupant. The purpose of this study was to determine if industrial arts teachers are satisfied or dissatisfied with their jobs and what causes this satisfaction/dissatisfaction and to determine if this has any effect upon the teacher leaving the field.

The design of this study has five parts: (1) identification of

the population to be surveyed, (2) selection of a job satisfaction evaluation instrument, (3) development of a questionnaire to be used in conjunction with the job satisfaction instrument, (4) collection of data, (5) analysis of this data.

Population

The population of this study was all full-time industrial arts instructors at the elementary or secondary level within the geographical boundries of North Dakota for the 1977-1978 school year. Included in this study also were industrial arts teachers with combined administrative and teaching responsibilities such as heads of departments. Names and addresses for industrial arts teachers were taken from the 1977-1978 Industrial Arts Teachers Directory. The address labels were printed at the University of North Dakota Computer Center, Grand Forks, North Dakota.

Survey Instrument

The selection of an instrument to measure job satisfaction was accomplished by reviewing the text, Measures of Occupational Attitudes and Occupational Characteristics. This text contains the description of various instruments used to measure attitudes and characteristics of employees. The advantages and drawbacks of certain instruments in a particular category has in relation to others in that category were reviewed. For this study the researcher reviewed chapter five of this text which is entitled, "General Job Satisfaction Scales". In this chapter there are various instruments developed to measure the attitudes of employees in relation to the satisfaction of their present jobs. In-

cluded in here was the JDI (Appendix I) which measures satisfaction in the area of income, promotion, supervision, type of work, and people on the job. The instrument consists of 72 items -- 18 each in work, supervision, and people subscales and nine each in pay and promotion. The respondent was asked to write "Y" next to each item which described his pay, promotion, etc. and "N" for each item which did not. A question "?" response was reserved for items on which the respondent cannot decide.

This instrument was selected for the study because of what Robinson, Athanasiou, and Head (1974) said about this instrument: "While the JDI is neither a projective nor a direction of perception type instrument, it does approach 'job satisfaction' somewhat indirectly. The instrument asks the respondent to describe his job rather than his feelings about it" (p. 105). It appears quite evident from the numerous studies with JDI that one's perception of his job is highly colored by his satisfaction with it. The JDI is a face valid instrument which is easily administered and scored in a short time.

The authors of the JDI had presented numerous stratified tables for scoring the JDI which include stratified areas of sex, income, education, job tenure, prosperity, and decrepitude. In this study it was determined the correct table of normalized satisfaction scores to be used was sex because the sample population was the same, all were industrial arts teachers in North Dakota.

To use the JDI it was necessary to purchase the survey instrument from "Bowling Green State University" which entitled the researcher to use this instrument. A research kit was also ordered at that time which

included: instruction sheet for hand scoring, scoring stencils for five scales, norms for five scales stratified by: sex, income, education, job tenure, community variables or variates, prosperity, decrepitude and explanation of norm tables.

In order to describe and interpret the data better it was necessary to develop a questionnaire to be used in conjunction with the JDI. The initial intention of developing the questionnaire was to determine those areas of the industrial arts instructors' job were most likely to be important in determining what might cause satisfaction or dissatisfaction for the industrial arts teachers. It was also necessary to keep the questionnaire short and easy to complete, just as was the JDI. The content and format of the questionnaire were developed by past experience of the student and consultation with Dr. Myron Bender, Chairman of the committee and reviewing related studies concerning the same subject. Eleven questions were then developed concerning this aspect.

It was also necessary to determine if the industrial arts teacher is seeking different employment. Three questions were developed to determine this aspect of the study. This brought the total number of questions to 14. The questionnaire for this study (Appendix II) consisted of one word fill in the blank and circling the correct response such as; yes or no.

Collection of Data

The next step in this research was to collect the data. To accomplish this the industrial arts instructors in North Dakota who were

selected to participate in this study were sent a survey and questionnaire. All responses were to remain anonymous so no codes were used to identify the participants that completed and returned their survey. In order to gain a high rate of return two mailings were planned. The first mailing was April 15, 1978 and included: a cover letter (Appendix III), the "JDI", the "Job Satisfaction Survey for Industrial Arts Instructors", and a stamped self-addressed return envelop. A follow-up letter (Appendix IV) was sent out on May 4, 1978 to insure maximum return.

The initial return of surveys prior to May 4, 1978 were 128 in total or 66% return. The additional return after the follow-up and before May 17, 1978 was 11 surveys or 6% return. Therefore, the total surveys returned was 139 or 71% return response. Of this total, 11 surveys contained incomplete data but were usable and 2 surveys were returned without any information because the industrial arts instructor was no longer teaching at that school. A summary of the returned surveys is listed below in Table 1.

Treatment of Data

After receiving and reviewing the data to insure it was completed correctly, the data was prepared for statistical analysis. The scoring of the JDI was accomplished with the assistance of the scoring stencils purchased with the research kit. "Y" answers were scored 3 where an adjective is determined to be a positive adjective or descriptive phrase about the job. An "N" answer was scored 3 if the response is "N" to a negative adjective or descriptive phrase about the job. A response of "Y" in a negative adjective or descriptive phrase about the job was

TABLE 1

THE STATUS OF DATA COLLECTION

	Population	Returns	Percentage Returned	Percent Not Returned or Rejected
Total Return	195	139	71.0%	29.0%
Total Usable Return	195	137	70.0%	30.0%

scored 0 and a response of "N" in a positive adjective or descriptive phrase about the job was also scored 0. A response of "?" was scored 1 because it was determined by the authors of the JDI to be more indicative of dissatisfaction than of satisfaction. The numerical values were then summed for the subscales of work, supervision, people, etc. For the subscales of pay and promotion the scores were multiplied by 2 because they contain only 9 items in relation to the 18 items on the other subscales. Each subscale was converted to a normalized satisfaction percent scores by use of the stratified tables.

The subscale scores of the JDI were then summed and divided by 5. The scores were divided by 5 because the JDI had five subscales (pay, work, promotion, supervision, promotion). If a value of below 50 was received then the person was classified as dissatisfied and if a score of 50 or above was received the respondent was classified as satisfied.

In some cases the respondent did not return one part of the survey, either the JDI or the survey questionnaire. It was possible for this

study to use the data in some aspect of the analysis so it was still included in the analysis. The data was recorded on fortran coding forms by the researcher and then key punched by the personnel of the computer center at the University of North Dakota. The computer program used to analyze the data was "SPSS" (Statistical Package for the Social Sciences) which provides sub-programs of frequency distribution, t-tests, chi-squared, and multiple regression correlations. The type of test to be used for the various data was based upon what type of data was present, such as: interval, ordinal, or nominal data. These tests were used because both nominal and interval data were present and to answer the questions the research wished to, these tests were necessary.

CHAPTER IV

PRESENTATION OF DATA

In this chapter the researcher presented the data from the statistical tests used for this study. The analysis included: frequency distributions, cross tabulations (chi-squared), t-tests, simple regressions, and multiple regression correlations. These statistics provided the researcher with information concerning those aspects of the industrial arts teacher's job which were determined to be important for this study. The analysis also determined what factors are most important in regard to the industrial arts teacher and his job satisfaction or dissatisfaction.

Age

In this section the researcher performed statistical analysis in an attempt to determine what, if any, effect the age of industrial arts teachers had upon their job satisfaction and their desires for different employment.

Presented in Table 2 is the data determined from a multiple regression which was run between the age of the industrial arts teachers and the elements of the JDI. These elements were satisfaction with: present work, present pay, opportunity for promotion, present supervision on the job, and co-workers on the job. The elements of the JDI were also the independent variables used for the multiple regression.

TABLE 2

AGE VS JDI ELEMENTS

Independent Variable	Multiple R	R Squared	R Squared Change	Simple R	F Value
Supervison	0.15525	0.02410	0.02410	0.15525	2.74154
Promotion	0.15956	0.02546	0.00136	0.07690	1.43682
Co-Workers	0.16187	0.02620	0.00074	0.09124	0.97765
Work	0.16263	0.02645	0.00025	0.07489	0.73352
Pay	F-Level or Tolerance Level Insufficient for Further Computations.				

The dependent variable was the age of the industrial arts teachers.

The regression used was a stepwise regression. The level of significance used for this test was $\alpha = .05$. The degrees of freedom for the independent variables were, supervision (1,111), promotion (2,110), co-workers (3,109), and work (4,108). None of the independent variables in this regression had statistically significant F values, therefore no significant statistical relationship exists between the independent and dependent variables. The relationship accounted for 2.6% of the total variability of age with these independent variables. Supervision was the most significant independent variable and accounted for 2.4% of the variability.

Table 3 contains the data obtained from a t-test run between the ages of those industrial arts teachers who were satisfied and those who were not satisfied with their present employment.

