Four factors affecting displaced workers being retrained in the area schools of Iowa

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Four factors affecting displaced workers
being retrained in the area schools of Iowa

by

Aldee Holleman

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE

Department: Industrial Education and Technology
Major: Industrial Vocational Technical Education

Signatures have been redacted for privacy

Iowa State University
Ames, Iowa
1985
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DEDICATION

This thesis is dedicated to my family, for their constant love and moral support during my college career. To Mr. Otis Holleman, my father; Mrs. Ella Holleman, my mother (deceased); Mrs. Ruth Lockheart-Holleman, my step-mother; and my brothers and sisters, Leo, Chester, Dorothy, Eva, Edna, James, Audrey, Melvin, and Harrell. Thank you for all you have done in helping me to get where I am.
CHAPTER I. INTRODUCTION

Throughout our history, industries have opened and closed or moved as part of what some economists call a "natural economic cycle." Yet the shutdowns occurring today are entirely different from the "normal" cycle of economic growth. In the past, the slower process of plant shutdowns during a normal business cycle, coupled with a healthy job market, made it easier for laid-off workers to obtain jobs at comparable wage and skill levels.

Today the recession, major changes in the structure of our economy, and a tight job market have combined to make plant shutdowns a more serious problem. Workers are threatened with unemployment from both traditional labor-displacing changes and unprecedented structural shifts in our economy. Changes in consumer demands, in technology, and within organizations are all causes of workers displacement. Changes in government policies, such as lower taxes followed by increased imports, can cause some firms to reduce or stop production and lay off their workers (Martin, 1983).

Since 1970, almost a million manufacturing jobs have been lost in the automotive, rubber, steel and other industries in the Northeast and Midwest. It is likely that many of these jobs are permanently lost due to shifts in the economy. At present, the workers experiencing the greatest displacement problem are in basic manufacturing industries, but this may not continue to be so in the near future. The need for retraining of displaced workers is likely to have an effect on other industries and other regions of the country due to shifts in consumer demands,
competition from foreign countries, technological changes, and plant relocation (Barth and Reisner, 1981).

The retraining of adult workers is critically important in addressing America's problem of productivity and its need for economic development. With the constant changes in our society and the great number of displaced workers, retraining programs are greatly needed. Iowa area schools are community-based institutions capable of providing the necessary vocational and technical education for displaced workers. These institutions provide educational training and development services to meet a wide variety of community needs and interests. There is great potential for area schools to assist displaced workers, which at the same time will strengthen the bonds between industry, labor, area schools, and the local communities.

Problem of the Study
This study is designed to investigate the economical, sociological, psychological and technological factors affecting displaced workers being retrained in the area schools of Iowa.

Purpose of the Study
The purpose of this study is to identify and describe the economical, sociological, psychological and technological factors affecting displaced workers being retrained in the area schools of Iowa.
Need for the Study

Over the last several years, plant shutdowns and mass layoffs have become a serious problem in the United States. Data on the problem are not collected systematically, so it is difficult to determine the true extent of the problem. However, between 1975 and 1981 some 13,000 plants, employing 2.2 million workers, applied for Trade Adjustment Assistance, asserting they were reducing employment as a result of import competition (Barth and Reisner, 1981). The Displacement Corporation of America reported in the Los Angeles Times that nationally about 1 million workers were laid off in 1981 because of partial or total plant shutdowns.

When a plant shuts down both employees and the local community suffers. Prolonged unemployment often follows a shutdown and reemployment is usually obtained only at a lower wage. Job loss does not stop at one plant shutdown. According to the California Plant Closures Project, the closing of a major manufacturing plant can cause the loss of up to 3.5 more jobs for every plant job in the supporting and public service industries that serve the plant or its workers. Boyle (1982) stated that workers who lose their jobs because of plant closures spend an average of six months to two years searching for work.

In Iowa in the three years from July of 1979 to July of 1982, over 94,000 jobs were lost, the state unemployment rate rose from 4.0% to 8.6% and the number of unemployed rose from 59.4 thousand to 121.7 thousand. In the five years, 1976 through 1980, there were over 600 manufacturing plants closed in Iowa (Lauria and Fisher, 1983). Lauria and Fisher also stated that in the meat packing industry alone, between 1975 and 1982,
twelve major plants (employing at least 100 persons) shut down completely, at least six smaller ones closed, and major portions of the operations at four other large plants were discontinued. About one-third (7,000-8,000) of all the jobs in the meat packing industry in 1975 were lost during this eight year period.

The retraining of adults has become a national trend. With the closing of plants and the increase in high technology in the work force, there is and will continue to be a great need for retraining programs. From a worker's viewpoint, the successful completion of a retraining program may be the prime requirement for remaining employed, when job requirements change or when a plant closes. From the employer's viewpoint, retraining may be a means by which productivity can be increased through the use of new machinery, equipment or processes. Therefore, both workers and management should have an interest in retraining the workforce.

The researcher sought to determine whether displaced workers from different regions of the state experienced significantly different characteristics during their unemployment. The 15 area schools were selected because these schools serve all the counties in the State of Iowa. Area schools have the staff, the facilities, and the experience to provide high-quality job-oriented training that can be tailored to suit the needs of displaced workers. While the problems of displaced workers are many, there is a great deal that can be done to assist in the transition to a new job.
Questions of the Study

1. Are there significant differences in economical factors (income, financial barriers and adjustments, etc.) affecting displaced workers being retrained at the area schools?

2. What extent did displaced workers express psychological distress (anger, shock, etc.) when learning of their displacement?

3. Were there significant differences in sociological factors (family, friends, etc.) affecting displaced workers being retrained at the area schools?

4. Was advanced technology (computers, robotics, automation, etc.) a factor in the displacement of workers?

Assumptions of the Study

1. The sample in this study was representative of displaced workers in the State of Iowa.

2. The sample subjects used in this study understood and gave honest answers to each question.

3. The questionnaire used to collect data is valid and reliable.

Limitations of the Study

1. The study was limited to cooperating area schools in Iowa.

2. The sample of this study was limited to displaced workers being retrained at those cooperating area schools.
General Procedure of the Study

To carry out this study, the following procedures were used:

1. Thorough review of relevant literature: This involved a survey of the literature and pertinent research in similar and related areas of study.

2. Selection of population: The population of this study is comprised of displaced workers in the State of Iowa. A total sample of 179 displaced workers was selected from cooperating area schools located through the 1984-85 Iowa Educational Directory.

3. Data collection: A questionnaire was used to collect data for this study. When approved by the Graduate Human Subjects Committee, the questionnaire was printed and mailed to the trainers (directors, supervisors, and instructors) of displaced workers at the cooperating area schools. The questionnaires were distributed by the trainers to the displaced workers. Once completed, the questionnaires were collected by the trainers and mailed to the investigator.

4. Data analysis: Data gathered were coded and analyzed using Statistical Package for Social Science (SPSS, 1983) in the computer facility of Iowa State University. The questions of the study were answered using the analysis of the coded data. Data collected were analyzed using one-way analysis of variance and chi-square ($x^2$).

5. Findings: The analyzed data were interpreted into findings as they relate to the questions of the study.
Definition of Terms

Area schools: are those technical or vocational schools used exclusively or principally for the preparation of persons who have completed or left high school to enter the labor market.

Displaced workers: refer to (1) workers unemployed due to plant closures or mass layoffs, (2) unemployed workers affected by economic or industrial changes which have resulted in loss or reduction of their employment opportunities.

Economical factors: refer to the financial impact (loss of income, financial barriers and adjustments) experienced by displaced workers and their families.

Psychological factors: refer to feelings of shock, anger, disbelief and disappointment experienced by displaced workers when they learned of their displacement.

Retraining: refers to the giving of new skills to displaced workers.

