

A STUDY OF RESISTANCE TO CHANGE IN
WORK METHODS BY WORKERS IN THE
GENERAL CONSTRUCTION
INDUSTRY IN ALASKA

By

JOHN HYNES MANNING

Bachelor of Science
Northeastern University
Boston, Massachusetts
1939

Master of Science
University of Alaska
College, Alaska
1962

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
July, 1968

JAN 30 1969

A STUDY OF RESISTANCE TO CHANGE IN
WORK METHODS BY WORKERS IN THE
GENERAL CONSTRUCTION
INDUSTRY IN ALASKA

Thesis Approved:

Edwin L. Bidwell

Thesis Adviser

R. L. Jones

S. P. Stevens, Jr.

W. L. Healy

D. D. Surham

Dean of the Graduate College

696377

ACKNOWLEDGEMENTS

I am indebted to the members of my Graduate Committee for their advice and suggestions in the preparation of this study: Professors M. A. Abdel-Hady, E. L. Bidwell, and R. L. Janes of the Civil Engineering Faculty; and Professor G. T. Stevens of the Industrial Engineering Faculty.

My appreciation is extended to the many anonymous interviewees and questionnaire respondents without whose cooperation this study could not have been completed.

I am also deeply indebted to my wife, Roselle, for her advice and encouragement.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
Statement of the Study Problem.	2
Purpose and Significance of the Study	3
Limitations of the Study.	7
Presentation of the Study	10
II. PROCEDURES OF THE STUDY.	12
Characteristics of the Construction Contracting Industry.	13
Methods of Data Collection.	21
Geographical Limitation to Data Collection.	22
Questionnaires	24
Interviews	29
Literature Survey.	30
Methods of Data Analysis.	32
Computer Analysis-Questionnaires	34
III. PRESENTATION, ANALYSIS AND DISCUSSION OF DATA.	36
Presentation of Data.	36
Questionnaires	36
Interviews	38
Literature Survey.	38
Analysis and Discussion of the Data	39
General Information on Survey Respondents.	40
Apparent Extent of Resistance to Change.	41

Chapter	Page
Possible Contributing Conditions that Increase the Likelihood of Resistance to Change.	48
Economic Reasons for Resistance to Change.	50
Personal or Psychological Reasons for Resistance to Change	64
Social Reasons for Resistance to Change.	89
Construction Trades Working Rules as Reasons for Resistance to Change.	116
Contractor Methods of Handling Change as Reason for Resistance to Change.	121
Summary - Contributing Conditions.	126
 IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH	 127
Summary of the Study	127
Conclusions.	128
Extent of Resistance Found.	129
Identification of Some Contributing Conditions that Increase the Likelihood of Resistance.	129
Suggested Ways of Reducing Resistance to Change in Work Methods	132
Recommendations for Future Research.	139
 A SELECTED BIBLIOGRAPHY	 141
 APPENDIX A - CONSTRUCTION WORKER QUESTIONNAIRE ON WORK METHOD CHANGES	 146
 APPENDIX B - CONTRACTOR QUESTIONNAIRE ON WORK METHOD CHANGES	 156

LIST OF FIGURES

Figure	Page
1. Observations on Worker Resistance to Change - Contractor	42
2. Observations on Willingness to Accept Work Method Changes - Worker	42
3. Observations on Workers Inherent Resistance to Change - Worker	44
4. Observations on Resistance as a Factor of Concern to Contractors - Contractor	44
5. Observations and Opinions on Sharing Cost Savings - Worker/Contractor	54
6. Observations and Opinions on the Recognition of Long-Term Benefits of Change - Worker/Contractor	58
7. Observations and Opinions on Threat of Termination for Not Accepting Change	61
8. Observations and Opinions on the Use of and Regard for Workers Skills - Worker/Contractor	69
9. Observations and Opinions on Giving Workers the Reasons for Changes - Worker/Contractor	72
10. Observations and Opinions on Understanding the Need for a Proposed Change - Worker/Contractor	76
11. Observations and Opinions on Changing Work Method on Trial Basis - Worker/Contractor	79

Figure	Page
12. Observations and Opinions on Sincerity of Contractor in Requesting Opinions - Worker	82
13. Observations and Opinions on Quality of Changes - Worker.	85
14. Observations and Opinions on Source of Change Suggestions - Worker/Contractor	91
15. Observations on Contractors "Getting Something for Nothing" from Changes - Worker/Contractor.	95
16. Observations and Opinions on Effect of Breaking Up Work Teams - Worker/ Contractor	100
17. Observations and Opinions on Asking Workers for Suggestions on Changes - Worker/Contractor.	105
18. Observations and Opinions on Holding Group Discussions - Worker/Contractor.	110
19. Observations on Opportunity of Workers to use Own Ideas in Work Methods - Worker/Contractor.	114

CHAPTER I

INTRODUCTION

It has been reported in construction trade publications that workmen in the construction contracting industry quite often resist changes made in work methods.

A survey made by the Associated General Contractors of America in 1963 indicated that "labor" was considered as the most important management issue facing the general contractor at the time (1). Some of the comments of the respondents in listing their particular labor problems showed that "resistance to change" weighed heavily as a source of concern. Following are some typical contractor comments from that report that point out some of the areas of concern:

Resistance by labor to improved methods.

Cooperation of organized labor in cost reduction.

Greater productivity from labor. For example, elimination of mason's objections to labor-saving tools.