TABLE 3

AGE OF SATISFIED VS AGE OF DISSATISFIED

Variable Age	Number of Cases	Mean	F Value	Degrees of Freedom	Pooled t-value
Satisfied	29	57.2414	1.06	113	2.22
Dissatisfied	86	45.2325			

The significance level used for this test was $\alpha = .05$. The degrees of freedom for the F value was df = (28,85). An F value of 1.06 indicates that the sample variances are sufficiently similar, therefore, a pooled t-test was used. The t-value of 2.22 with the degrees of freedom of 113 indicated a statistically significant difference does exist between the means of this t-test. The satisfied groups mean age was 57.24 and the mean age of the dissatisfied group was 45.2325. The mean age difference between these groups was 12 years.

A summary of the t-test analysis between the ages for those industrial arts teachers looking for different industrial arts position and those who were not is presented in Table 4.

The level of significance used for this t-test was $\alpha = .05$. The degrees of freedom for the F value was df = (25,91). An F value of 1.35 indicated that the sample variances are sufficiently similar, therefore, a pooled t-test was used. The t-value of 0.27 with 116 degrees of freedom indicated a statistically significant difference does not exist between the means of these groups. The mean age of those industrial arts teachers who were looking for a different industrial arts position was 48.8461 and the mean age of industrial arts teachers who were not looking for different industrial arts positions was 47.2826. The difference in age between the groups was 1.5635.

TABLE 4

DIFFERENT I.A. (INDUSTRIAL ARTS) POSITION AGE

VS SAME I.A. POSITION AGE

Variable Age	Number of Cases	Mean	F Value	Degrees of Freedom	Pooled t-value
Different Position	26	48.8461	1.35	116	0.27
Same Position	92	47.2826			

The data presented in Table 5 is a t-test between the ages of those industrial arts teachers looking for different positions in education other than industrial arts and those who were not looking for different positions in education other than industrial arts.

TABLE 5

DIFFERENT EDUCATION POSITION AGE VS SAME I.A. POSITION

Variable Age	Number of Cases	Mean	F Value	Degrees of Freedom	Pooled t-value
Different Position	19	48.9474	1.16	116	0.24
Same Position	99	47.3737			

The level of significance used for this test was $\alpha = .05$. The degrees of freedom for the F value was df = (18,98). An F value of 1.16 indicated that the sample variances are sufficiently similar, therefore, a pooled t-test was used. The t-value of 0.24 with 116 degrees

of freedom indicated a statistically significant difference does not exist between the means of these groups. The mean age for those industrial arts teachers looking for different positions in education other than industrial arts was 48.9474. The mean age for those industrial arts teachers not looking for different positions in education was 47.3737. The difference between these means was 1.5737 years.

Table 6 was a t-test between the ages of those industrial arts teachers who were looking for different jobs in industry and ages of those who were not looking for different positions in industry.

TABLE 6

DIFFERENT POSITION IN INDUSTRY AGE VS SAME I.A. POSITION AGE

Variables Age	Number of Cases	Mean	F Value	Degrees of Freedom	Pooled t-value
Different Positions	53	48.6792	1.05	116	.40
Same Position	65	46.7692			

The significance level used for this test was $\alpha = .05$. The degrees of freedom for the F value was df = (52,64). An F value of 1.05 indicates that the sample variances are sufficiently similar, therefore, a pooled t-test was used. The t-value of 0.40 with 116 degrees of freedom indicated a statistically significant difference

does not exist between the means of these groups. The mean age of those industrial arts teachers looking for positions in industry was 48.6792 and the mean age of those industrial arts teachers not looking for different positions in industry was 47.7692. The difference between these mean ages was 1.91.

A frequency distribution of the ages of industrial arts teachers looking for different positions as industrial arts teachers is presented in Table 7.

TABLE 7

AGE FREQUENCY DISTRIBUTION OF I.A. TEACHERS SEEKING DIFFERENT I.A. POSITIONS

Group Age	Absolute Frequency	Adjusted Frequency (Pct)
Lowest through 25 years	6	23.1
26 years through 35 years	4	15.4
36 years through 45 years	3	11.5
46 years through 55 years	2	7.7
56 years through oldest	11	42.3
Total	26	100.0

The group which had the highest frequency of industrial arts teachers looking for different industrial arts positions was the 56 years old through oldest which had 42.3% of the sample.

Table 8 presents the frequency distribution of industrial arts

teachers ages who are looking for other position in education but not as industrial arts teachers.

TABLE 8

AGE FREQUENCY DISTRIBUTION OF I.A. TEACHERS SEEKING DIFFERENT EMPLOYMENT IN EDUCATION NOT AS I.A. TEACHERS

Group Age	Absolute Frequency	Adjusted Frequency (Pct)
Lowest through 25 years	3	15.8
26 years through 35 years	3	15.8
36 years through 45 years	5	26.3
46 years through 55 years	1	5.3
56 years through oldest	7	36.8
Total	19	100.0

The group which had the largest percentage of industrial arts teachers looking for positions in education not as industrial arts teachers was the group, 56 years through oldest. This group contained 36.8% of all the industrial arts instructors looking for education positions other than industrial arts.

A frequency distribution of the age of those industrial arts teachers who were looking for employment in industry is represented by Table 9.

The group which contains the largest adjusted frequency was the

TABLE 9

AGE FREQUENCY DISTRIBUTION OF I.A. TEACHERS SEEKING EMPLOYMENT IN INDUSTRY

Group Age	Absolute Frequency	Adjusted Frequency (Pct)
Lowest through 25 years	12	22.6
26 years through 35 years	6	11.3
36 years through 45 years	8	15.1
46 years through 55 years	2	3.8
56 years through oldest	25	47.2
Total	53	100.0

56 years old through oldest group which contained 47.2% of the total number of industrial arts teachers who were looking for position in industry.

Years As An Industrial Arts Teacher

The next set of tables are concerned with the statistical analysis of the years an industrial arts teacher has taught industrial arts courses. A summary of a multiple regression is presented in Table 10. The dependent variable was years as an industrial arts teacher and the independent variables were the elements of the JDI. These elements were satisfaction with: present work, present pay, opportunity for promotion, present supervision on the job, and co-workers on the job.

A stepwise regression was used for this multiple regression. The

TABLE 10

YEARS OF EXPERIENCE VS JDI ELEMENTS

Independent Variable	Multiple R	R Squared	R Squared Change	Simple R	F Value
Work	0.13760	0.01893	0.01893	0.13760	2.04558
Pay	0.19726	0.03891	0.01998	-0.11697	2.12545
Supervision	0.20562	0.04228	0.00337	-0.03175	1.53047
Promotion	0.20739	0.04301	0.00073	-0.03924	1.15736
Co-Workers	0.20851	0.04348	0.00047	0.00504	0.92727

level of significance used for the test was $\alpha = .05$, the degrees of freedom for the independent variables were: work (1,106), pay (2,105), supervision (3,104), promotion (4,103), and co-workers (5,102). None of the F values for this test were statistically significant. From Table 10 it was determined that the elements of the JDI account for a total of 4.3% of the total variance of the dependent variable (years as an industrial arts teacher). The two most significant independent variables were work, which accounted for 1.9% of the total variance and pay which accounted for 2% of the total variance.

Table 11 is a t-test which compared the years as industrial arts teachers between the groups of satisfied and dissatisfied industrial arts teachers.

The significance level used for this test was $\alpha = .05$. The degrees of freedom for the F value was df = (29,89). An F value of 1.48 indicates that the sample variances are sufficiently similar, therefore, a pooled

TABLE 11

COMPARISION OF (DIS) SATISFACTION EXPERIENCE

Variable Years	Number of Cases	Mean	F Value	Degrees of Freedom	Pooled t-value
Satisfied	30	37.667	1.48	118	-1.09
Dissatisfied	90	43.333			

t-test value was used. The t-value of -1.09 with 118 degrees of freedom indicated a statistically significant difference does not exist between the means of these groups. The mean years as an industrial arts teacher for those industrial arts teachers who were satisfied was 37.667. The mean years taught for those industrial arts teachers who were not satisfied was 43.333. The difference between the groups in mean years as industrial arts teachers was 5.666 years.

Level of Education

This section concerned itself with the statistical analysis of the level of education industrial arts teachers in North Dakota had. A frequency distribution for degrees industrial arts teachers had is presented in Table 12.

The group which contained the largest percentage was those industrial arts teachers who had either B.S. degrees or B.A. degrees. This group made up 78.5% of the total industrial arts teachers. The remaining 28 or 21.5% of the respondents had either M.S. or M.Ed. degrees.

Table 13 presents a cross-tabulation of the degrees industrial arts teachers had against how qualified industrial arts teachers felt about the courses they were teaching.