Sociological factors: refer to stress, depression, and irritability experienced by displaced workers. These feelings may be aimed at family members, friends or both.

Technological factors: refer to any high-tech, labor-saving devices such as computers and robots.
CHAPTER II. REVIEW OF LITERATURE

Introduction

This chapter includes a review of literature and research related to this study. The review was limited to printed materials and research relating to (1) economical effect of worker displacement, (2) sociological effect of worker displacement, (3) psychological effect of worker displacement, and (4) effect of technology on work and workers.

Economical Effect of Worker Displacement

The opening, closing and moving of businesses have been occurring throughout American history. Current research indicates large numbers of businesses open and close each year. Usually, these closures involve a small business venture that fails to break into the market successfully. In such cases, only a handful of employees are affected. The impact of this loss is usually short-lived as new economic ventures generate in its place.

But today, there is a new type of plant closure that has captured the attention of the American public. The closure of large manufacturing businesses is quite different from the constant activity associated with small businesses. With the closing of large businesses, communities experience a sudden change in their economic base. In many instances, with little or no warning, established businesses employing hundreds of workers are closing.

According to Barth and Reisner (1981), worker displacement "is
usually caused by structural changes in the economy. In particular, changes in demand for goods being produced, technological change, and shifts in the location of industrial activity either to other cities or other countries can cause the elimination or relocation of jobs and occupations." Ruff (1981) maintained that:

the forces causing displacement are complex and the proposed economic prescriptions vary substantially. For example, foreign competition appears to be a force to consider in estimating the future nature of the displacement problem, yet the impact is difficult to predict accurately. . . . The nature and magnitude of the displaced worker problem will also be influenced by macroeconomic policy. If the major portion of any national effort to revitalize American industry is directed toward today's declining industries, the need for retraining and upgrading will be substantially different than if the major effort is towards assisting up-and-coming industries. Regardless . . . many firms will likely be either retooling or re-locating to reduce labor costs during the coming decade (p. 14).

Most research on the subject of displacement has focused on north-eastern and midwestern cities where numerous plant closures have occurred. This is not surprising since these regions are the traditional manufacturing centers of the country. Harrison and Bluestone (1982) of Massachusetts Institute of Technology (MIT) and Boston College reported that 95,000 plants closed in New England between 1969 and 1976. This accounted for more than one million jobs lost. In Massachusetts alone, 45,000 plants closed resulting in a loss of some 508,000 jobs. A Congressional Budget Office (CBO) estimate indicates between 1.6 and 1.9 million persons lost their jobs, in early 1983, as a result of declining industries or declining occupations (Condon, 1984). Of this number,
250,000 persons were unemployed for more than 26 weeks. Other estimates account for early retirements and those who resorted to part-time employment, which puts the figure between 500,000 and 750,000 displaced persons who have not been absorbed in new employment.

Barth and Reisner (1981) believe that the dislocation problem exists when the laid-off worker has difficulties being reemployed in the economy, either because the worker is unable or unwilling to look for or accept a suitable new job or because job openings do not exist which are suitable for the worker on the basis of his or her skills. More specifically, the dislocation problem results from a mismatch between the demands of employers with jobs to offer and the skills and needs of displaced workers.

Shifts in the economy as a result of technological change, foreign competition or the specific national economic policy that is adopted, are expected to play a greater role in the coming decade. Many firms will likely be either retooling or relocating to reduce labor cost. Substantial retraining and upgrading will be required to reduce the number of displaced workers. The geographic areas which will be hardest hit are hard to predict with certainty, however, in the near future, the northeast and midwest will probably continue to be severely affected (Norman, 1981).

Sociological Effect of Worker Displacement

It has come to be widely held among social scientists that unemployment tends to have a severe negative impact upon individuals, resulting
in family stress and disorganization (Moen, 1979). Studies dating from the Depression of the 1930's indicate that unemployment can have a devastating effect upon men, leading to lowered morale, depression, anxiety, and other negative emotional states (Eisenberg and Lazarsfeld, 1938). Additional research (Braginsky and Braginsky, 1975; Leventman, 1976; Powell and Driscoll, 1973) has tended to confirm these earlier findings, and further, significant psychosomatic disabilities have been found to be connected with unemployment (Karl and Cobb, 1970). Slote (1977), in an intensive study of the closing of one plant, found that over half of the displaced workers suffered from psychosomatic symptoms, including ulcers, arthritis, serious hypertension, and alcoholism.

Given these individual effects of unemployment, it is not surprising to find that unemployment often has a negative impact upon families. Cavan (1959) noted that unemployment often led to disorganization and rearrangement of roles within the family. Studies from the thirties indicated that fathers tended to lose authority over wives and children, especially if the wife took a job (Stouffer and Lazarsfeld, 1937). Ginzberg (1971) noted that the failure of men to bring home a paycheck led to disturbed sexual relationships as well. Concerning the long-term effect of unemployment, Ginzberg observed, "we found ... disorganization in the lives of adults and children which resulted when work was no longer the fulcrum around which his life and the members of his family was organized." He further noted, "There were early developmental disturbances in children growing up in households where the father did not work" (pp. 230-231).
Liem and Liem (1979) reported on a study involving approximately 40 blue- and 40 white-collar families following the loss of jobs by the husbands. The most common reason for unemployment was layoff due to cutbacks, although some workers experienced plant shutdowns. Being without work, for husbands, was strongly associated with higher levels of psychiatric symptoms. Liem and Liem also reported on the psychiatric status of wives. Wives in unemployed families were also depressed, anxious, phobic, and sensitive about their interpersonal relationships. It was hypothesized that the stress of the husband's job loss was mediated, to the wives, by the impact of unemployment on the family system. The wives were exposed to a changed family environment, reflecting changes in mood and behavior of family members—especially the husband. Kantor (1977) believes an interdependence exists between the family and the workplace, that is threatened by the event of unemployment. Adaptive changes to unemployment are inevitable within the family, and they can become sources of stress for all family members.

One factor which may lessen the impact of unemployment upon families is the movement toward equality of the sexes and a diminishing of sex role stereotyping. Cavan (1959) and Powell and Driscoll (1973) stated that those families in which sex roles are more rigidly defined experience the greatest difficulty when the husband is unemployed. Powell and Driscoll further found that when roles began to be shared more equally, relations between husbands and wives became much better. On the other hand, when the husband refused to help with housework, although he was around the house all day, these families were most likely to
experience strained husband-wife relationships. Further, a husband whose masculinity was not threatened by deviations from strict sex-role stereotypes was more likely to encourage his wife to seek employment, and thereby reduce the financial stress of the family.

Richardson (1979) found that wives holding superior occupational positions to those of their husbands did not have less satisfactory marriages. In an analysis of cumulative data from 1972-1977, he found that those families in which wives held higher status jobs (20% of the families in which both spouses worked) marital satisfaction was not lower than those families in which occupational status was equal (52%) or husband's status higher (28%).

It is plain to see that unemployment does not simply happen to individuals. Kasl and Cobb (1979) reported a clear indication that emotional strain, not only for the unemployed individual, but also his family, was a direct consequence of work loss. Liem and Rayman (1982) stated that the structured and less formal interdependencies that describe our present-day social relations are the channels through which families, extended kin networks, and whole communities are potentially affected by the joblessness of individuals.

Psychological Effect of Worker Displacement

Work is a fundamental part of the American society. It provides our citizens with a reason and means by which to live. Secretary of Education Terrell H. Bell, in his former role as U. S. Commissioner of Education, stated:
Work in America is the means whereby a person is tested as well as identified. It is the way a youngster becomes an adult. Work shapes the thoughts and life of the worker. A change in atmosphere and life-style can be effected by an individual by simply changing the way he or she makes a living. For most of us in adult life, being without work is not living (Riegle, 1982, p. 1114).