The subject of resistance by construction workmen to changes in work methods in the construction contracting industry is examined in this study.

STATEMENT OF THE STUDY PROBLEM

The major problem of this study was to develop a generalized framework to enable the construction engineer or job superintendent to better identify and relate the conditions contributing to resistance to change in work methods on the part of construction workers, so that the objective of realizing more benefits from any cost-saving changes they may suggest may be more readily attained.

The scope of the study is three-fold:

1. To find the extent of resistance by construction workers to changes in work methods.
2. To identify some of the contributing conditions that increase the likelihood that resistance to changes in work methods may occur.
3. To suggest ways to reduce resistance to changes in work methods.

The data for analysis and discussion in relation to the aims of this study were obtained through a survey of construction workers, contractor management and engineering personnel, and trade union officials; and through a survey of the literature on resistance to change.

PURPOSE AND SIGNIFICANCE OF THE STUDY

The construction engineer is often responsible for originating changes in work methods on construction projects while acting as a staff assistant to the chief job site line supervisor, the project superintendent. After some experience, the engineer often becomes a job superintendent, in which position he gives direct orders to foremen, and is responsible for successfully introducing and implementing some of the changes made in work methods.

Through the generalized framework developed in this study the influencing behavioral factors affecting workmen in change situations can be placed in better perspective, thereby reducing the highly emotional feelings many times exhibited by construction engineers, superintendents, and others when confronted with manifestations of worker resistance to change.

Keith Davis (2, p. 396) states that:

Resistance to change tends to focus on human relations problems, rather than the technical aspects of change. . . . Proportionately too much time has been devoted to technical problems of what to change, with too little attention

to social questions of how to make the change. Perhaps the group which has most overlooked social factors of change is the technical specialists.

With a knowledge of the behavioral forces at play, it is felt:

1. That the negative view of many in construction contracting firms toward the ultimate acceptance and success of changes in work methods will be meliorated.
2. That because of the recognition and appreciation of human factors involved, more of those in a position to do so will be induced to suggest potentially profitable changes in work methods.

As a result of resistance to change in work methods presently experienced by contractors, plus their hesitancy to originate or introduce further changes, desirable increases in man-hour productivity may be foregone, to the detriment of the economy.

New construction is a major component of our Nation's output of goods and services as well as a major source of employment. The total value of new construction put in place in the year 1967 amounted to approximately \$74 billion (3). The same source shows that roughly 3 million men were

engaged directly in contract construction work with a total of nearly 6 billion man hours of employment per year, and gross earnings of around \$24 billion.

The on-site labor requirements for various types of construction can vary from approximately 22 per cent to 35 per cent of the construction contract dollar, and the number of man hours per \$1,000 of construction contract from 72 to 134 (4).

These statistics illustrate the magnitude of the potential dollar savings that might accrue to the contractor and eventually to the purchaser of construction through even a slight percentage increase in productivity by the individual worker as a result of his more rapid acceptance of cost-saving changes in the work methods.

Selekman (5, p. 137) states that:

The problems of shop relations created by the almost invariable resistance to almost inevitable shop changes are complex, challenging, and inescapable. . . . Only after responsible administrators become aware of the true nature of the resistance will experiment and experience tell what may prove the most effective answer. Awareness must come first. Given that awareness, we may hope that the men who can master the most challenging technological problems will not bow in defeat to this parallel problem of human behavior. Leadership in industry, . . . today requires, above all, an understanding of what makes those who lead and are led behave like human beings.

The only formal study, to the investigator's knowledge, in the area of resistance to change in the construction contracting industry was made by W. Lloyd Jones (6) in 1964. It points out that the technical problems concerned with methods improvement techniques have been successfully coped with while the human problems remain unsolved. He examines the experience of the manufacturing industry with Scientific Management in the hope that if contractors appreciate what went wrong with the introduction of Scientific Management, they will avoid making these same mistakes. He also discusses the knowledge of human behavior that has been discovered by systematic scientific study and presents it in a form that he feels should be useful to a construction contractor.

LIMITATIONS OF THE STUDY

This study was confined to resistance to change by production workmen in the general construction contracting industry, which is a segment of the much broader "construction industry." The contractor management and engineering personnel, the construction workers, and the trade union officials surveyed were connected with the general contracting industry only. Not included in the survey were management and engineering personnel of subcontractors to general contractors, their workmen, or trade union officials affiliated with the subcontractors. The study was limited to this extent as the operations of the other segments of the total construction industry are many times quite different. The characteristics and peculiarities of the general construction contracting industry are outlined in Chapter II.

Because of the many practical problems connected with the collection of data through interviews and questionnaires, this study was further limited geographically to workers and contractors residing in or about the cities of Anchorage and Fairbanks, Alaska. This must be recognized in considering an extension of the conclusions of this study to workers

and/or contractors in other States.

Resistance to change in work methods on the part of construction workmen only was considered. In this study, "resistance to change" may be briefly defined as an unwillingness to fully accept or cooperate in a change. It may be evidenced by a reduction in output, a decline in the quality of the work, an increase in complaints and grievances, a rise in "quits", subtle group activity to discredit the new methods, and in many other covert or overt alterations in worker behavior.