TABLE 12

FREQUENCY DISTRIBUTION OF DEGREES HELD

BY I.A. TEACHERS

Groups	Absolute Frequency	Adjusted Frequency (Pct)
B.S. or B.A.	102	78.5
M.S. or M.Ed.	28	21.5
Total	130	100.0

TABLE 13

I.A. TEACHER QUALIFICATION VS DEGREE HELD

Count Row Pct Col. Pct Tot. Pct	Qualified	Not Qualified	Row Total
B.S. or B.A. Degree	85 84.2 76.6 65.9	16 15.8 88.9 12.4	101 78.3
M.S. or M.Ed. Degree	26 92.9 23.4 20.2	2 7.1 11.1 1.6	28 21.7
Column Total	111 86.0	18 14.0	129 100.0

The corrected chi-squared for this test was 0.75209. The degrees of freedom was df = 1, the level of significance was $\alpha = .05$. A chi-squared value of 3.841 or larger must be received before a statistically significant relationship could exist. For this test a statistically significant relationship did not exist. For those industrial arts teachers with B.S. or B.A. degrees 84.2% felt qualified to teach the courses they were currently teaching and 15.8% did not feel qualified. For those industrial arts teachers with M.S. or M.Ed. degrees 92.9% felt qualified to teach the course they were currently teaching and 7.1% did not feel qualified.

Statistical analyses between the groups with B.A. or B.S. degrees and those industrial arts teachers with M.S. or M.Ed. and the degree of satisfaction with the variables: present work, present pay, opportunity for promotion, present supervision, and co-workers were accomplished in Table 14 with five t-tests.

The level of significance used for these tests was $\alpha = .05$. The F value degrees of freedom for all the variables except supervision was df = (97,26). The F value degrees of freedom for supervision was df = (95, 26). The F values for these tests indicated that the sample variances are sufficiently similar, therefore, a pooled t-test value was used. The pooled t-test values for work, promotion and supervision indicated a statistically significant difference does not exist between the means of these groups. The pooled t-test values for pay and co-workers did indicate a statistically significant difference does exist. The mean percentage score of satisfaction was higher in each test except for promotion for those industrial arts teachers with either M.S. or M.Ed. degrees. For promotion those industrial arts teachers with B.A. or B.S. degrees were more satisfied.

TABLE 14

JDI ELEMENT SATISFACTION VS DEGREE HELD

Variables Work Pay Promotion Supervision Co-Workers	Number of Cases	Mean	F Value	Degrees of Freedom	Pooled t-value
B.A. or B.S.	98	43.9898	1.05	123	-0.40
M.S. or M.Ed.	27	45.07411			
B.A. or B.S.	98	21.0612	1.52	123	-2.41
M.S. or M.Ed.	27	33.3704			
B.A. or B.S.	98	33.6122	1.30	123	0.69
M.S. or M.Ed.	27	30.4444			
B.A. or B.S.	96	39.0938	1.22	121	-0.83
M.S. or M.Ed.	27	45.1481			
B.A. or B.S.	98	39.7041	1.21	123	-2.06
M.S. or M.Ed.	27	54.4444			

Community Size

The tables presented in this section deal with the statistical analysis of the community size the industrial arts teacher works in. The community sizes were grouped for this analysis into five group sizes. These groups were: (0-500), (501-2000), (2001-7000), (7001-20,000), and (Over 20,000).

A frequency distribution is represented in Table 14. The distribution represented was the number of industrial arts teachers who taught in various community group sizes.

TABLE 15

FREQUENCY DISTRIBUTION BASED ON COMMUNITY SIZE

Group	Absolute Frequency	Adjusted Frequency (Pct)
0-500 Population	49	37.12
501-2000 Population	26	19.69
2001-7000 Population	7	3.4
7001-20,000 Population	18	13.64
Over 20,000 Population	32	24.24
Total	132	100.0

The group which had the largest percentage of industrial arts teachers was 0-500 population with 37.12% .

Presented in Table 16 is a cross-tabulation between the satisfaction or dissatisfaction of industrial arts teachers and the size community the industrial arts teacher was teaching in.

Chi-squared for this table was 4.94215. The degrees of freedom was 4 and the significant level used for this test was $\alpha = .05$. A chi-squared of 9.488 or greater must be received before a statistically significant difference can be said to exist. This cross-tabulation was not statistically significant. The group in the satisfied column which had the highest percentage (32.3%) of satisfied industrial arts teachers was those persons who taught in communities with populations over 20,000. The group in the dissatisfied column which had the highest percentage

TABLE 16

I.A. TEACHER (DIS) SATISFACTION VS COMMUNITY SIZE

Count Row Pct. Col. Pct. Tot. Pct.	Satisfied	Dissatisfied	Row Total
0-500	9	37	46
Population	19.6	80.4	36.2
	29.0	38.5	
	7.1	29.1	
501-2000	6	20	26
Population	23.1	76.9	20.5
	19.4	20.8	
	4.7	15.7	
2001-7000	0	7	7
Population	0.0	100.0	5.5
	0.0	7.3	
	0.0	5.5	
7001-20,000	6	12	18
Population	33.3	66.7	14.2
	19.4	12.5	
	4.7	9.4	
Over 20,000	10	20	30
Population	33.3	66.7	23.6
	32.3	20.8	
	7.9	15.7	
	31	96	127
	24.4	75.6	100.0

(38.5%) of dissatisfied industrial arts teachers were those who taught in communities with 0-500 population.

The next statistical test run was a regression between community

size and present pay of the industrial arts teachers. This test is represented by Table 17.

TABLE 17

PAY VS COMMUNITY SIZE

Independent Variable	Multiple R	R Squared	R Squared Change	Simple R	F Value
Community Size	0.14342	0.02057	0.02057	0.14342	2.18410

The degrees of freedom for this test was df = (1,104) and the statistical significance level was $\alpha = .05$. An F value of 3.93 or greater must be obtained for a statistically significant relationship to exist between the independent and dependent variables. There was no statistically significant relationship between the variables of the regression.

Community size accounted for 2% of the total variance of the industrial arts teachers pay. A simple R or .14342 existed which indicates as community size increases so did the pay received by industrial arts teachers.

Number of Industrial Arts Teachers

Statistical analysis was carried out for the number of industrial arts teachers in a school for this section. Table 18 is a frequency distribution for the number of industrial arts teachers in a school.

The largest group was one industrial arts teacher with 61.4% of the total and the next largest was two industrial arts teachers which

TABLE 18

FREQUENCY DISTRIBUTION OF I.A. DEPARTMENT SIZE

Groups	Absolute Frequency	Adjusted Frequency (Pct)
One I.A. Teacher	81	61.4
Two I.A. Teachers	21	15.9
Three I.A. Teachers	7	5.3
Four I.A. Teachers	8	6.1
Five I.A. Teachers	7	5.3
Six I.A. Teachers	1	.8
Nine I.A. Teachers	1	.8
Ten I.A. Teachers	2	1.5
Thirteen I.A. Teachers	2	1.5
Fourteen I.A. Teachers	1	.8
Sixteen I.A. Teachers	1	.8
Total	132	100.0

accounted for 15.9% of the total. These two groups accounted for 77.3% of the frequency distribution.

Table 19 represents a regression between co-workers and the number of industrial arts teachers in a school.

The level of significance used for this test was $\alpha = .05$ and the degree of freedom was df = (1,105). An F value of 3.93 or greater was needed for a statistically significant relationship to exist between

TABLE 19

JDI CO-WORKER SATISFACTION VS I.A. DEPARTMENT SIZE

Independent Variable	Multiple R	R Squared	R Squared Change	Simple R	F Value
Number of I.A. Teachers	0.13694	0.01875	0.01875	-0.13694	2.00656

these variables. There was no statistically significant relationship for this test. By examining the simple R which was -0.13694, it can be said as the number of industrial arts teachers increased the satisfaction with co-workers decreased. Number of industrial arts teachers accounted for 1.8% of the total satisfaction/dissatisfaction with co-workers.

A t-test is represented by Table 20. The groups for the t-test were those industrial arts teachers who were satisfied with their jobs and those who were dissatisfied. The variable was the number of industrial arts teachers in a school.

The level of significance used for this test was $\alpha = .05$. The degrees of freedom for the F value was df = (30,95). An F value of 7.20 indicates that the sample variances are statistically significant and one must use the separate t-values. The t-value of -1.75 with 125 degrees of freedom indicate a statistically significant difference does not exist between the mean of these groups. The mean number of industrial arts teachers for the satisfied group was 1.8065. The mean number of industrial arts teachers for the dissatisfied group was 2.4583.