Unemployment touches every aspect of family life, resulting in higher divorce rates, increased incidence of alcoholism and drug abuse, child and spouse abuse, and juvenile delinquency (Riegle, 1982). M. Harvey Brenner, a Johns Hopkins University sociologist, has studied the effects of long-term unemployment on the health of the population. He found that when unemployment rose one percentage point, suicides increased 4.1%, homicides 5.7%, deaths from heart disease, liver cirrhosis, and other stress-related disorders 1.9%, and 4.3% more men and 2.3% more women were admitted to mental hospitals. These figures, compiled from analysis of 30 years of data, suggest a wide array of serious problems that may be associated with unemployment (Riegle, 1982).

P. Eisenberg and P. F. Lazarsfeld (1938) seem to agree that the response to unemployment goes through three identifiable phases: first, there is shock, during which the individual is still optimistic about securing employment. Second, when all efforts to secure employment fail, the individual becomes pessimistic and suffers active distress. And third, the individual begins to adapt to the standard and lifestyle of being out of work. The unemployed worker may continue to look for work, but without any real hope of securing employment.
The initial response to unemployment can be traumatic, especially if it comes at the end of a long period of employment. Usually the initial response is one of denial and a feeling that nothing has happened. The individual regards himself as temporarily out of work and looks upon himself as having the same occupational identity as before. Unemployment at this stage may be looked upon as a holiday or an opportunity to get overdue jobs done around the house (Hill, 1978). Hill also stated that the feeling of well-being which is associated with such initial responses quickly wears away. Savings are exhausted, the holiday is over once the jobs around the house have been completed and the first few job applications have failed. The individual begins to accept the identity and standard of living of an unemployed person.

Jones (1972) stated that at this point there usually is a total change in the personality of the unemployed individual. The individual becomes institutionalized in unemployment, consciously wanting to get out, but too many rejections prevent escape. During this period, many individuals stop looking for employment. They have accepted the situation as a failure, and prefer not to be disturbed in that role.

Effect of Technology on Work and Workers

The United States is in an era in which the potential for mechanization in the factory and the office will dramatically alter work skill requirements. This will require employees and individuals preparing to enter the job market to enhance skills and/or to develop new ones. What happens in the next decade or two will perhaps change the way
Americans work as much as the industrial revolution did in the last century. The application of computer technology to the factory and the office "will affect almost every job and almost every aspect of work," according to James O'Toole, a professor at the University of Southern California's graduate school of business (Main, 1982).

Discussions of the impacts of automation on education and training for the American worker are hardly new. The National Commission on Technology, Automation, and Economic Progress (Automation Commission), in its 1966 report, noted shifts in skill requirements occurring during that decade. The report cites rapidly increasing employment levels of the highly skilled, as manifested in a technical work force that had grown from 6.6 percent of the total in 1947 to 12.2 percent of the total in 1964, and significant shifts during the same period from manual to white-collar work. The Commission report notes that the trend toward more formal schooling, particularly higher education, as well as the growing education gap between the skilled and the unskilled. The Commission observed that "the encouragement of an adaptable labor force fostered through education and training is second in importance only to the provision of adequate employment opportunities in the facilitation of adjustment to technological and other changes."

While the Automation Commission's report focused on the role of education and training as a complement to technological change in stimulating national economic development, more recent studies focus on education and training and new technology as factors in regional, state, and local economic growth. Choate (1982) reported basic skills
deficiencies as a critical problem already depressing economic growth rates in the northeast and midwest and threatening U.S. participation in international markets. Choate also recommends a unified policy for training, retraining, and skills upgrading for all workers.

A study conducted by Wingate and Leroy (1981) found that an appropriately trained work force is the strongest influence on location decisions of advanced technology companies and is critical to expanding that state's electronic economy. They recommend: 1) diverting resources within Connecticut education institutions to programs that graduate individuals qualified to enter high technology industries, as well as 2) publicizing existing in-state continuing education programs for working, corporate-based professionals. Another conducted in 1982, by the New York State Science and Technology Foundation, found that universities could participate in state economic development through cooperative university/industrial education programs, cooperative university/industry research and development programs and improved responsiveness to unique industry needs.

In 1982, the Office of Technology Assessment (OTA) study, Informational Technology and Its Impact on American Education, found that in order to function as citizens in an information-based society, individuals must have knowledge of the computer as a tool for managing and providing access to massive amounts of information. This need to understand the applications of computer technology has resulted in a modified definition of basic literacy that includes familiarity with the computer. "Technological literacy" is now a common term, according to OTA, used
to describe a level of understanding of technology in its various forms that goes beyond a familiarity with computer. Experts suggest that technological literacy will soon be required of all members of the workforce, as broader and more extensive applications of information technology are made in offices and factories. According to a 1982 issue of U.S. News and World Report, widespread technological literacy may be hard to achieve, since about one-fifth of the U.S. population has yet to master the basic skills of reading, writing, and arithmetic.

Summary

The impact of a plant closure or mass layoff can be devastating. The workers who suddenly and unexpectedly lose their jobs face the difficult task of finding a new one. In many cases, displaced workers have worked at the same occupation for 10 or more years. Not only must workers try to find new jobs but they must compete with other displaced workers, who may have better skills.

Perhaps the most serious impact of plant closure or mass layoff is the loss of self-confidence and a feeling of uselessness experienced by the workers. Displaced workers not only lose their means of support but also their daily association with fellow workers.

While the problems of displaced workers are not easily overcome, a great deal can be done to assist in the transition to a new job. Retraining programs are an important part of plant closure assistance programs. These programs should be linked directly with the local employment service and to specific employers with job openings or highly
probable job openings.

The review of the literature and previous research provided the investigator with a clear understanding of the problems, issues, and findings of other investigators. It also helped the investigator to formulate the content of the instrument and analysis of data.
CHAPTER III. METHODS AND PROCEDURES

The purpose of this study was to identify and describe the economical, sociological, psychological, and technological factors affecting displaced workers being retrained in the area schools of Iowa. This chapter reports the research procedures employed to accomplish the purpose of the study and is divided into the following sections: (1) population and sample, (2) instrument development, (3) data collection, and (4) data analysis.

Population and Sample

The population selected for this study comprised of displaced workers in the State of Iowa. The names and locations of the area schools were obtained from the 1984-85 Iowa Educational Directory.

The sample of the population consisted of a total of 179 subjects being retrained at the six cooperating area schools in Iowa.

Instrument Development

Due to available resources and time constraints for this study, a mailed questionnaire was used for the collection of data. Wentling (1980) stated that a questionnaire can be administered to a group rather than on a one-to-one basis, minimizing personnel time. Borg and Gall (1983), also stated that with careful planning and sound methodology, the questionnaire can be a very valuable research tool in education.

The questionnaire designed specifically to determine how being unemployed affects people by McClure and Clark (1982) was used with modifications for the purpose of collecting data. Revisions in the questionnaire
were made to more adequately reflect displaced workers in Iowa. To ensure the content validity of the questionnaire, a field test was conducted. Included in field testing of the questionnaire were the following groups:

1. Selected vocational teachers and counselors of displaced workers in Iowa.
2. Industrial Education and Technology faculty members at Iowa State University.
3. Graduate students in Industrial Education and Technology at Iowa State University.

Participants in the field test were asked to review the questionnaire and point out inconsistencies, poor wording, and problems of interpretation of the items. After the field test was completed, comments made by participants were taken into account and the questionnaire was revised and printed in its final form.