The study was further limited to changes in work methods that are made generally in the day-to-day job operations. "Changes in work methods" may be defined for the purposes of this study as any alteration in a particular way of doing things, generally with the intention of reducing the costs, and/or making the work easier and safer to perform. For example, it might include changes in the sequence of operations, in the layout and organization of the work, in the manner of handling and installing materials, in the makeup of work crews, or in the kind and use of tools. These changes might apply, for instance, to the day-to-day methods of building concrete forms, in placing concrete, laying hot-top, excavating earth, or installing pipe. Not considered in this study were major technological

changes that may be industry-wide in scope and that often lead to severe economic and social problems for certain craftsmen, as, for example, the large scale prefabrication of buildings and their components.

No consideration was given in this study to the innovative process itself as it was assumed that the decision to change work methods had already been made, and that the reasons for the change were thought to be in the best long-term interest of the firm. Some methods improvement techniques that have proved to be valuable to many construction organizations are discussed by Parker (7).

The contributing conditions that might affect the workers' resistance to change and thereby the attainment of greater benefits from changes in work methods were examined. A formula for the handling of changes in work methods that may be generally applicable was not developed.

The data obtained through questionnaires, interviews, and a survey of the literature on the handling of change were both quantitative and qualitative in nature. These data did not represent experimental observations or measurements and therefore precluded any refined statistical analysis. These data were considered compositely and the final evaluation of some of the survey information gathered was of necessity subjective.

PRESENTATION OF THE STUDY

The study has been subdivided into this introductory chapter and three others.

In Chapter II, "Procedures of the Study", some characteristics and peculiarities of the construction industry are discussed so that the reader can more fully appreciate the differences between it and the fixed location, mass-producing manufacturing industry in which most studies on the subject of "resistance to change" have been made, as well as to better understand the methodological approach to the study. The methods employed in making this study are also described in detail.

In Chapter III, "Presentation, Analysis and Discussion of Data", the information developed through the questionnaires, interviews, and literature survey is presented, analyzed, and discussed.

In Chapter IV, "Summary, Conclusions, and Recommendations for Future Research", a summary is made of the complete study. The extent of resistance by workmen to work methods changes in the Alaska construction contracting industry is indicated.

Contributing conditions that increase the likelihood that resistance may occur are identified, and some suggestions to reduce resistance to changes in work methods are shown. Some recommendations for future research on this study are made.

CHAPTER II

PROCEDURES OF THE STUDY

In this chapter the methodology of the study is described together with the reasons for selecting the particular procedures. The methods of analyzing the data are outlined and discussed. The characteristics and peculiarities of the construction contracting industry are first sketched to help the reader to better appreciate the reasons for following certain procedures, and to aid him in understanding the analysis and discussion of the survey data and especially the conclusions drawn from that data.

CHARACTERISTICS OF THE CONSTRUCTION
CONTRACTING INDUSTRY

This study, as stated previously, was concerned only with resistance to change by production workers employed directly by general construction contracting firms.

The U.S. Departments of Labor and Commerce state that "construction. . . covers the erection, maintenance, and repair of immobile structures and utilities, together with service facilities which become integral parts of structures and are essential to their use for any general purpose. . . ." (8).

Construction contracting firms, as defined for this study, may be privately owned firms in the single proprietorship, partnership, or corporation business form. The firms may derive their business from bidding competitively against other contractors, or from negotiating contracts alone or in competition with others. In most cases, the design of the structure or works is performed by professional architects or engineers from outside of the contracting firms. Some of these same companies build for their own long-term investment accounts, as well as building for sale on a speculative basis. In all cases, it is the prime objective of the

contracting firms to perform work at a reasonably high profit margin without lowering its quality and while working within legal and ethical boundaries.

Construction may be divided into three major categories: building construction, engineering construction, and industrial construction. These may be defined briefly as follows:

1. Building construction covers buildings in the commonly understood sense, which are erected for habitational, institutional, educational, light industrial, commercial, social, and recreational purposes . . . This type is considered the mainstay of the construction industry.
2. Engineering construction is a very broad category covering structures that are not primarily architectural in nature . . . It may be subdivided into two sub-groups -- highway construction and heavy construction.

Highway construction covers clearing, excavating, fill, paving, drainage, bridge structures, and such items commonly associated with highway work. Heavy construction is usually construed to include sewage and water treatment plants, dams, waterways, levees, pipe and pole lines, marine structures, tunnels, bridges, reclamation projects and railroad work.

3. Industrial construction covers the erection of projects that are associated with the manufacturing or processing of a commercial product or service . . . are highly technical in nature. Petroleum refineries, steel mills, chemical plants. . . are examples (9).

Normally, contracting firms concentrate their efforts in one of these three categories of work. There are, however, large firms that are not only engaged in all of these

categories of work, but also perform architectural and engineering services in connection with many projects. Although the types of firms within these divisions differ greatly, there is a resemblance among all parts of the industry based on a similarity of problems and production methods. These lend to all construction some appearance of unity while differentiating construction firms from others in the economy.

Most firms are small in size and carry on work only in a particular, limited geographical area. There are relatively few firms that operate on a nationwide basis, and fewer yet that engage in work on a worldwide basis.

In carrying out a construction contract, the prime or general contractor, the one signing the contract with the owner, does not normally perform all of the on-site work with his own forces but subcontracts certain portions of it that require specialized skills to other contractors, generally referred to as subcontractors. For example, in a building project, the plumbing, heating, electrical, painting, and roofing work is generally "sublet" as this work is specialized, requiring in many cases that the subcontractor be licensed. In some contracts there may be a provision requiring the prime contractor to complete a certain part of the work with his own forces. It is the responsibility of a

general contractor to coordinate the overall work of all the subcontractors with his own work and, of course, he assumes total responsibility to the owner. He cannot, however, give orders to the craftsmen employed by subcontractors, nor can he determine their methods of work.