Grades Taught

The statistical analysis for the grades industrial arts teachers

TABLE 20

(DIS) SATISFIED I.A. TEACHERS VS DEPARTMENT SIZE

Variables Number of I.A. Teachers	Number of Cases	Mean	F Value	Degrees of Freedom	Separate t-value
Satisfied	31	1.8065	7.20	122	-1.75
Dissatisfied	96	2.4583			

taught is the subject of the next section. In Table 21 a cross-tabulation between grades taught and those industrial arts teachers who were satisfied and those who were not satisfied was run.

The degrees of freedom for this test was df = 7 and the significance level was $\alpha = .05$. The corrected chi-quared for this test was 12.5562. For a statistically significant difference to exist for this test a chi-squared value of 14.067 or larger must be received. This test was not statistically significant at the .05 level of significance. The industrial arts teachers who were satisfied had the highest percentage group in the grades 7-12. The industrial arts teachers who were dissatisfied had the largest percentage in grades 7-12.

Industrial Arts Teachers Looking For Different Positions

This section of analysis is concerned with the analysis of those industrial arts teachers who were seeking different positions as industrial arts teachers, a different position in education other than

TABLE 21

GRADES TAUGHT VS (DIS) SATISFIED

Count Row Pct. Col. Pct. Tot. Pct.	Grades 4-12	Grades 7-12	Grades 7-9	Grades 10-12	Grades 9-12	Grades 8-12	Grades 11-12	Grades Other	Row Total
Satisfied	2 6.5 66.7 1.6	7 22.6 21.2 5.5	3 9.7 20.0 2.4	3 9.7 25.0 2.4	6 19.4 19.4 4.7	3 9.7 14.3 2.4	2 6.5 50.0 1.6	5 16.1 62.5 3.9	31 24.4
Dissatisfied	1 1.0 33.3 0.8	26 27.1 78.8 20.5	12 12.5 80.0 9.4	9 9.4 75.0 7.1	25 26.0 80.6 19.7	18 18.8 85.7 14.2	2 2.1 50.0 1.6	3 3.1 37.5 2.4	96 75.6
Column Total	3 2.4	33 26.0	15 11.8	12 9.4	31 24.4	21 16.5	4 3.1	8 6.3	127 100.0

industrial arts, or a different position in industry. There were other tables in this chapter which used these variables but this section was most concerned with these variables. Table 22 is a frequency distribution representing those industrial arts teachers who were looking for different positions as industrial arts teachers.

TABLE 22

FREQUENCY DISTRIBUTION OF I.A. TEACHERS SEEKING DIFFERENT EMPLOYMENT IN I.A.

Group	Absolute Frequency	Adjusted Frequency (Pct)
Different Position	28	21.2
Same Position	104	78.8
Total	132	100.0

From Table 22 the number of industrial arts teachers looking for different positions was 28 or 21.2%. Those not looking for different positions as industrial arts teachers was 104 or 78.8%.

Table 23 represents a multiple regression. The independent variables used were: present work, present pay, opportunity for promotion, present supervision, co-workers, age, years as an industrial arts teacher, number of industrial arts teachers in a school, average number of students, hours of instruction per day, and hours of preparation per day. The dependent variable was if an industrial arts teacher was or was not looking for a different position as an industrial

arts teacher.

TABLE 23

DIFFERENT I.A. POSITION VS JOB ELEMENTS

Independent Variables	Multiple R	R Squared	R Squared Change	Simple R	F Value
Supervision	0.26841	0.07204	0.07204	0.26841	7.53090
Instruction	0.34284	0.11754	0.04550	-0.26409	6.39352
Pay	0.37068	0.13740	0.01986	0.19122	5.04407
Promotion	0.38481	0.14808	0.01068	0.00733	4.08463
Preparation	0.39350	0.15485	0.00677	0.13563	3.40780
Age	0.40091	0.16073	0.00589	-0.00316	2.93654
Years	0.40557	0.16449	0.00376	-0.09271	2.55932
Work	0.41056	0.16856	0.00407	0.11099	2.28072
Students	0.41340	0.17090	0.00234	0.08543	2.03842
Co-Workers	0.41436	0.17169	0.00079	0.14516	1.82406
I.A. Teachers	0.41472	0.17199	0.00030	0.03247	1.64285

The significance level for the test was $\alpha = .05$. The degrees of freedom for the independent variables were: supervision (1,97), instruction (2,96), pay (3,95), promotion (4,94), preparation (5,93), age (6,92), years (7,91), work (8,90), students (9,89), co-workers (10,88), I.A. teachers (11,87). The F value was statiscally significant for all the independent variables except co-workers and I.A. teachers. The independent variables accounted for 17.2% of the total variance of the dependent variable. Supervision accounted for 7.2% of

the total variance and was the most significant variable in the test. By examining the simple R, a value of 0.26841 was received. This indicated that as the satisfaction with supervision increases industrial arts teachers tended not to look for different industrial arts teaching positions.

Hours of instruction was the next most significant variable and accounted for 4.5% of the variance. The simple R for hours of instruction was -0.26409 which indicated as hours of instruction increase the tendency to seek different industrial arts teaching positions increased. Pay and promotion were the only other independent variables which accounted for any significant amount of the total variance. Pay accounted for 2% and promotion 1.1%.

A cross-tabulation between those industrial arts teachers looking for different industrial arts teaching positions and their job satisfaction is represented in Table 24.

TABLE 24

DIFFERENT I.A. TEACHING POSITION VS (DIS) SATISFACTION

Count Row Pct. Col. Pct. Tot. Pct.	Different Position	Same Position	Row Total
Satisfied	2 6.5 7.4 1.6	29 93.5 29.0 22.8	31 24.4
Dissatisfied	25 26.0 92.6 19.7	71 74.0 71.0 55.9	96 75.6
Column Total	27 21.3	100 78.7	127 100.0

The corrected chi-squared for this table was 4.26558. The level of significance for this test was $\alpha = .05$. The degrees of freedom was df = 1. A chi-square of 3.841 or greater was needed for a significant statistical difference to exist for this data. A statistically significant difference did exist for this data. Those industrial arts teachers who were satisfied with their jobs, 6.5% were looking for different positions as industrial arts teachers and 93.5% were not looking for different industrial arts positions. Those industrial arts teachers who were not satisfied with their jobs, 26% were looking for different industrial arts positions and 74% were not.

A frequency distribution of those industrial arts teachers looking for different positions in education but not as industrial arts teachers is represented by Table 25.

TABLE 25

FREQUENCY DISTRIBUTION OF THOSE I.A. TEACHERS SEEKING POSITIONS IN EDUCATION OTHER THAN IN I.A.

Group	Absolute Frequency	Adjusted Frequency (Pct)
Different Position	20	15.2
Same Position	112	84.8
Total	132	100.0

Table 25 indicated 20 industrial arts teachers or 15.2% were looking for different positions in education not as industrial arts

teachers. One hundred and twelve industrial arts teachers or 84.8% indicated they were not looking for positions in education other than industrial arts teachers.

Table 26 is a multiple regression between those industrial arts teachers who were or were not looking for positions in education but not as industrial arts teachers and elements of the industrial arts teachers job which included the subscales of the JDI and selected questions from the job satisfaction survey. The independent variables were: present work, present pay, opportunity for promotion, present supervision, co-workers, age, years as an industrial arts teacher, number of industrial arts teachers in a school, average number of students, hours of instruction, and hours of preparation. The dependent variable was if an industrial arts teacher was or was not looking for a different position in education but not as an industrial arts teacher.

The significance level used for this test was $\alpha = .05$. The degrees of freedom for each of the independent variables was: supervision (1,97), years (2,96), preparation (3,95), work (4,94), promotion (5,93), age (6,92), co-workers (7,91), pay (8,90), instruction (9,89), I.A. teacher (10,88), students (11,87). The F value for the independent variables: promotion, age, co-workers, pay, instruction, I.A. teachers, and students indicated that they did not have a statistically significant relationship with the dependent variable. The F value for the remaining independent variables indicated that a statistically significant relationship did exist. The independent variables used in this regression account for 12.3% of the total variance of the dependent

TABLE 26

POSITION IN EDUCATION OTHER THAN I.A. VS JOB ELEMENTS

Independent Variables	Multiple R	R Squared	R Squared Change	Simple R	F Value
Supervision	0.18706	0.03499	0.03499	0.18706	3.51734
Years	0.24548	0.06026	0.02527	-0.17004	3.07786
Preparation	0.28608	0.08184	0.02158	0.16208	2.82263
Work	0.31806	0.10116	0.01932	0.16315	2.64478
Promotion	0.32927	0.10842	0.00726	0.18469	2.26176
Age	0.33505	0.11226	0.00384	-0.02096	1.93894
Co-Workers	0.33952	0.11527	0.00301	0.12928	1.69377
Pay	0.34558	0.11943	0.00415	0.07832	1.52575
Instruction	0.34935	0.12204	0.00262	0.02552	1.22855
I.A. Teachers	0.35001	0.12250	0.00046	-0.02342	1.22855
Students	0.35059	0.12291	0.00041	0.01875	1.10835

variables. Supervision accounted for a total variance of 3.5% and is the most significant variable in the regression. When the simple R was examined which was 0.18706 it could be said as satisfaction with supervision on the job increased the likelihood the industrial arts teacher would not seek different employment in education other than industrial arts. Years accounted for 2.5% of the total variance and was the second most significant variable in the regression. The simple R for years was -0.17004 which said as an industrial arts teacher, teaches more years it was more likely he would seek employment in education

other than industrial arts. Preparation and work were the next most significant variables accounting for 2.1% and 1.9% of the total variance respectively. The simple R's were preparation .16208 and work .16315. For preparation this indicated as preparation time increased the industrial arts teacher was less likely to look for different employment in education other than industrial arts. For work the simple R indicated as satisfaction with work increased the industrial arts teacher was less likely to seek different employment in education other than industrial arts.