The questionnaire was designed to gather information relating to the following:

1. Demographic information (age, sex, marital status, level of education)
2. Benefits of the training program
3. Length of the training program
4. Trainee's perception of the program
5. Most difficult period during unemployment
6. Family stress during unemployment
7. Psychological distress
8. Financial help received during unemployment
9. Financial adjustments made during unemployment
10. Effect of technology on workers

Each of the questionnaires was assigned an identification number to conceal the identity of the respondent. A cover letter explaining the purpose of the study and assuring confidentiality of reported information was signed by the investigator and the major professor. The letter was approved by the Human Subjects Committee of Iowa State University (see Appendix A).

Data Collection

Letters of inquiry were mailed to the 15 area schools in the State of Iowa. Of the 15 area schools, 6 declared their desire to participate in the study. Trainers at each of the six area schools were contacted and asked how many displaced workers were in their training programs. As a result of this request, a total of 179 subjects were identified and sent questionnaires. About a month after the first mailing, telephone calls were made to the nonrespondents requesting the completion and return of the questionnaire. As a result of this appeal, a total of only 76 (42.5%) usable questionnaires were returned.

Data Analysis

On February 15, 1985, data collection ceased. A code sheet was developed to facilitate response recording. The data were then input into the mainframe computer at Iowa State University. The data were analyzed using the Statistical Package for the Social Sciences (SPSSX,
1983) The .05 level of significance was set as the critical value for all analysis.

Data were analyzed and summarized using the following statistical procedures:

1. For all items included on the questionnaire, frequencies, percentages, means, and standard deviations were computed.

2. Chi-square ($X^2$) was used to detect significant differences between displaced workers at the six area schools based upon economical, sociological and technological factors.

3. One-way analysis of variance was used to detect significant differences in psychological distress between displaced workers at the six area schools.

The statistical procedures used were selected to suit the data for general information, the questions of the study and the following research hypotheses.

**Hypothesis 1:**

$H_0$ There was no significant difference in economical factors affecting displaced workers at the six area schools.

$H_A$ At least one school was significantly different from the others in economical factors.

**Hypothesis 2:**

$H_0$ There was no significant difference (between means) in psychological distress among displaced workers at the six area schools.

$H_A$ At least one school has a significantly different mean.
Hypothesis 3:

\[ H_0 \] There was no significant difference in sociological factors affecting displaced workers at the six area schools.

\[ H_A \] At least one school was significantly different from the others in sociological factors.

Hypothesis 4:

\[ H_0 \] Technology was not a factor in the displacement of workers at the six area schools.

\[ H_A \] Technology was a significant factor among displaced workers in at least one of the area schools.

The findings of this study reported in Chapter IV resulting from the data analyzed followed the procedures outlined in this chapter. The researcher's conclusions and recommendations were drawn on the basis of the data analyzed.
CHAPTER IV. FINDINGS

The study was designed to identify and describe the economical, sociological, psychological and technological factors affecting displaced workers being retrained in the area schools of Iowa. The major findings are based on the data collected by means of a questionnaire sent to displaced workers at the six area schools. The findings as presented in this study were structured into three parts:

1. Demographic information
2. Research hypotheses
3. Summary of findings.

Demographic Information

The population for this study included displaced workers in the State of Iowa. The representative sample consisted of a total of 179 subjects being retrained at six cooperating area schools. Of the total 179 subjects, 76 (42.5%) completed questionnaires were returned for analysis. Table 1 summarizes the distribution of the returned questionnaires by sex. More than 68% of the respondents were male, while 31.6% were female.

Table 1. Percentage of respondents by sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>52</td>
<td>68.4</td>
</tr>
<tr>
<td>Female</td>
<td>24</td>
<td>31.6</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100.0</td>
</tr>
</tbody>
</table>
The age ranges of the displaced workers are presented in Table 2. It was observed that 27 workers (35.5%) were between 31 and 40 years of age. Twenty-six workers (34.2%) were between 41 and 50 years of age. Thirteen workers (17.1%) were between 22 and 30 years of age. Eight workers (10.5%) were over the age of 50, while only 2 (2.6%) were 21 years of age or younger.

Table 2. Age of respondents

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 and under</td>
<td>2</td>
<td>2.6</td>
</tr>
<tr>
<td>22-30</td>
<td>13</td>
<td>17.1</td>
</tr>
<tr>
<td>31-40</td>
<td>27</td>
<td>35.5</td>
</tr>
<tr>
<td>41-50</td>
<td>26</td>
<td>34.2</td>
</tr>
<tr>
<td>51 and over</td>
<td>8</td>
<td>10.5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>76</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3 is a breakdown of the educational attainment of the displaced workers. More than 81% of the displaced workers had completed a high school education or less. Also, 6.6% indicated that they had Associate degrees from a two-year college and 6.6% responded that they had a Baccalaureate degree.

Concerning the question, "nature of former employer's business," it was found the highest percentage was represented by the manufacturing industry, followed by the service industry, while others followed as indicated in Table 4.
Table 3. Highest level of education by displaced workers

<table>
<thead>
<tr>
<th>Education</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than High School degree</td>
<td>5</td>
<td>6.6</td>
</tr>
<tr>
<td>High School diploma</td>
<td>57</td>
<td>75.0</td>
</tr>
<tr>
<td>Associate degree</td>
<td>5</td>
<td>6.6</td>
</tr>
<tr>
<td>Bachelor of Science degree</td>
<td>5</td>
<td>6.6</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Others</td>
<td>3</td>
<td>3.9</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>76</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 4. Nature of former employer's business

<table>
<thead>
<tr>
<th>Business</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>28</td>
<td>36.8</td>
</tr>
<tr>
<td>Service</td>
<td>18</td>
<td>23.7</td>
</tr>
<tr>
<td>Distribution</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>Construction</td>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td>Self-employed</td>
<td>9</td>
<td>11.8</td>
</tr>
<tr>
<td>Others</td>
<td>11</td>
<td>14.5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>76</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table 5 summarizes the number of employees employed by the former employers of the displaced workers who participated in this study.

Table 5. Number of employees by previous employer

<table>
<thead>
<tr>
<th>Employees</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 and over</td>
<td>17</td>
<td>22.4</td>
</tr>
<tr>
<td>800-999</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>600-799</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>400-599</td>
<td>3</td>
<td>3.9</td>
</tr>
<tr>
<td>200-399</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>50-199</td>
<td>7</td>
<td>9.2</td>
</tr>
<tr>
<td>10-49</td>
<td>14</td>
<td>18.4</td>
</tr>
<tr>
<td>1-11</td>
<td>25</td>
<td>32.9</td>
</tr>
<tr>
<td>No response</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>76</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Of the 76 sample subjects, 51.3% of the displaced workers reported that their former employer had less than 50 employees. Also, 9.2% reported their employer had between 50-199 employees, 5.3% reported between 200-399 employees, 3.9% reported between 400-599 employees, while 22.4% reported between 1,00 or more employees. This breakdown revealed that most displaced workers were employed by relatively small businesses and industries.

Further, it was found that almost 29% of the displaced workers, shown in Table 6, had worked for their former employer between 11 and 25 years.
More than 15% served 6-10 years, while 5% served more than 25 years for their former employer.

Table 6. Years served by displaced workers

<table>
<thead>
<tr>
<th>Years</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year or less</td>
<td>13</td>
<td>17.1</td>
</tr>
<tr>
<td>1-5 years</td>
<td>23</td>
<td>30.3</td>
</tr>
<tr>
<td>6-10 years</td>
<td>12</td>
<td>15.8</td>
</tr>
<tr>
<td>11-25 years</td>
<td>22</td>
<td>28.9</td>
</tr>
<tr>
<td>25 and over</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>No response</td>
<td>2</td>
<td>2.6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>76</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Research Hypotheses

**Hypothesis 1**

There were no significant differences in economical factors (income, financial barriers and adjustments) affecting displaced workers being retrained at the area schools. This hypothesis was tested against the alternative hypothesis that there was a difference in economical factors among the area schools.