Bertram and Maisel (10) make the following pertinent comments:

The organization of production in the construction industry has often been the subject of unfavorable comparisons with the mass-production industries. This comparison is not a valid one. The necessities of on-site production and the variation in design largely account for the organization of the industry and the system of division of labor practices.

If any of the advantages of specialization and division of labor are to be realized where the conditions under which each unit of output is produced are variable and each unit of output has distinctive features, some form of specialization which does not depend on the individual product unit's design and which is little affected by the sequence of work is required. Job specialization, i.e., operation specialization, provides a solution and means simply that a particular man or crew always performs the same set of operations with the same kind of equipment and techniques when and as that set of operations is required. The time required for the operations may vary among product units, the relation of the operations to others may be shifted, and the dimensions and placing of the materials on which the operations are performed may be different for every unit of product. The division of labor by crafts or trades and its extension to subcontract specialization by material or product component which prevails in the building industry has developed over time through application of the principle of operation specialization.

Subcontracting allows the principle to be applied more effectively since it reduces dependence on the continuity of individual builders' projects.¹
(Quote within a quote)

Pervasive operation specialization in the labor force available to the industry . . . not only makes adjustment to product variations easy, it also greatly facilitates changing the level and composition of output rapidly. If the builder wishes to take on more work, he can expand his labor force with fair assurance that the new men already know their jobs, can be fitted into the organization without difficulty, and can function effectively with few instructions and minimum supervision . . . Reduction of activity need not destroy the organization's future effectiveness.¹
(Quote within a quote)

The craft union structure of the building trades is a counterpart to the operation specialization system. In this country as well as in many abroad, each group of specialists tended to form individual unions. For many reasons, important among which is the continuation of specialization on the employer's side, the maintenance of separate labor organizations has continued. There is not, however, a one-to-one relationship between specialization, crafts, and many employers deal with several different unions.

The craft trade unions in construction are among the strongest and oldest of any in all industry. Construction workers are highly unionized, especially in the larger cities. This tends to put the trade unions in a strong bargaining position in labor-management negotiating sessions, especially in relation to "working rules".

¹Jack D. Rogers, "Flexibility in the Housebuilding Industry: the San Francisco Bay Area Case", (Ph.D. dissertation, Massachusetts Institute of Technology, 1953), pp. 522-23.

With the increase in subcontracting in the recent past, general construction contracting firms usually directly employ only those with the following trades or skills: carpenters, masons, cement finishers, heavy equipment operators, steel workers, truck drivers, and construction laborers. Many large building construction firms, however, employ only carpenters and laborers. In much highway construction work only equipment operators and laborers are on the payroll of the general contractor. Thus, the total work force on a project is under the direct supervision of many different firms with many different management philosophies. At the same time, a half dozen or more distinct trade unions may be representing the total work force on the same construction project.

Many workers are employed by more than one contractor during a construction season. Cement finishers, for example, whose skills are required on many projects for a very short time, may work for as many as a dozen contractors in a year. A smaller number of the workers are employed for extended periods of time by any one contractor, as contrasted with employment conditions in fixed location industries. Contractors have a few key men whom they might retain on the payroll for the entire year even if idle at times, but most workers are held only as long as their skills are needed

on a particular project. In many cases, a large construction project will be carried through to completion by a firm without one of possibly hundreds of production workers having been previously employed by the company. Due to the short construction season in the northern sections of the country, many workers do not experience a full year of employment. These factors, peculiar to the contracting industry, lead to different attitudes and behavior by the workmen toward the work situation when compared with those exhibited in fixed, mass-producing industries.

Pension plans and health and welfare benefit plans, for the most part, are handled by trade unions, with the contractors agreeing to contribute to these plans as a result of union-management bargaining agreements. The workers' rights in these pensions and benefit plans are not affected in transferring from one union to another.

Job security is not the important factor of concern to the construction worker that it is to the factory worker. He is accustomed to moving from job to job and from employer to employer, and has grown to expect periods of unemployment. Occasionally, however, to extend his time on the project, he may resort to work restriction practices that are costly to the contractor.

The worker, then, generally looks to the trade union that also handles his pension and welfare fund for assistance in seeking and maintaining employment, so it is natural that his loyalty is often dual. It tends to be stronger toward the craft than toward the contractor because of his casual relationship with his employer in most cases. Many times the obligation of the worker would appear to be to the job superintendent rather than to the firm itself. If the superintendent should change employers, many of the workmen will follow him if given the opportunity.

With so many changes in location and type of work, and in employers in the course of his experience, the construction worker has observed certain operations carried out in diverse ways by many different contractors. His reactions to changes in the work methods, by reason of his conditioning to change may differ to a great extent from those of the worker in a factory job that are described in most of the literature on resistance to change.

METHODS OF DATA COLLECTION

Construction workers, trade union officials, and members of management and engineering staffs of construction contracting firms were surveyed, through questionnaires and interviews, to obtain their observations on the extent of resistance by workmen to changes in work methods.

The observations and opinions of the same groups about various methods of handling changes in work methods were also obtained through questionnaires and interviews.