A cross-tabulation is represented by Table 27. The variables used were satisfaction or dissatisfaction of industrial arts teachers against if the industrial arts teacher was or was not looking for a different position in education not as an industrial arts teacher.

A corrected chi-squared of 2.93755 was received from this test. The degrees of freedom were df = 1 and the significance level used was $\alpha = .05$. For a significant statistical difference to exist for this test a chi-squared of 3.841 was needed. There was not significant statistical difference for this test. Those industrial arts teachers who were satisfied with their jobs 3.2% were looking for different positions in education not as industrial arts teachers and 96.8% were not. Those industrial arts teachers who were dissatisfied 17.7% were looking for different positions in education but not as industrial arts instructors and 82.3% were not looking for different positions not as industrial arts teachers.

Table 28 represented a frequency distribution of those industrial arts teachers who were and were not looking for positions in industry.

TABLE 27

(DIS) SATISIFIED VS DIFFERENT EDUCATION POSITION

Count Row Pct. Col. Pct. Tot. Pct.	Different Position	Same Position	Row Total
Satisfied	1 3.2 5.6 0.8	30 96.8 27.5 23.6	31 24.4
Dissatisfied	17 17.7 94.4 13.4	79 82.3 72.5 62.2	96 75.6
Column Total	18 14.2	109 85.8	127 100.0

TABLE 28

FREQUENCY DISTRIBUTION OF DIFFERENT POSITION IN INDUSTRY

Group	Absolute Frequency	Adjusted Frequency
Different Position	59	44.7
Same Position	73	55.3
Total	132	100.0

Table 28 indicated 59 of the industrial arts teachers or 44.7% were looking for positions in industry and 73 of the industrial arts

teachers or 55.3% were not looking for positions in industry.

A multiple regression summary table is represented by Table 29. The independent variables were: present work, present pay, opportunity for promotion, present supervision, co-workers, age, years as an industrial arts teacher, number of industrial arts teachers in the school, average number of students per class, hours of instruction per day, and hours of preparation per day. The dependent variable was if the industrial arts teacher was or was not looking for a different position in industry.

TABLE 29

DIFFERENT POSITION IN INDUSTRY VS JOB ELEMENTS

Independent Variable	Multiple R	R Squared	R Squared Change	Simple R	F Value
Pay	0.26348	0.06942	0.06942	0.26348	7.23649
Preparation	0.34352	0.11800	0.04858	0.26257	6.42198
work	0.37034	0.13715	0.01915	0.17475	5.03338
Years	0.38579	0.14883	0.01168	-0.09764	4.10918
Instruction	0.39824	0.15859	0.00976	0.08593	3.50585
Age	0.40336	0.16270	0.00410	-0.02905	2.97940
Promotion	0.40807	0.16652	0.00383	0.22280	2.59727
Supervision	0.40912	0.16738	0.00086	0.10225	2.26156
Students	0.40942	0.16762	0.00024	-0.00729	1.99138
Co-Workers	0.40965	0.16781	0.00019	0.05756	1.77450
I.A. Teachers	F-Level or Tolerance Level Insufficient for further Computation.				

The significance levels used for this test was $\alpha = .05$. The degrees of freedom for each of the independent variables was: pay

(1,97), preparation (2,96), work (3,95), years (4,94), instruction (5,93), age (6,92), promotion (7,91), supervision (8,90), students (9,89), co-workers (10,88), I.A. teachers (11,87). The F value for the independent variables co-workers and I.A. teachers indicated that they did not have a statistically significant relationship with the dependent variables. The F value for the remaining independent variables indicated that a statistically significant relationship did exist. The independent variables used in this regression accounted for 16.8% of the total variance of the dependent variable. Pay accounted for 6.9% of the total variance and was the most significant independent variable in the regression. The simple R for pay was 0.26348 which indicated as the satisfaction with pay increased the less likely the industrial arts teacher was to seek employment in industry. The next most significant independent variable was preparation and accounted for 4.8% of the variance. The simple R for this variable was 0.26257 which indicated as the industrial arts teacher received more preparation time per day he was less likely to seek employment in industry. Work and years were the next most significant independent variables and accounted for 1.9% and 1.2% of the total variance respectively.

Table 30 represents a cross-tabulation between the satisfaction/dissatisfaction of industrial arts teachers and those industrial arts teachers who were and were not seeking employment in industry.

The corrected chi-squared for this test was 8.89783. The degrees of freedom was df = 1 and the significance level was $\alpha = .05$. For a statistically significant difference to exist for this data it was

necessary to receive a chi-squared of 3.841 or greater. There was a statistically significant difference between the groups of data. For those industrial arts teachers who were satisfied 19.4% were seeking positions in industry and 80.6% were not. For those industrial arts teachers who were not satisfied 52.1% were seeking jobs in industry and 47.9% were not seeking jobs in industry.

TABLE 30

INDUSTRY POSITION VS (DIS) SATISFACTION

Count Row Pct. Col. Pct. Tot. Pct.	Different Position	Same Position	Row Total
Satisfied	6 19.4 10.7 4.7	25 80.6 35.2 19.7	31 24.4
Dissatisfied	50 52.1 89.3 39.4	46 47.9 64.8 36.2	96 75.6
Column Total	56 44.1	71 55.9	127 100.0

A frequency distribution how industrial arts teachers viewed the quality of the facility and instructional equipment in the school they taught in is represented by Table 31. The responses were either, yes the facility and equipment was adequate to facilitate a viable industrial arts program or they were not.

Seventy-five or 57.3% of the respondents said their facility

and instruction equipment was adequate to conduct a viable industrial arts program. Fifty-six or 42.7% of the respondents said their facility and instructional equipment was not adequate to conduct a viable industrial arts program.

TABLE 31

FREQUENCY DISTRIBUTION BASED UPON ADEQUATE FACILITIES

Group	Absolute Frequency	Adjusted Frequency (Pct)
Adequate	75	57.3
Not Adequate	56	42.7
Total	131	100.0

Table 32 is a cross-tabulation between facility quality and those industrial arts teachers who were or were not looking for different industrial arts teaching positions. The corrected chi-squared for this test was 0.73080. The significant level used was $\alpha = .05$ and the degrees of freedom was df = 1. For a significant statistical difference to exist a chi-square of 3.841 or greater must be received for this test. There was no statistically significants between these groups for this test. Those industrial arts teachers who were looking for a different industrial arts teaching position, 48.1% said their facility and equipment was adequate and 51.9% said the facility and equipment in their school was not adequate to conduct a viable industrial arts program. Those industrial arts teachers who were not looking for a different position as an industrial arts teacher, 59.6% said their facility was adequate and 40.4% said their facility

was not adequate.

TABLE 32

DIFFERENT I.A. POSITION VS ADEQUATE FACILITIES

Count Row Pct. Col. Pct. Tot. Pct.	Adequate	Not Adequate	Row Total
Different Position	13 48.1 17.3 9.9	14 51.9 25.0 10.7	27 20.6
Same Position	62 59.6 82.7 47.3	42 40.4 75.0 32.1	104 79.4
Column Total	75 57.3	56 42.7	131 100.0

Those industrial arts teachers who were or were not looking for positions in education other than industrial arts and the responses to whether the school has an adequate shop facility or not were the variables compared in the cross-tabulations in Table 33. The corrected chi-squared for this test was 1.4222. The significance level used was $\alpha = .05$ and the degrees of freedom was df = 1. A chi-squared of 3.841 or greater was needed for a statistically significant difference to exist between these variables. A statistically significant difference did not exist. For the industrial arts teachers who were looking for different positions in education but not as industrial

arts teachers, 42.1% said their facility was adequate and 57.9% said it was not adequate to conduct a viable industrial arts program. For those industrial arts teachers not looking for different positions in education, 59.8% said their facility was adequate and 40.2% said it was not adequate.