Table 7 shows the results of the chi-square ($X^2$) test for Hypothesis 1 relating to gross monthly income of displaced workers during their unemployment.
<table>
<thead>
<tr>
<th>Monthly Income</th>
<th>School</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Column Subtotal</th>
<th>17</th>
<th>14</th>
<th>5</th>
<th>8</th>
<th>Total</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Income</td>
<td></td>
<td>12(10.9)</td>
<td>8(9.0)</td>
<td>10(10.9)</td>
<td>12(9.0)</td>
<td>4(5.1)</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly Income</td>
<td></td>
<td>1</td>
<td>5(6.1)</td>
<td>6(5.0)</td>
<td>7(6.1)</td>
<td>2(5.0)</td>
<td>3(1.8)</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>17</td>
<td>14</td>
<td>5</td>
<td>8</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: $X^2=5.59; df=5; 	ext{Significance}=0.3472$ at $P<.05$. 

- Number in parentheses indicate the expected frequencies.
As displayed in Table 7, the chi-square ($X^2$) test was not significant at the .05 level, so the null hypothesis was retained. The results revealed that the gross monthly income of displaced workers was not significantly different. Further, it was found that 48 (64%) reported a gross monthly income of $0, while 27 (36%) reported an average gross monthly income of $195.

Tables 8-10 show the results of chi-square ($X^2$) tests for Hypothesis 1 relating to financial barriers affecting displaced workers becoming satisfactorily employed. The list of financial barriers includes (1) cost of retraining, (2) cost of employment agency, and (3) cost of career counseling. Table 8 specifically dealt with the cost of retraining as a barrier affecting displaced workers becoming satisfactorily employed.

The results of the chi-square ($X^2$) test, presented in Table 8, show that cost of retraining was not significant at the .05 level. It also showed 30 (63.8%) of the displaced workers considered cost of retraining as a barrier to them becoming satisfactorily employed, while 17 (36.2%) did not. These findings should be interpreted with caution because of the small number of frequencies in some of the chi-square ($X^2$) cells.

The results of the chi-square ($X^2$) test, presented in Table 9, indicate that the cost of an employment agency was not significant at the .05 level. Further, 39 (83.0%) of the respondents did not consider the cost of an employment agency as a barrier to them becoming satisfactorily employed, although 8 (17.0%) did.

Table 10 specifically dealt with the cost of career counseling as a barrier affecting displaced workers becoming satisfactorily employed.
Table 8. Cost of retraining as a barrier in becoming employed

<table>
<thead>
<tr>
<th>Cost of Retraining</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>School 4</th>
<th>5</th>
<th>6</th>
<th>Row Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not a barrier</td>
<td>7(5.1)</td>
<td>1(2.2)</td>
<td>5(3.3)</td>
<td>3(4.3)</td>
<td>1(1.4)</td>
<td>0(0.7)</td>
<td>17</td>
</tr>
<tr>
<td>Barrier</td>
<td>7(8.9)</td>
<td>5(3.8)</td>
<td>4(5.7)</td>
<td>9(7.7)</td>
<td>3(2.6)</td>
<td>2(1.3)</td>
<td>30</td>
</tr>
<tr>
<td>Column subtotal</td>
<td>14</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>4</td>
<td>2</td>
<td>Total 47</td>
</tr>
</tbody>
</table>

Note: $X^2=5.61$; df=5; Significance=0.3459 at $P<.05$.

$^a$Number in parentheses indicate the expected frequencies.
Table 9. Cost of employment agency as a barrier to becoming employed

<table>
<thead>
<tr>
<th>Employment Agency</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Row Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not a barrier</td>
<td>11</td>
<td>5 (5.0)</td>
<td>8 (7.5)</td>
<td>10 (10.0)</td>
<td>4 (3.3)</td>
<td>1 (1.7)</td>
<td>39</td>
</tr>
<tr>
<td>Barrier</td>
<td>1</td>
<td>3 (2.4)</td>
<td>1 (1.0)</td>
<td>1 (1.5)</td>
<td>2 (2.0)</td>
<td>0 (0.7)</td>
<td>1 (0.3)</td>
</tr>
<tr>
<td>Column subtotal</td>
<td>14</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>4</td>
<td>2</td>
<td>Total 47</td>
</tr>
</tbody>
</table>

Note: X²=2.77; df=5; Significance=0.7343 at P<.05.

aNumber in parentheses indicate the expected frequencies.
Table 10. Cost of career counseling as a barrier to becoming employed

<table>
<thead>
<tr>
<th>Career Counseling</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Row Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not a barrier</td>
<td>11(11.6)a</td>
<td>5(5.0)</td>
<td>8(7.5)</td>
<td>10(10.0)</td>
<td>4(3.3)</td>
<td>1(1.7)</td>
<td>39</td>
</tr>
<tr>
<td>Barrier</td>
<td>1(2.4)</td>
<td>1(1.0)</td>
<td>1(1.5)</td>
<td>2(2.0)</td>
<td>0(0.7)</td>
<td>1(0.3)</td>
<td>8</td>
</tr>
<tr>
<td>Column subtotal</td>
<td>14</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>4</td>
<td>2</td>
<td>Total 47</td>
</tr>
</tbody>
</table>

Note: $X^2=2.77$; df=5; Significance=0.7343 at $P<.05$.

aNumber in parentheses indicate the expected frequencies.
The results show that 39 (83.0%) of the respondents did not consider the cost of career counseling as a barrier, while 8 (17.0%) felt cost of career counseling was a barrier.

Tables 8-10 tend to support Hypothesis 1 in that no significant difference was found among financial barriers affecting displaced workers being retrained at the six area schools.

Tables 11-14 show the results of chi-square ($X^2$) tests for Hypothesis 1 relating to financial adjustments made by displaced workers and their families. The list of financial adjustments includes: (1) delayed payments, (2) delayed purchases, (3) cut back of food, and (4) delayed medical/dental care.

Table 11 dealt specifically with delayed payments made by displaced workers during their unemployment.

The results in Table 11 indicate that 31 (43.7%) of the displaced workers delayed payments on items during their unemployment, while 40 (56.3%) indicated that they did not. The results of the chi-square ($X^2$) test were not significant at the .05 level.

Table 12 gives a breakdown of whether displaced workers delayed purchases of items during their unemployment. Of the 71 displaced workers responding to the question, 50 (70.4%) stated that they delayed purchasing items, while 21 (29.6%) stated that they did not.

The results of the chi-square ($X^2$) test, as presented in Table 13, show that there was no significant difference at level .05. They also show 38 (53.5%) of the displaced workers did cut back on food during their unemployment, while 33 (46.5%) stated that they did not.
Table 11. Response of subjects about delayed payments

<table>
<thead>
<tr>
<th>Delayed Payments</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>School</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Row Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
<td>9(9.6)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9(7.9)</td>
<td>7(7.9)</td>
<td>7(7.9)</td>
<td>4(2.8)</td>
<td>4(3.9)</td>
<td>40</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
<td>8(7.4)</td>
<td>5(6.1)</td>
<td>7(6.1)</td>
<td>7(6.1)</td>
<td>1(2.2)</td>
<td>3(3.1)</td>
<td>31</td>
</tr>
<tr>
<td>Column subtotal</td>
<td>17</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>5</td>
<td>7</td>
<td>Total 71</td>
<td></td>
</tr>
</tbody>
</table>

Note: $X^2=2.03; \ df=5; \ Significance=0.8441$ at $P<.05$.