An extensive literature survey was made: (1) to find any reported instances of resistance to change by production workers in construction contracting firms and the effects of working rules in relation to changes in work methods, (2) to find relevant formal research reports by behavioral scientists and others on resistance to change, and (3) to find the expressed views by competent observers on the subject of resistance to change.

The data obtained through the integrated approach of the questionnaire, the interview, and the literature survey provide the basis for:

1. Finding the extent of resistance by workmen to changes in work methods.
2. Identifying the contributing conditions that increase the likelihood that resistance to work method changes may occur.
3. Suggesting ways to reduce resistance to changes in work methods.

Each of the procedures used is discussed in detail in this chapter, following the next section concerning the geographical limitation to the data collection.

Geographical Limitation to Data Collection

The data collected through the questionnaire and the interview methods were derived through contacts with workmen, contracting firm managers and engineers, and trade union officials located in the cities of Anchorage and Fairbanks, Alaska.

It was necessary to confine the survey to these geographical areas for several reasons. Most construction trade unions have a regulation against direct use of their membership lists by non-members for mailings of any kind. Therefore, in order to obtain an adequate survey sample in a state such as Alaska, where almost all construction workers are union members, it was necessary to visit the

trade union halls at the meeting times to pass out questionnaires or leave a supply of them at the halls to be filled out as members appeared in person to pay their dues, etc. As the investigator resided in the state at the time of the survey and could visit the trade union halls and discuss the questionnaire with the officials and the members, this procedure was followed.

Secondly, it was considered desirable to have the respondents to the questionnaires come from the same population as the interviewees. Due to differences in union-management collective bargaining agreements in the various states, a better picture of the effect of written and "unwritten" working rules could be obtained by limiting the study to these cities.

With the high worker turnover rate attributable to the nature of construction work along with the isolated geographic location of Alaska, the workmen surveyed generally had been employed from time to time for many of the contracting firms also surveyed. This condition would not have occurred where a much larger population is more widely dispersed as in other states. There is a pool of workers in these survey areas from which all contractors meet

their needs. This condition is desirable when comparisons are made among observations of the respondent groups.

~~Questionnaires~~ Questionnaires

The commonly used schedule of fixed-questions with fixed-alternative answers was employed. Check responses were used to secure categorized data and to facilitate the tabulation and summarization process. An opportunity, however, was afforded the respondents to write in any comments at the end of the questionnaire form.

Two separate questionnaires were employed: one for the construction worker (Appendix A), and one for the contractor,¹ (Appendix B). This division was made as certain questions could be specifically posed to only one or the other group. Identical questions were asked both groups for the purpose of comparing the responses with one another. In addition, these responses to identical questions have been considered in total.

No attempt was made to match or to associate any worker respondent with a particular contracting firm also being

¹When the word "contractor" is used in reference to the questionnaire, it includes owners of the firms, executives, engineers, general superintendents, and job superintendents.

surveyed. This would have required an entirely different method of study. It was felt that unless the survey of each group was made in an entirely independent manner, there would be reluctance on the part of both workers and management to fairly and honestly state their observations and opinions. In preliminary discussions of the approaches to the study method held with members of management and with workers, it was decided that greater cooperation would be obtained if indications were not given on the questionnaires of the company affiliation of the worker or if the employer were not referring specifically to his presently employed workers when being surveyed. The respondents were asked not to sign their names or to give any identification in order to encourage freer and franker responses.

Self-addressed, stamped envelopes were furnished with each questionnaire for return to the investigator.

The questionnaires were pre-tested with construction workmen and contracting firm managers and engineers. Many changes in the type, scope, and wording of the questions were made in developing the questionnaires until there seemed to be no misinterpretation of the meaning of the questions by those participating in the pre-testing. Question coverage was determined through pre-testing and interviews with people in the industry.

A description and discussion of the details of each type of questionnaire follows.

Construction Worker Questionnaire: There was a total of thirty-nine questions posed; twenty-five in Part I and fourteen in Part II.

The general objectives of Part I were to obtain the workman's observations about how changes in work methods are handled by the contractors, to get an indication of his feelings about changes in general, to obtain his observations about certain contractor management policies, and to get an indication or measurement of the worker's resistance to change in work methods.

In Part II, the questions were directed at acquiring opinions on various factors that might influence the worker's willingness to accept change.

The workmen contacted were all members of trade unions as in the geographical areas of the survey there are virtually no non-union construction workers. They included carpenters, cement finishers, masons, equipment operators, construction laborers, and iron workers. This group includes most of the trades or skills employed by general contracting firms in the survey areas.

As previously mentioned, due to restrictions against the direct use of union mailing lists for surveys like this, copies of the questionnaire with the return envelope were left with the union business agents at the union halls

for distribution, or they were given to individuals in the halls by the investigator. Even though the sample obtained in this manner was not a purely random one, as might be obtained through the use of a random number table and a mailing list of members, it was felt that since the men to whom the questionnaires were given were not specifically chosen to participate in the survey but were handed a questionnaire form as they appeared in random fashion at the union halls, the sample was not biased.

Some questionnaires were given to all workmen on two projects under construction and were collected by the investigator after completion.

Many of the questionnaires were completed by workmen in small groups at the union halls when the investigator was present and able to answer any queries they might have had about the exact meaning or intent of the questions. In many cases, these completed forms were mailed to the investigator in an addressed, stamped envelope given to the workmen to preserve anonymity.