TABLE 33

DIFFERENT EDUCATION POSITION VS FACILITY QUALITY

Count Row Pct. Col. Pct. Tot. Pct.	Adequate	Not Adequate	Row Total
Different Position	8 42.1 10.7 6.1	11 57.9 19.6 8.4	19 14.5
Same Position	67 59.8 89.3 51.1	45 40.2 80.4 34.4	112 85.5
Column Total	75 51.3	56 42.7	131 100.0

Table 34 represents a cross-tabulation. The variables used for this cross-tabulation were those industrial arts teachers who were or were not seeking positions in industry and if the industrial arts facility was or was not adequate to conduct a viable industrial arts program.

TABLE 34

DIFFERENT POSITION IN INDUSTRY VS FACILITY QUALITY

Count Row Pct. Col. Pct. Tot. Pct.	Adequate	Not Adequate	Row Total
Different Position	28 48.3 37.3 21.4	30 51.7 53.6 22.9	58 44.3
Same Position	47 64.4 62.7 35.9	26 35.6 46.4 19.8	73 55.7
Column Total	75 51.3	56 42.7	131 100.0

The corrected chi-squared for this cross-tabulation was 2.79986. The degrees of freedom was df = 1 and the level of significance was $\alpha = .05$. A chi-squared of 3.841 was needed before a statistically significant difference could be said to exist for this data. A statistically significant difference does not exist for this test. Those industrial arts teachers who were looking for positions in industry, 48.3% said their facility was adequate and 51.7% said their facility was not adequate to conduct a viable industrial arts program. Those industrial arts teachers not looking for positions in industry, 64.4% said their facility was adequate and 35.6% said it was not.

Average Number of Students

This section is concerned with the statistical analysis of data concerning the size of industrial arts classes. A multiple regression correlation is represented in Table 35. The independent variables were: present work, present pay, and co-workers. The dependent variables was the average number of students per class.

TABLE 35

NUMBER OF STUDENTS VS SELECT JDI ELEMENTS

Independent Variables	Multiple R	R Squared	R Squared Change	Simple R	F Value
Co-Workers	0.11811	0.01395	0.01395	0.11811	1.45727
Pay	0.12575	0.01581	0.00186	-0.01195	0.81937
Work	F-Level or Tolerance Level insufficient for Further Computation.				

The significance level used for this test was $\alpha = .05$ and the degrees of freedom for the independent variables were: co-workers (1,103), pay (2,102), and work (3,101). None of the F values for the independent variables showed a statistically significant relationship between the independent and dependent variables. This multiple regression accounted for 1.6% of the total variance of the dependent variable.

A t-test between those industrial arts teachers who were satisfied and those who were not and the size class each group had is represented by Table 36.

TABLE 36

NUMBER OF STUDENTS FOR (DIS) SATISFIED TEACHERS

Variable Students	Number of Cases	Mean	F Value	Degrees of Freedom	Pooled t-value
Satisfied	31	15.0645	1.03	125	0.14
Dissatisfied	96	14.9219			

The significance level used for this test was $\alpha = .05$. The degrees of freedom for the F value was df = (30,95). An F value of 1.03 indicates that the sample variances are sufficiently similar, therefore, a pooled t-test value was used. The t-value of 0.14 with 125 degrees of freedom indicates a statistically significant difference does not exist between the means of these groups. The mean number of students per class for the satisfied group was 15 and the mean number of students for the dissatisfied group of industrial arts teachers was 14.9.

I.A. Teacher Preparation and Instruction Time

This section is concerned with the analysis of data concerned with how much time an industrial arts teacher spent in the classroom and how much time they had for preparation. Table 37 is a multiple regression correlation between the dependent variable hours of instruction per day an industrial arts teacher did and the elements of the JDI which were: present pay, present work, opportunity for promotion, present supervision, and co-workers. These variables were the independent variables. The level of significance was $\alpha = .05$. The degrees of freedom for the independent variables were: supervision (1,97), promotion (2,96), co-

workers (3,95), pay (4,94), and work (5,93). Three of the F values from Table 37 are statistically significant. This indicates that the independent variables supervision, promotion, and co-workers had a statistically significant relationship with the dependent variable. The remaining independent variables, pay and work did not have a statistically significant relationship with the dependent variable. The independent variables accounted for a total of 8.4% of the total variance of the dependent variable. Supervision was the most significant and accounted for 4.25% of the total variance. Supervision had a simple R of -0.20631 which indicated as the hours of instruction increased per day the satisfaction toward the supervisor decreased. Promotion and co-workers accounted for the next most significant amount of the variance respectively. Promotion accounted for 3% and had a simple R of 0.09757 which indicated as hours of instruction increased satisfaction with promotion also increased. Co-workers accounted for 1% of the variance and had a simple R of -0.18199 which indicated as hours of instruction increase the satisfaction with co-workers decreased.

A multiple regression summary table is represented by Table 38. The independent variables for the multiple regression were the elements of the JDI. They were: present pay, present work, opportunity for promotion, co-workers, and supervision. The dependent variable was hours of preparation the industrial arts teacher has per day. The level of significance for this test was $\alpha = .05$. The degrees of freedom for the independent variables were: pay (1,97), supervision (2,96), promotion (3,95), work (4,94), co-workers (5,93). The F value for the independent variables indicated no statistically significant relationship existed

TABLE 37

HOURS OF INSTRUCTION VS JDI ELEMENTS

Independent Variables	Multiple R	R Squared	R Squared Change	Simple R	F Value
Supervision	0.20631	0.04256	0.04256	-0.20631	4.31222
Promotion	0.26939	0.07257	0.03001	0.09757	3.75601
Co-Workers	0.28802	0.08296	0.01038	-0.18199	2.86455
Pay	0.29030	0.08428	0.00132	0.01566	2.16275
Work	0.29127	0.08484	0.00056	-0.02153	1.72433

TABLE 38

HOURS OF PREPARATION VS JDI ELEMENTS

Independent Variable	Multiple R	R Squared	R Squared Change	Simple R	F Value
Pay	0.17257	0.02978	0.02978	0.17257	2.97734
Supervision	0.20485	0.04196	0.01218	0.15209	2.10239
Promotion	0.21546	0.04642	0.00446	0.15493	1.54160
Work	0.22678	0.05143	0.00501	0.00834	1.27410
Co-Worker	F-Level or Tolerance Level Insufficient for Further Computation.				

for these independent variables. The multiple regressions' independent variables accounted for 5.1% of the total variance of the dependent variables.

I.A. Teachers Confidence to Teach

This section is concerned with how qualified industrial arts teachers felt they were to teach the courses they were teaching. Table 39 is a frequency distribution concerning those industrial arts teachers response to how qualified they felt they were to be teaching the courses they were teaching.

TABLE 39

FREQUENCY DISTRIBUTION OF I.A. TEACHER QUALIFICATION

Group	Absolute Frequency	Adjusted Frequency (Pct)
Qualified	113	86.3
Not Qualified	18	13.7
Total	131	100.0

Table 39 indicated 113 or 86.3% of the industrial arts teachers who responded felt qualified to teach the courses in the industrial arts curriculum they were teaching. Eighteen or 13.7% felt they were not qualified.

A cross-tabulation between qualifications to teach industrial arts courses and job satisfaction is represented in Table 40. The significance level used for this test was $\alpha = .05$ and the degrees of freedom was df = 1. The corrected chi-squared was 0.30127. A chi-squared of 3.841 or greater was needed to say a statistically significant difference existed between the groups in the cross-tabulation.

There was no statistically significant difference for this test. Those industrial arts teachers who were satisfied with their jobs, 90.3% felt qualified to teach the courses in the industrial arts curriculum they were currently teaching. Nine point seven percent of the satisfied group felt they were not qualified. Those industrial arts teachers who were dissatisfied with their jobs 84.2% said they were qualified to teach the courses they currently were and 15.8% said they were not qualified.

TABLE 40

I.A. TEACHER QUALIFICATION VS (DIS) SATISFACTION

Count Row Pct. Col. Pct. Tot. Pct.	Qualified	Not Qualified	Row Total
Satisfied	28 90.3 25.9 22.2	3 9.7 16.7 2.4	31 24.6
Dissatisfied	80 84.2 74.1 63.5	15 15.8 83.3 11.9	95 75.4
Column Total	108 85.7	18 14.3	126 100.0

Industrial Arts Teacher Satisfaction

In this section the mean scores of the subscales of the JDI are presented, a score of less than 50 indicating dissatisfaction, the

lower the score the less satisfied. Also the overall psychometric evaluation of satisfaction/dissatisfaction is presented in Table 41 for all the respondents to this survey.