<sup>a</sup>Number in parentheses indicate the expected frequencies.
Table 12. Response of subjects about delayed purchases

<table>
<thead>
<tr>
<th>Delayed Purchases</th>
<th>1</th>
<th>2</th>
<th>School</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Row Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
<td>10(9.6)$^a$</td>
<td>4(4.1)</td>
<td>3(4.1)</td>
<td>3(4.1)</td>
<td>0(1.5)</td>
<td>1(2.1)</td>
<td>21</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
<td>7(12.0)</td>
<td>10(9.9)</td>
<td>11(9.9)</td>
<td>11(9.9)</td>
<td>5(3.5)</td>
<td>6(4.9)</td>
<td>50</td>
</tr>
<tr>
<td>Column subtotal</td>
<td>17</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>5</td>
<td>7</td>
<td></td>
<td>Total 71</td>
</tr>
</tbody>
</table>

Note: $X^2=10.76; df=5; Significance=0.0562 at P<.05.$

$^a$Number in parentheses indicate the expected frequencies.
Table 13. Cutback of food by subjects

<table>
<thead>
<tr>
<th>Food</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Row Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
<td>7(7.9)(^a)</td>
<td>9(6.5)</td>
<td>6(6.5)</td>
<td>5(6.5)</td>
<td>3(2.3)</td>
<td>3(3.3)</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
<td>10(9.1)</td>
<td>5(7.5)</td>
<td>8(7.5)</td>
<td>9(7.5)</td>
<td>2(2.7)</td>
<td>4(3.7)</td>
</tr>
<tr>
<td>Column subtotal</td>
<td>17</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>5</td>
<td>7</td>
<td>Total</td>
</tr>
</tbody>
</table>

Note: \(X^2=3.10; df=5;\) Significance=0.6835 at \(P<.05.\)

\(^a\)Number in parentheses indicate the expected frequencies.
Table 14. Reduction of medical/dental care by subjects

<table>
<thead>
<tr>
<th>Reduction of Medical/Dental Care</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Row Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
<td>8(7.7)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9(6.3)</td>
<td>7(6.3)</td>
<td>3(6.3)</td>
<td>2(2.3)</td>
<td>3(3.2)</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
<td>9(9.3)</td>
<td>5(7.7)</td>
<td>7(7.7)</td>
<td>11(7.7)</td>
<td>3(2.7)</td>
<td>4(3.8)</td>
</tr>
<tr>
<td>Column subtotal</td>
<td>17</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>5</td>
<td>7</td>
<td>Total 71</td>
</tr>
</tbody>
</table>

Note: $X^2 = 5.47; df = 5; Significance = 0.3602$ at $P < .05$.

<sup>a</sup>Number in parentheses indicate the expected frequencies.
The results in Table 14 indicate that 39 (54.9%) of the displaced workers sampled, made reductions in medical and dental care during their unemployment, whereas 32 (45.1%) stated that they did not. The results of the chi-square ($X^2$) test were not significant at the .05 level.

There was insufficient evidence to reject the null hypothesis that there was no significant difference in economical factors affecting displaced workers at the six area schools.

**Hypothesis 2**

It was hypothesized that there was no significant mean differences among the six area schools in terms of psychological distress of workers during their unemployment. This hypothesis was tested against the alternative hypothesis which states that there was a significant mean difference between psychological distress among the area schools.

The list of psychological distress includes: (1) irritability (short temper), (2) depression, (3) disbelief and (4) betrayal. The displaced workers were asked to what extent did they experience these variables during their unemployment. The variables were rated on a five-point scale where 5 = extremely, 4 = very, 3 = some, 2 = little, and 1 = none.

Tables 15-18 show the results of one-way analysis of variance (ANOVA) tests relating to the degree of psychological distress experienced by displaced workers during their unemployment. A Turkey's test was used to identify the area schools that had significantly different means. Those means were reported at the bottom of each ANOVA table.

Table 15 gives a breakdown of ANOVA test regarding irritability. It was found that area school 1, with a mean of 2.46, was significantly
Table 15. ANOVA of the responses of subjects regarding irritability (short temper)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F ratio</th>
<th>F prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>5</td>
<td>28.6987</td>
<td>5.7397</td>
<td>2.6922</td>
<td>.0298*</td>
</tr>
<tr>
<td>Within groups</td>
<td>57</td>
<td>121.5236</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>150.2222</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: mean of school 1 = 2.46; mean of school 3 = 4.06. Standard deviation of school 1 = 1.84; standard deviation of school 3 = 0.96.

*P<.05.

Table 16. ANOVA of the responses of subjects regarding depression

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F ratio</th>
<th>F prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>5</td>
<td>38.4897</td>
<td>7.6970</td>
<td>3.9489</td>
<td>.0036**</td>
</tr>
<tr>
<td>Within groups</td>
<td>61</td>
<td>118.9133</td>
<td>1.9494</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>157.4030</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: mean of school 1 = 3.81; mean of school 2 = 4.20; mean of school 4 = 4.09; mean of school 6 = 1.75. Standard deviation of school 1 = 1.75; standard deviation of school 2 = 1.26; standard deviation of school 3 = 0.94; standard deviation of school 4 = 1.22; standard deviation of school 6 = 1.58.

**P<.01.
Table 17. ANOVA of the responses of subjects regarding disbelief

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F ratio</th>
<th>F prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>5</td>
<td>33.7706</td>
<td>6.7541</td>
<td>2.5747</td>
<td>.0353*</td>
</tr>
<tr>
<td>Within groups</td>
<td>61</td>
<td>160.0205</td>
<td>2.6233</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>193.7910</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Mean of school 3 = 3.73; mean of school 4 = 3.91; mean of school 6 = 1.62. Standard deviation of school 3 = 1.43; standard deviation of school 4 = 1.62; standard deviation of school 6 = 1.06.

*P<.05.

Table 18. ANOVA of the responses of subjects regarding betrayal

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F ratio</th>
<th>F prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>5</td>
<td>41.3160</td>
<td>8.2632</td>
<td>3.1410</td>
<td>.0138*</td>
</tr>
<tr>
<td>Within groups</td>
<td>61</td>
<td>160.4750</td>
<td>2.6307</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>201.7910</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Mean of school 3 = 3.86; mean of school 4 = 4.00; mean of school 6 = 1.62. Standard deviation of school 3 = 1.50; standard deviation of school 4 = 1.61; standard deviation of school 6 = 1.50.

*P<.05.
different from area school 3, which had a mean of 4.06.

Table 16 dealt specifically with depression of displaced workers during their unemployment. The one-way ANOVA test revealed that area school 6, with a mean of 1.75, was significantly different from area schools 1, 2 and 4, with means of 3.81, 4.20 and 4.09, respectively.

The results in Table 17 indicate that there were significant differences between the displaced workers regarding their disbelief when learning of their unemployment. It was found that area school 6, with a mean of 1.62, was significantly different from area school 3, with a mean of 3.73, and area school 4, which had a mean of 3.91.

Table 18 dealt with the feeling of betrayal expressed by the displaced workers during their unemployment. The ANOVA test revealed that area school 6, with a mean of 1.62, was significantly different from area schools 3 and 4, with means of 3.86 and 4.00, respectively.

The results of Tables 15-18 indicated that there was a significant difference in psychological distress among the six area schools. Based on the results, the null hypothesis was rejected and the alternative hypothesis accepted.

Hypothesis 3

It was hypothesized that there was no significant differences in sociological factors (family and friends) affecting displaced workers during their unemployment. To test this hypothesis, chi-square (X²) tests were used and the results are presented in Tables 19 and 20.

The results in Table 19 reveal that 39 (57.4%) of the displaced workers stated that they did not experience any increase in marital/family
<table>
<thead>
<tr>
<th>Marital/family Problems</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>School</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Row Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
<td>12(9.8)</td>
<td>7(5.7)</td>
<td>7(9.8)</td>
<td>4(7.5)</td>
<td>3(2.3)</td>
<td>6(4.0)</td>
<td>39</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
<td>5(7.3)</td>
<td>3(4.3)</td>
<td>10(7.3)</td>
<td>9(5.5)</td>
<td>1(1.7)</td>
<td>1(3.0)</td>
<td>29</td>
</tr>
<tr>
<td>Column subtotal</td>
<td>17</td>
<td>10</td>
<td>17</td>
<td>13</td>
<td>4</td>
<td>7</td>
<td>Total 68</td>
<td></td>
</tr>
</tbody>
</table>

Note: $X^2=10.25$; df=5; Significance=0.0683 at $P<.05$.