Contractor Questionnaire: There was a total of thirty-two questions posed; twenty-two in Part I and ten in Part II.

The general objectives of Part I were to get the observations of the contracting firm's management and

engineering personnel on the industry's handling of change in work methods, to obtain their observations about the extent of workers' resistance to change and other worker behavior, and to get an idea of their feelings toward workers.

In Part II, the questions were aimed at acquiring management's opinions on various factors that might influence the workmen's willingness to more readily accept change.

Questionnaires were mailed to general construction contracting firms listed in the telephone directories of the cities of Anchorage and Fairbanks. Not included were very small "one man" firms and others engaged in minor maintenance and repair work that have few employees and cannot be truly classed as general contractors.

The firms chosen ranged in size from those completing a few hundred thousand dollars per year in volume of work locally to the world's largest contractors in terms of volume completed on a world-wide basis.

Several weeks after mailing the questionnaire, a follow-up request for return of completed questionnaires was sent to all on the survey list, as there was no way of determining which firms had returned their completed forms in the interim (Appendix B).

Interviews

People from the following groups were interviewed by the investigator: (1) contracting firm management and engineering personnel, (2) construction workmen, and (3) trade union officials.

Unless it was completed and mailed previously, the appropriate standard questionnaire described earlier in this chapter was completed by the interviewee. The questions and answers were discussed as the form was marked, which enabled the investigator to form impressions from the responses as they were being made. The remainder of the time was spent in discussing, in an unstructured style, various factors of particular interest to the interviewee and the investigator in relation to resistance to change, working rules, and worker and management philosophies.

No written notes were made during the discussions, but pertinent statements were recorded in note form by the investigator immediately after the interview.

The contracting firms from which interviewees were chosen were chiefly selected at random, but some were chosen on the basis of the known experience of their owners, managers, or engineers and their known willingness to cooperate in a survey like this. The construction workers for

the most part were chosen at random from among those who entered the trade union halls at dues paying time and from among men who were there checking on employment opportunities. Representatives of major construction trade unions furnishing men to general contractors were contacted.

The names of all those interviewed are confidential, as promised, in an attempt to promote more frank and open discussion. The names of workmen for the most part were not known to the investigator.

~~Literature Survey~~

Literature Survey

The literature survey covered broadly: (1) reported research findings on resistance to change, (2) statements of opinion of competent observers in the behavioral sciences and management fields on resistance to change, (3) editorial opinion and relevant statements on resistance to change from industry publications, and (4) the construction trade working rules as written into bargaining agreements between management and labor, and literature on written and unwritten working rules.

The following sources of information were searched in depth:

1. Scholarly society bulletins and journals, and text and reference books in the fields of

psychology, anthropology, sociology, personnel administration, labor and industrial relations, and management.

2. Construction industry and labor union publications and periodicals.
3. Union-Management agreements and working rules.

METHODS OF DATA ANALYSIS

The data for analysis were collected through fixed-alternative questionnaires, interviews, and a literature survey.

The data did not come from experiments or from measurements as are made in the physical sciences. Berelson and Steiner describe an experiment as . . . any investigation that includes two elements: manipulation or control of some variable by the investigator and systematic observation or measurement of the result. In short, it means active intervention on the phenomena of interest to see what, if any effects are produced by the intervention (11, p. 139).

Measurements in the physical sciences usually means assigning numbers to observations and the analysis of data consists of manipulating or operating on these numbers. By measurement, the behavioral scientist means something broader than the meaning to the layman. The behavioral scientist considers that an attitude has been measured if it can simply be distinguished as "for" or "against", "more" or "less". Finer quantitative

distinctions of course, are also measurements, but so are dichotomies or classificatory categories in general (11, p. 139). When the term measurement is used in this study, it means a measurement of the "tendency" type as used by the behavioral scientist.

Since these data are non-quantified in the sense that the range of answer categories for each question is not on a truly equal interval scale, a refined mathematical analysis was not warranted. Rather, graphical displays in the form of frequency histograms were used which indicate, in sum, any one-way or diverse tendencies in the observations and opinions of the respondents. The attribution of continuity and equal interval scales in the relative frequency histograms shown is a convenient fiction. The responses were considered to be on a "tendency" scale indicating directions of opinions, etc., such as the "for" or "against" type.

As it is impossible to demonstrate directly, in a non-experimental and non-observational study such as this, that a given characteristic or occurrence (X) determines another characteristic or occurrence (Y) either by itself or in combination with other characteristics or occurrences (A, B, C, etc.), the analysis was not carried out with the intention of developing a generally applicable formula for

handling change.

The information obtained from the various groups through questionnaires, interviews, and the literature survey was integrated, in most instances, to provide a composite picture. Its total interpretation was, in sum, subjective in nature for considerable weight was given to the impressions gained in the interviews.

In the following subsection, the processing and computer analysis of the questionnaires are discussed.

Computer Analysis-Questionnaire

The questionnaires were designed so that summarization and statistical analysis could be performed on the IBM 360/40 computer.

The fixed-alternative answers were coded using a five point scale: Always = 5, Often = 4, About 50-50 = 3, Seldom = 2, and Never = 1. The coded data from the questionnaires were placed on computer cards for the analysis.

The computer output provided the following:

1. The actual number of respondents choosing each alternative answer to each question.
2. The number failing to answer each question.
3. The percentage of the respondents choosing

each alternative answer to each question.