TABLE 41

JDI ELEMENT MEAN SCORES

Work	Pay	Promotion	Co-Workers	Supervision	Job Satisfaction
45.725	23.901	33.351	43.885	41.240	37.6204

From Table 41 the area which satisfied industrial arts teachers most was their work and the least satisfaction came from their pay. The overall rating of satisfaction was 37.6204% which indicates industrial arts teachers in North Dakota were not satisfied with their jobs.

Discussion

All statistical values for significants were taken from Dinham (1976). The information about industrial arts teachers and their jobs indicated the following.

1. There was no statistically significant relationship between the elements of the JDI and age, also there was a statistically significant difference between the ages of those industrial arts teachers who were satisfied and those who were not satisfied.

2. There was no statistically significant relationship between the job satisfaction elements of the JDI and the years an industrial arts teacher had taught. There also was no statistically significant

difference between the years taught for those industrial arts teachers who were satisfied with their jobs, and those who were not.

3. There was a statistically significant difference in the satisfaction with pay and co-workers between the degrees industrial arts teachers had. There was no statistically significant difference between the satisfaction of the industrial arts teacher concerning the other elements of the JDI and the degree held. There was no statistically significant difference in degrees held by those industrial arts teachers who felt qualified to teach the courses in the industrial arts curriculum they were teaching and those who did not.

4. There was no statistically significant difference between the community size of those industrial arts teachers who were satisfied and those who were not satisfied with their jobs and there was no statistically significant relationship between community size and pay, it was indicated that as the community size increases, so does pay.

5. It was determined the most frequent size for industrial arts departments in North Dakota was one teacher shops with 81 of the respondents or 61.4% in this category. There was no statistically significant relationship between co-workers and the number of industrial arts teachers in a school. There was not a statistically significant difference in the mean number of industrial arts teachers in a school between those industrial arts teachers who were satisfied and those who were not. Table 20 indicated those industrial arts teachers who were not satisfied had 2.5 industrial arts teachers per school and those who were satisfied indicated 1.8 industrial arts teachers per school. It might be said from this data the less industrial arts teachers per school the more likely the

industrial arts teachers would be satisfied.

6. There was not statistically significant difference between the grades taught by those industrial arts teachers who were satisfied with their jobs and those who were not.

7. There was no statistically significant difference between the JDI elements; co-workers, pay, and work and the average number of students per industrial arts class. There was not statistically significant difference between the size of industrial arts courses of those industrial arts teachers who were satisfied and those who were disatisfied with their jobs.

8. There was a statistically significant relationship which existed between the JDI elements; supervision, promotion, and co-workers, and hours of instruction per day the industrial arts teachers gave. From Table 37 it was indicated as the hours of instruction increases per day, the satisfaction the industrial arts instructor has toward the supervision and co-workers was reduced, also as instruction time increases the satisfaction toward promotion was increased. There was no statistically significant relationship between the elements of the JDI hours of preparation time an industrial arts teacher had.

9. From Table 39 it was determined 18 or 13.7% of the industrial arts teachers who responded to this survey felt as though they were not qualified to teach the courses in the industrial arts curriculum they were teaching, 113 or 86.3% felt qualified. There was no statistically significant difference between those industrial arts teachers who were satisfied and those who were not satisfied in their feeling qualified or not qualified to teach the courses in the industrial arts curriculum they were teaching.

The statistical analysis which concerned itself with those industrial arts teachers who were seeking different employment indicates:

1. There was no statistically significant difference between the ages of those industrial arts teachers who were and those who were not seeking different employment; as industrial arts teachers, in education other than industrial arts, or in industry.

2. Table 22 indicated 28 or 21.2% of the industrial arts teachers in North Dakota were seeking different industrial arts teaching positions. Table 25 indicated 20 or 15.2% of the industrial arts teachers in North Dakota were seeking employment in education other than industrial arts. Table 28 indicated 59 or 44.7% of the industrial arts teachers in North Dakota were seeking employment in industry.

3. The elements which had a statistically significant relationship with those industrial arts teachers who were seeking different positions as industrial arts teachers were: supervision, instruction, pay, promotion, age, years, work, and students from Table 23. The most significant variables were supervision and instruction respectively. Indicated was as the satisfaction with the supervisor increased, the industrial arts teacher was less likely to seek different employment. Also indicated was as the hours of instruction increase, the more likely an industrial arts teacher was to seek different employment.

4. A statistically significant relationship existed between those industrial arts teachers seeking different employment in education other than industrial arts and supervision, years, preparation, and work from Table 26. The most significant variables were satisfaction with present supervision and years as an industrial arts teacher. Indicated was as satisfaction with supervision increases the industrial arts

teacher was less likely to seek different employment in education other than industrial arts. Also indicated was the more years an industrial arts teacher has taught, the more likely it was he would seek employment in education other than industrial arts.

5. A statistically significant relationship existed between those industrial arts teachers seeking employment in industry and pay, preparation, work, years, instruction, age, promotion, supervision, and students from Table 29. The most significant variables were pay and promotion respectively. Indicated was as pay increases the likelihood an industrial arts teacher would seek employment in industry was reduced. Also indicated was as preparation time increased, the likelihood was reduced an industrial arts teacher would seek employment in industry.

6. There was a statistically significant difference between those industrial arts teachers who were satisfied and those who were not satisfied with their jobs and if they were seeking different employment as industrial arts teachers. From Table 24 those industrial arts teachers who were looking for different industrial arts teaching positions, 7.4% were satisfied with their jobs and 92.6% were not satisfied.

7. There was no statistically significant difference between those industrial arts teachers who were satisfied and those who were not satisfied with their jobs and if they were or were not seeking employment in education other than industrial arts teaching.

8. There was a statistically significant difference between those industrial arts teachers who were satisfied and those who were

not satisfied with their jobs and if they were or were not seeking different employment in industry. From Table 30, those industrial arts teachers who were looking for a different position in industry 10.7% were satisfied and 89.3% were dissatisfied.

9. There was no statistically significant difference between those industrial arts teachers who were or were not seeking different employment based upon if the facility and equipment in the school they taught in was or was not adequate.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Restatement of Objectives

The objectives of this study were to: (1) Develop an instrument which would be used to identify possible problem areas of the industrial arts teachers in North Dakota with regard to the status of job satisfaction/dissatisfaction; (2) Use this instrument in identifying the factors of job satisfaction/dissatisfaction for industrial arts teachers; (3) Correlate the degree of job satisfaction of industrial arts teachers as measured along selected dimensions of their jobs by the JDI in an attempt to identify possible causes of satisfaction/dissatisfaction; (4) Determine what effect job satisfaction has upon teachers planning on leaving their present industrial arts teaching position for other positions.

Summary

The purpose of this study was to measure the job satisfaction of industrial arts teachers in North Dakota and identify job related problem areas which might exist for the industrial arts teacher. The survey method was used and a questionnaire was sent to all industrial arts teachers in North Dakota who taught industrial arts during the 1977-1978 school term in elementary or secondary education. One hundred thirty-seven useable surveys were returned for a 70.2% return percentage.

To meet the goals of the study, an instrument entitled "Job Satisfaction Survey For Industrial Arts Instructors" was developed. The questions used for this survey were developed by the researcher. The areas to investigate were determined by examining previous studies conducted on industrial arts teachers job satisfaction, conversations with professional industrial arts teacher educators, and personal experiences of the researcher.

The areas covered on the questionnaire "Job Satisfaction For Industrial Arts Instructors" included: age, years as an industrial arts teacher, degrees held, community size, number of co-workers who were industrial arts instructors, grades taught, if the industrial arts teacher was seeking different employment, if the facility and equipment was adequate in the industrial arts teacher's school, number of students per section, hours of preparation and instruction per day, and if the industrial arts teacher felt qualified to teach the courses they were assigned. This instrument was then used to identify the factors of job satisfaction/dissatisfaction for industrial arts teachers by surveying the population of industrial arts teachers in North Dakota through mail.

In conjunction with this survey, an instrument was purchased which was designed to measure job satisfaction. The name of this instrument was JDI. The areas surveyed by the JDI included satisfaction with: present work, present pay, opportunity for promotion, supervision on the present job, and people on the present job.

Statistical analysis was then used to correlate the degree of job satisfaction determined by the JDI and its elements and the elments

of the industrial arts teachers' job determined by the instrument developed by the researcher. This analysis was used in an attempt to identify possible causes of job satisfaction or job dissatisfaction. The statistical analysis used to correlate the elements of the JDI and survey for industrial arts teachers included: frequency distributions, cross-tabulations, t-tests, multiple regressions, and simple regressions.

Conclusions

The conclusions formulated from this study were based upon the information collected from the industrial arts teachers in North Dakota who responded to this survey.

In view of the limitations of the study, several conclusions have been derived:

1. The number of industrial arts teachers per school, years of teaching, highest degree held, community size, grades taught, average number of students per section, and the qualification the industrial arts teacher felt they had, had little to do in determining the satisfaction or dissatisfaction of industrial arts teachers in North Dakota.