*Number in parentheses indicate the expected frequencies.*
Table 20. Friendship problems by respondents

<table>
<thead>
<tr>
<th>Friendship Problems</th>
<th>School 1 (13.3)</th>
<th>School 2 (7.8)</th>
<th>School 3 (13.3)</th>
<th>School 4 (10.1)</th>
<th>School 5 (3.1)</th>
<th>School 6 (5.5)</th>
<th>Row Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
<td>9</td>
<td>13</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>53</td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>Column subtotal</td>
<td>17</td>
<td>10</td>
<td>17</td>
<td>13</td>
<td>4</td>
<td>7</td>
<td>Total 68</td>
</tr>
</tbody>
</table>

Note: $X^2=1.08; df=5; Significance=0.9551 at P<.05.$

*Number in parentheses indicate the expected frequencies.*
problems during their unemployment, while 29 (42.6%) stated they did. The chi-square ($X^2$) test used to gain these results was not significant at the .05 level.

Table 20 gives a breakdown of a chi-square ($X^2$) test regarding friendship problems experienced by displaced workers during their unemployment. It was found that 53 (77.9%) of the displaced workers stated that their friends did not change during their unemployment, while 15 (22.1%) stated their friends changed for the worse.

The results presented in Tables 19 and 20 indicated that there were no significant differences at the .05 level among sociological factors affecting displaced workers at the six area schools. The null hypothesis was accepted based on these findings.

**Hypothesis 4**

It was hypothesized that advanced technology (computers, robotics and automation) was not a factor in the displacement of workers.

Table 21 gives a breakdown of whether displaced workers considered high technology as a factor in their displacement.

A very small number of respondents considered high technology as a factor in their displacement. Only 4 (5.6%) considered high technology as a factor, while 68 (94.4%) stated that it was not a factor. Based on the results of Table 21, the null hypothesis was accepted.

**Summary of Findings**

The findings resulting from the analysis of data gathered covered three major areas.
Table 21. Technology as a factor in displacement

<table>
<thead>
<tr>
<th>Technology</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>School</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Row Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
<td>14(16.1)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>12(12.3)</td>
<td>16(15.1)</td>
<td>13(12.3)</td>
<td>5(4.7)</td>
<td>8(7.6)</td>
<td>68</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
<td>3(0.9)</td>
<td>1(0.7)</td>
<td>0(0.9)</td>
<td>0(0.7)</td>
<td>0(0.7)</td>
<td>0(0.4)</td>
<td>4</td>
</tr>
<tr>
<td>Column subtotal</td>
<td>17</td>
<td>13</td>
<td>16</td>
<td>13</td>
<td>5</td>
<td>8</td>
<td>Total 72</td>
<td></td>
</tr>
</tbody>
</table>

Note: $X^2=7.32$; df=5; Significance=0.1979 at P<.05.

<sup>a</sup>Number in parentheses indicate the expected frequencies.
1. Demographic information: The data revealed information about sex, age, education and years of work experience of the displaced workers.

2. Research hypothesis: To answer the questions of the study, four hypotheses were tested. For Hypothesis 1, a chi-square ($X^2$) statistic at the .05 level revealed that there was no significant difference in economical factors affecting displaced workers at the six area schools. The null hypothesis was accepted at the .05 level of significance.

The second hypothesis was rejected based on the evidence that there were significant differences between the six area schools relating to psychological distress.

For Hypothesis 3, the results indicated no significant differences in sociological factors affecting displaced workers. The null hypothesis was accepted at the .05 level of significance.

Concerning high technology as a factor in the displacement of workers, the data revealed that more than 94% of the displaced workers did not consider high technology as a factor in their displacement. The null hypothesis was accepted based on these results.
CHAPTER V. SUMMARY, CONCLUSIONS
AND RECOMMENDATIONS

This chapter is the final section of the study. The function and purpose of this chapter is to summarize the preceding chapters, draw conclusions based on the findings, and present some recommendations for further research.

Summary and Conclusions

This section provides a summary and the conclusions of the study which are presented in relation to each research hypothesis. The four research hypotheses are restated followed by a brief discussion of the findings.

Restatement of the problem

The problem of the study was to investigate the economical, sociological, psychological and technological factors affecting displaced workers in the area schools of Iowa.

Restatement of the purpose

The purpose of the study was to identify and describe the economical, sociological, psychological and technological factors affecting displaced workers in the area schools of Iowa.

Research hypothesis I

It was hypothesized that there was no significant difference in economical factors affecting displaced workers at the six area schools.
Discussion

It was concluded, based on the data reported in Tables 7-14 of Chapter IV, there was no significant difference in economical factors affecting displaced workers at the area schools.

Research hypothesis 2

It was hypothesized that there was no significant mean difference in psychological factors affecting displaced workers at the six area schools.

Discussion

Based on the data in Tables 15-18, it was discovered that there were significant mean differences in psychological distress experienced by displaced workers during their unemployment. The null hypothesis was rejected based on these findings.

Research hypothesis 3

Were there significant differences in sociological factors affecting displaced workers being retrained at the area schools?

Discussion

It was concluded that there was no significant difference in sociological factors affecting displaced workers during their unemployment. This conclusion was based on the data in Tables 19 and 20. The null hypothesis was accepted based on these findings.
Research hypothesis 4

Was advanced technology a factor in the displacement of workers?

Discussion

Based on the data reported in Table 21, high technology was not considered as a significant factor in the displacement of workers. The null hypothesis was accepted based on these findings.

Recommendations

On the basis of the findings, the following recommendations are made:

1. Further research should be conducted on the relationship between private industries and educational institutions that provide retraining programs for displaced workers.

2. Only a small number of displaced farmers was included in the sample of this study. But with the increasing number of farm foreclosures in the State of Iowa, further research should be conducted on the retraining of displaced farmers.

3. Research should be conducted on the placement rate of displaced workers after retraining.

4. This research should be duplicated using a larger sample population.
BIBLIOGRAPHY


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ACKNOWLEDGMENTS

This study would not be complete without my thanking the people who were instrumental in its production. Special thanks are extended to Miss Doris Holmes for her support and constant encouragement during this study and my college career.

Many thanks are given to my major professor, Dr. William D. Wolansky for his patience, continuing assistance and guidance during the course of this study. Also a great deal of appreciation goes to the other members of my committee, Dr. Trevor Howe and Dr. Penny Ralston, for their suggestions in writing the study.

My acknowledgment and appreciation also extend to the following individuals: Susan Danks, for typing the study and being such a cooperative and nice person; Arthur Jefferson and Li-Zing Lin, for their help in coding the data and writing and running the computer program; and to the graduate students in the Industrial Education and Technology Department for their support during this study.

Finally, my thanks go to the displaced workers who participated in this study. Without your help this study would not have been possible.
November 12, 1984

Dear Training Director:

I am a graduate student in Industrial Education and Technology conducting a study to investigate the economical, sociological, psychological and technological factors affecting displaced workers in the area schools of Iowa.

Enclosed is a questionnaire, which should be completed by the trainees in your training program. They should follow the directions to respond to the questions, and return the completed questionnaire to you.

Your help by returning the questionnaires within two (2) weeks will be appreciated. The number on the questionnaire is to assure that each person will remain anonymous and to provide a means for a follow-up mailing should this become necessary. The results of this investigation are for research purposes only and will not be shared with anyone.