4. The mean and standard deviation of coded alternative answers to each question.

CHAPTER III

PRESENTATION, ANALYSIS AND DISCUSSION OF DATA

In this chapter, the data collected through the questionnaires, interviews, and literature survey are presented, analyzed, and discussed.

PRESENTATION OF DATA

The complete detailed data collected through the questionnaires are presented in the Appendicies. Pertinent quantitative data derived from the questionnaires are used in this chapter to facilitate analysis and discussion of the survey results. Interview statements and literature survey findings are used extensively in the discussions and analysis in this chapter where relevant. A more detailed description of the survey data follows in three sub-sections.

Questionnaires

The detailed quantitative data obtained through the questionnaires are shown in Appendicies A and B. The total number of responses to each alternative of each question is shown as well as the percentage of

responses to each alternative. The means and standard deviations of the coded alternative answers to each question where meaningful are given in Appendicies A and B.

Of the 200 questionnaires given to construction workers, 110 were completed and returned. Of the 100 questionnaires mailed or handed to contracting firm management and engineering personnel, 68 were completed and returned. These returns were considered adequate for the purpose of this study, wherein only broad tendencies or directions of diverse influencing factors are sought to assist the construction engineer or job superintendent to better identify and relate the conditions contributing to resistance to change.

In each questionnaire, the respondent was asked on the last sheet to make any comments on resistance to change or on changes in work methods. Comments that would cast additional light on the observations and opinions of management or workers are included in the discussion and analysis in this chapter. Eight workers and twenty contractors made written comments which are listed in Appendicies A and B respectively.

Interviews

The standard questionnaires completed by those interviewed were included with the mailed questionnaires for summation, as described previously. The open discussion statements of the interviewees are included with the discussion of other survey data where pertinent.

Twenty-four workmen and union officials, and twenty-eight present or past contracting firm management or engineering personnel were interviewed.

Literature Survey

Relevant published research findings, opinions of competent observers, and editorial opinion on resistance to change and closely allied subjects are cited in the discussions of the survey.

ANALYSIS AND DISCUSSION OF THE DATA

Quantitative questionnaire data, summarized in the Appendices, are further analyzed and discussed in this chapter. Frequency histograms of the responses were used to facilitate analysis and discussion. Statements made by interviewees and optional written statements made on the questionnaires are included in the analysis and discussion where pertinent.

The survey data¹ are analyzed and discussed in three chapter sub-sections following:

1. General Information on Survey Respondents.
2. Apparent Extent of Resistance to Change.
3. Possible Contributing Conditions that Increase the Likelihood of Resistance to Change.

The analysis and discussion sub-sections 2 and 3 are further divided as described at the beginning of each. A short summary of the analysis made in these sub-sections is included at the end of each.

¹In this study, unless otherwise specified, the term "survey data" includes information derived from questionnaires, interviews, and relevant literature.

General Information on Survey Respondents

Of the 68 contractors who completed the standard questionnaire form, 51 were engaged principally in building construction, 13 in highway construction, and 4 in utility line construction. This fairly represents the distribution of contractor specialization in the geographical area studied. Many of those who indicated their principal type of activity as highways also perform utility line work.

A number of contractor respondents, 32, were owners of the firms. In many cases, the owner serves as the chief operating officer, and frequently as engineer. Some of the firms surveyed were owned or managed by people with training in civil engineering. In addition to the 32 owners, 11 other executives, 15 engineers, 4 general superintendents, and 6 job superintendents participated in the survey.

The value of the construction work completed by these firms varied from under a half a million dollars per year to over two million, with about one-third of the firms falling in the latter category.

Of the 110 workers who responded, 84 were engaged in building construction, 21 in highway work, and 5 in utility line work. The experience of these men varied from less

than five years to more than twenty, with the majority having fifteen or more years of experience.

A complete detailed tabulation of this general information is included in Appendicies A and B.

Apparent Extent of Resistance to Change

The first aim of this study was to find the extent of resistance by workmen to changes in work methods, if any. Subsidiary aims were to get an indication of inherent resistance to change and to determine if any resistance noted by the contractors was something they are concerned about.

Three questions were used to aid in measuring the extent of resistance to change:

1. Contractor Question 17: "Do construction workers resist changes made in the work methods?"
2. Worker Question 11: "From your experience, do workmen generally 'go along' willingly with changes in work methods?"
3. Worker Question 25: "If changes in work methods would not help you in your work, do you willingly 'go along' with the changes?"

Responses to these questions are shown in Figures 1 and 2.

OBSERVATIONS - Contractor

C-17. Do construction workmen resist changes made in the work methods ?