2. The age of industrial arts teachers and hours of instruction were important factors in determining the satisfaction/dissatisfaction of industrial arts teachers in North Dakota.

3. The age of industrial arts teachers and if the equipment and facilities were adequate to conduct viable industrial arts programs were not important elements in causing industrial arts teachers to seek different employment either as industrial arts teachers, or in education other than industrial arts, or in industry.

4. An industrial arts teacher will most likely seek different employment as an industrial arts teacher if he was dissatisfied with his present supervisor, or if he had many hours of instruction per day (the more hours the more likely he/she will leave) or if the industrial arts teacher was not satisfied overall with his/her present job.

5. An industrial arts teacher will most likely seek different employment in education but not as an industrial arts teacher if he was not satisfied with his present supervision and if he had taught in industrial arts for many years (the more years as an industrial arts teacher the more likely he will seek a different position in education not as an industrial arts teacher). The overall satisfaction or dissatisfaction of the industrial arts teacher was not a factor attributing to the industrial arts teacher's desire for a job in education other than industrial arts.

6. An industrial arts teacher would most likely seek employment in industry if he had received low pay (the lower the pay the more likely he will seek employment in industry) and if he had small amounts of preparation time for class (the less preparation time the more likely he would seek employment in industry) and if the industrial arts teacher was dissatisfied overall with his job.

7. Most industrial arts teachers in North Dakota were overall dissatisfied with their jobs which was determined by the JDI. The element of the JDI they were least satisfied with was pay and the element which they were most satisfied with was their work.

Recommendations

Based upon the results of this study, it was recommended:

1. A follow-up study be conducted to determine what percentage of those industrial arts teachers who planned on leaving industrial arts teaching actually did and what form of employment they became involved in. (Different industrial arts position, education other than industrial arts, or industry).

2. An attempt should be undertaken to improve the satisfaction of younger industrial arts teachers by administrative officials.

3. An attempt should be made by administrative officials to reduce the hours of instruction required by industrial arts teachers if at all possible.

4. Supervisors in schools should make an effort to keep on good terms with the industrial arts teachers in order to retain them.

5. Pay for industrial arts teachers must be increased before any real significant effect can be made in retaining industrial arts teachers, especially from industry.

6. A further investigation in the area of job satisfaction for industrial arts teachers should include investigations into the involvement of the industrial arts teacher in: in-service programs, professional organizations, school organizations, community organizations and student discipline problems.

APPENDICES

APPENDIX I

JDI

THE JOB DESCRIPTIVE INDEX

CODE NUMBER_____

Company_____

City_____

Please fill in the above blanks and then turn the page. . . . .

Think of your present work. What is it like most of the time? In the blank beside each word given below, write

Y for "Yes" if it describes your work

N for "No" if it does NOT describe it

? if you cannot decide

.....

WORK ON PRESENT JOB

_____ Fascinating

_____ Routine

_____ Satisfying

_____ Boring

_____ Good

_____ Creative

_____ Respected

_____ Hot

_____ Pleasant

_____ Useful

_____ Tiresome

_____ Healthful

_____ Challenging

_____ On your feet

_____ Frustrating

_____ Simple

_____ Endless

_____ Gives sense of accomplishment

Go on to the next page . . . .

Think of the pay you get now. How well does each of the following words describe your present pay? In the blank beside each word, put

Y if it describes your pay

N if it does NOT describe it

? if you cannot decide

.....

PRESENT PAY

_____ Income adequate for normal expenses

_____ Satisfactory profit sharing

_____ Barely live on income

_____ Bad

_____ Income provides luxuries

_____ Insecure

_____ Less than I deserve

_____ Highly paid

_____ Underpaid

Now please turn to the next page . . . . .

Think of the opportunities for promotion that you have now. How well does each of the following words describe these? In the blank beside each word put

Y for "Yes" if it describes your opportunities for promotion

N for "No" if it does NOT describe them

? if you cannot decide

.....

OPPORTUNITIES FOR PROMOTION

_____ Good opportunities for promotion

_____ Opportunity somewhat limited

_____ Promotion on ability

_____ Dead-end job

_____ Good chance for promotion

_____ Unfair promotion policy

_____ Infrequent promotions

_____ Regular promotions

_____ Fairly good chance for promotion

Go on to the next page . . . . .

Think of the kind of supervision that you get on your job. How well does each of the following words describe this supervision? In the blank beside each word below, put

Y if it describes the supervision you get on your job

N if it does NOT describe it

? if you cannot decide

.....

SUPERVISION ON PRESENT JOB

_____ Asks my advice

_____ Hard to please

_____ Impolite

_____ Praises good work

_____ Tactful

_____ Influential

_____ Up-to-date

_____ Doesn't supervise enough

_____ Quick tempered

_____ Tells me where I stand

_____ Annoying

_____ Stubborn

_____ Knows job well

_____ Bad

_____ Intelligent

_____ Leaves me on my own

_____ Around when needed

_____ Lazy

Please go on to the next page . . . . .

Think of the majority of the people that you work with now or the people you meet in connection with your work. How well does each of the following words describe these people? In the blank beside each word below, put

Y if it describes the people you work with

N if it does NOT describe them

? if you cannot decide

.....

PEOPLE ON YOUR PRESENT JOB

_____ Stimulating

_____ Boring

_____ Slow

_____ Ambitious

_____ Stupid

_____ Responsible

_____ Fast

_____ Intelligent

_____ Easy to make enemies

_____ Talk too much

_____ Smart

_____ Lazy

_____ Unpleasant

_____ No privacy

_____ Active

_____ Narrow interests

_____ Loyal

_____ Hard to meet

APPENDIX II

JOB SATISFACTION SURVEY

JOB SATISFACTION SURVEY FOR INDUSTRIAL ARTS INSTRUCTORS

Please complete the following questions with the correct answers by filling in the blank or circling the correct answer.

1.) Age_____.

2.) Years you have taught Industrial Arts including this year_____.

3.) Highest degree you have received
(B.S. or B.A.) (M.Ed. or M.S.) (Ph.D.)

4.) Size of the community you teach in
(0-500) (501-2000) (2001-7000) (7001-20,000) (over 20,000)

5.) Number of Industrial Arts Instructors in your school_____.

6.) What grades do you teach?_____.

7.) Are you seeking a different teaching position as an Industrial Arts Instructor? (Yes) (No)

8.) Are you seeking employment in education other than Industrial Arts? (Yes) (No)

9.) Are you seeking employment not in education?
(Yes) (No)

10.) Is the physical facility and instructional equipment adequate to conduct a viable Industrial Arts program at the school you teach in? (Yes) (No)

11.) What is the average number of students per section in Industrial Arts at your school?_____.

12.) How many hours a day do you give course instruction?_____.

13.) How many hours during the school day do you have for class preparation?_____.

14.) Are you teaching courses in the Industrial Arts curriculum at your school which you feel most qualified to teach?
(Yes) (No)

APPENDIX III

COVER LETTER

Dear North Dakota Industrial Arts Teacher:

I am a graduate student at the University of North Dakota in Industrial Technology. To fulfill the requirements of the degree I must complete a thesis. The topic I have selected is "Job Satisfaction of Industrial Arts Instructors in North Dakota". The intention of this study is to determine what aspects of the Industrial Arts Instructors job are the cause of most dissatisfaction.

The area of teacher dissatisfaction/satisfaction has been frequently dealt with but little study in specific areas has been undertaken. With this study, documentation of specific problem areas needing attention from various levels of administration will occur. The survey questionnaire has been designed to require very little time to complete. Your time and honest reaction will be greatly appreciated. Please assist in this documentation for all our benefit. All responses are confidential.

For your convenience a stamped addressed envelope has been enclosed with the questionnaire. Please complete the questionnaire as soon as possible and return it. TARGET DATE IS MAY 15, 1978.

Upon request the results of this study will be available after Sept. 1, 1978 from:

Ron Dahl
Department of Industrial Technology
University of North Dakota
Grand Forks, North Dakota 58202

Thank you for your time and assistance.

Ron Dahl

APPENDIX IV

FOLLOW-UP LETTER

Dear Industrial Arts Educator:

Recently you received a survey entitled, "Job Satisfaction Survey for Industrial Arts Instructors: and "The Job Descriptive Index". You were asked to complete and return this survey to me as soon as possible.

I would like to take this opportunity to thank those of you who have completed and returned this survey. If you have not completed and returned the survey yet, please do so to enable me in continuing my research project. A high percentage of returns are necessary to obtain validity for my study.

I realize your time is at a premium this time of year. However, this survey requires only a few minutes to complete. This is little time when you consider the impact it might have on your profession.

Thank you for your consideration.

Sincerely,

Ron Dahl

RD/kf

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