I would like to thank you in advance for your participation and assistance in this research effort.

Yours sincerely,

Aldee Holleman

Dr. William Wolansky
Major Professor
November 12, 1984

Dear Trainee:

I am a graduate student in Industrial Education and Technology conducting a study to investigate the economical, sociological, psychological and technological factors affecting displaced workers in the area schools of Iowa.

Enclosed is a questionnaire, which should be completed by you. Please follow the directions to respond to the questions, and return the completed questionnaire to your training director.

Your help by completing the questionnaire will be appreciated. The number on the questionnaire is to assure that each person will remain anonymous and to provide a means for a follow-up mailing should this become necessary. The results of this investigation are for research purposes only and will not be shared with anyone.

I would like to thank you in advance for your participation and assistance in this research effort.

Yours sincerely,

[Signature]

Alde Nolte

Major Professor
APPENDIX B: QUESTIONNAIRE
Directions: Please read each question and then check (✓) or write in the most appropriate response.

1. Name of your area/vocational school ________________________________

2. Sex:  
   ____ Male  
   ____ Female

3. Age:  
   ____ 21 and under  
   ____ 22-30 years  
   ____ 31-40 years  
   ____ 41-50 years  
   ____ 51 and over

4. Highest level of education completed:  
   ____ Less than high school  
   ____ High school or GED  
   ____ Associate degree  
   ____ B.S. degree  
   ____ Graduate degree  
   ____ Other, please specify ________________________________

5. Current marital status:  
   ____ Single, never married  
   ____ Married  
   ____ Separated  
   ____ Divorced  
   ____ Widowed  
   ____ Other (please specify) ________________________________

6. Do you:  
   ____ own your house  
   ____ rent your house

7. Nature of former employer's business  
   ____ Manufacturing  
   ____ Service  
   ____ Distribution  
   ____ Construction  
   ____ I was self-employed  
   ____ Other (please specify) ________________________________

8. Your previous employer had how many employees? (estimate)  
   ____ 1,000 and over  
   ____ 800-999  
   ____ 600-799  
   ____ 400-599  
   ____ 200-399  
   ____ 50-199  
   ____ 10-49  
   ____ 1-11
9. How long had you worked there?
   ____ less than 1 year
   ____ 1-5 years
   ____ 6-10 years
   ____ 11-25 years
   ____ over 25 years

10. During your unemployment have you received or are you now receiving:
    (check all that apply)

    State unemployment
    Union unemployment
    Food stamps
    Other financial help (please specify)

11. Personal gross monthly income before being unemployed $________________

12. Personal gross monthly income today: If none, put '0' $________________

13. What kinds of financial adjustments have you and your family made? Check all that apply.
   ____ Delayed payments
   ____ Delayed purchases
   ____ Moved to less expensive living quarters
   ____ Cut back of food
   ____ Sold car, recreational equipment, household items
   ____ Delayed medical/dental care
   ____ Other, please specify______________________________

14. Did/Do you supplement your income through ____ part-time work, ____ temporary work? (Check one or both.)

15. Are there any financial barriers to your becoming satisfactorily employed? (Check all that apply.)
   ____ Cost of gasoline
   ____ Cost of retraining
   ____ Cost of appropriate clothing
   ____ Other, please specify______________________________

16. Have you spent any money on your job search? ____ yes ____ no
    If yes, check all that apply:
    ____ Employment agency
    ____ Resume preparation
    ____ Transportation
    ____ Meals
    ____ Career counseling
    ____ Clothing
    ____ Other, please specify______________________________

17. Did you suspect a layoff was coming? ____ yes ____ no, a complete surprise
18. After losing your job, did you receive any of the following from the employer? (Check all that apply.)
   - A chance to do a different job within the company at the same location
   - Opportunity to relocate and stay within the company
   - A chance to retrain for a new occupation
   - Job-search workshops
   - Chance to stay on part-time
   - Career counseling
   - Information and/or referral to agencies that might help you
   - Other, please specify

19. Just prior to or shortly after your unemployment, did you receive any assistance from any of the following? (Check all that apply)
   - Employment agencies (state or private)
   - College placement office
   - Churches
   - Relatives
   - Financial Counseling
   - Family Counseling
   - Other, please specify

20. Please circle the degree to which you experienced the following, when learning of your unemployment.

   a. Irritability (short temper) . . 5 4 3 2 1
   b. Depressed . . . . 5 4 3 2 1
   c. Anger . . . . . . 5 4 3 2 1
   d. Shock . . . . . . 5 4 3 2 1
   e. Stress . . . . . . 5 4 3 2 1
   f. Humiliated . . . . 5 4 3 2 1
   g. Disbelief . . . . 5 4 3 2 1
   h. Disappointment . . . 5 4 3 2 1
   i. Betrayed . . . . 5 4 3 2 1
   j. Other

21. Why were you laid off? (Check all that apply.)
   - I have no idea
   - My skills were outdated
   - A poor market/economy
   - Company wasn't competitive
   - I lacked experience with new equipment
   - I was unwilling to take a different job within the company
   - I was unwilling to relocate
   - I was replaced by high technology (computer, robot, etc.)
   - Other, please specify
22. Did/Do you experience any of the following during your unemployment? (Check all that apply.)
   - Frequent headaches
   - Trouble sleeping
   - High blood pressure
   - Smoking more than usual
   - More drinking than usual
   - Drug abuse
   - Trouble thinking clearly
   - Other, please specify

23. What help did you receive for any of the above? (Check all that apply.)
   - Self help
   - Medication
   - Professional help
   - None
   - Other, please specify

24. During your unemployment did you notice any of the following? (Check all that apply.)
   - More marital/relationship problems than usual
   - Felt closer to my family
   - My friendships changed for the worse
   - My friendships changed for the better
   - Lost confidence in myself
   - Other, please specify

25. What has been the most difficult period for you and your family. Check one.
   - Waiting to be laid off
   - My last day at work
   - That first month of unemployment
   - That second month of unemployment
   - 3-6 months after the layoff
   - 7-9 months after the layoff
   - 10-12 months after the layoff
   - Other, please specify

26. This training program was made known to you through:
   - Employer
   - Friends
   - Career counselor
   - Ad (schools)
   - Radio, television, newspaper, etc.
   - Other, please specify

27. In what career/occupation are you training?
   - Manufacturing
   - Service
   - Distribution
   - Construction
   - Other, please specify

28. Why are you in this particular training program? (check all that apply)
   - Demand for work in this area
   - Can earn more money than my last job
   - Gives me a wider range of skills
   - Gives me new skills
   - Increases my confidence in the skills I already have
29. What is the length of your training program? ____________________________

30. How long have you been in the training program? ________________________

31. How would you evaluate your training program so far? (Check all that apply.)
   _____ It will help me get a job  
   _____ It will not help me get a job  
   _____ I'm learning the skills I wanted to learn  
   _____ Excellent training and teachers  
   _____ Program is too short  
   _____ Program is too long  
   _____ Too expensive  
   _____ Other, please specify ____________________________

32. Will your training lead to a change in your career/occupation?  
   _____ Yes  _____ No  _____ Don't know

33. How willing are you to relocate in order to become satisfactorily employed again?  
   _____ Very willing  _____ Somewhat willing  
   _____ Not willing to move, why? ____________________________

34. After training, do you expect to earn:  
   _____ More than your previous pay check  
   _____ Less than your previous pay check  
   If less, what amount would you accept? ______________________________

35. What positive results, if any, have resulted from your unemployment?  
   _____ Learned more about my skills and interests  
   _____ Spent more time with family or friends  
   _____ Learned how to get by on less money  
   _____ Developed new friends  
   _____ Nothing positive  
   _____ Other, please specify ________________________________

Thank you!