N = 67 M = 3.5

N = Number of Respondents
M = Arithmetic Mean

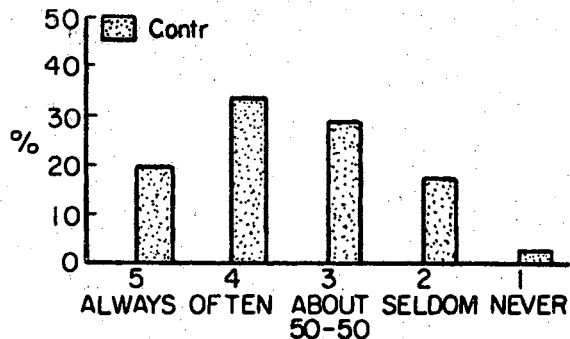
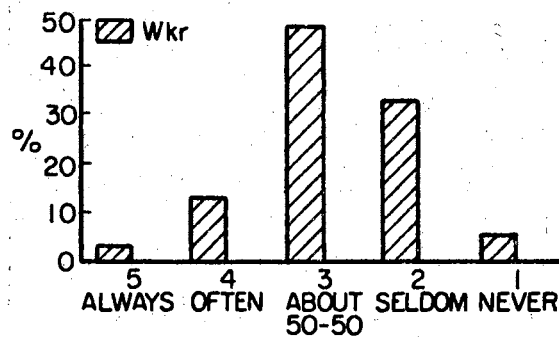


Figure 1. Observations on Worker Resistance to Change - Contractor

OBSERVATIONS - Worker

W-11. From your experience, do workmen generally "go along" willingly with changes made in work methods?

N = 110 M = 2.8



OBSERVATIONS - Worker

W-25. If changes in work methods would not help you in your work, do you willingly "go along" with the changes ?

N = 110 M = 2.8

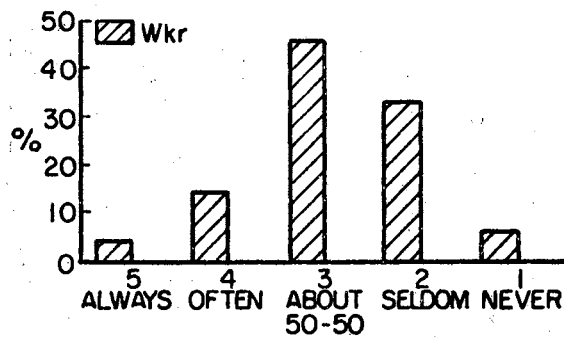


Figure 2. Observations on Willingness to Accept Work Method Changes - Worker

Two related questions were also asked the workmen to get an indication of any inherent tendency to resist change, as this is related to their behavior in work method change situations:

1. Worker Question 5: "Is doing your work in the same way every day more to your liking than changing it often?"
2. Worker Question 10: "Does it bother you when you must change the way you have been doing something?"

The responses to these questions are shown in Figure 3.

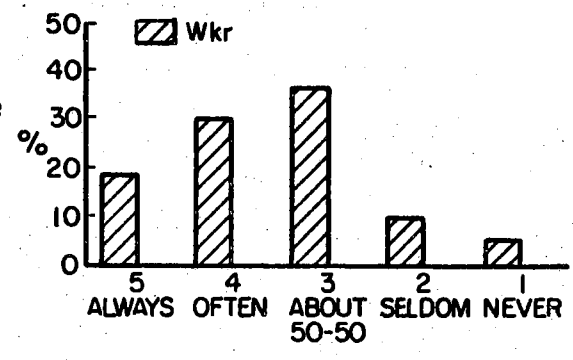
To ascertain whether any resistance by workmen to changes in work methods is considered by the contractors to be a problem of concern, Question C-5 was asked: "Do contractors consider resistance by workmen to changes in work methods a factor to be concerned about?" Responses are shown in Figure 4.

Responses to Contractor Question 17, Figure 1, on whether workmen resist changes in work methods, indicate that resistance is quite generally encountered. Only one respondent stated that workmen never resist change in work methods. Thirteen out of 67, however, indicated that workmen always resist. Interviewee statements suggested about

OBSERVATIONS - Worker

W-5. Is doing your work in the same way every day more to your liking than changing it often ?

N = 110 M = 3.5



OBSERVATIONS - Worker

W-10. Does it bother you when you must change the way you have been doing something ?

N = 110 M = 3.0

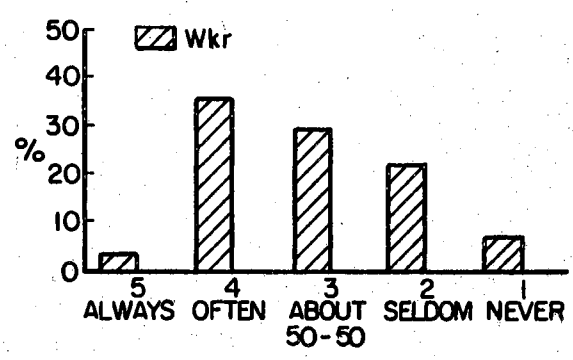


Figure 3. Observations on Workers Inherent Resistance to Change-Worker

OBSERVATIONS - Contractor

C-5. Do contractors consider resistance by workmen to changes in work methods a factor to be concerned with ?

N = 67 M = 3.6

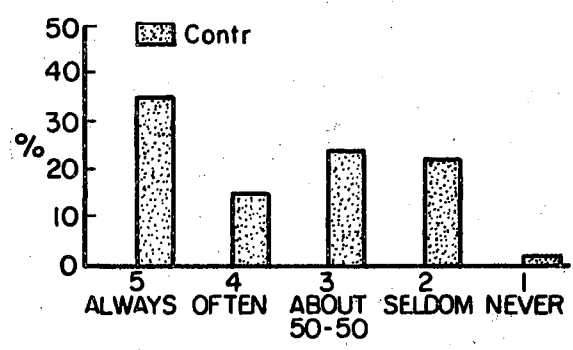


Figure 4. Observations on Resistance as a Factor of Concern to Contractors - Contractor

the same overall tendency to resist, i. e., resistance is exhibited more than half of the time.

The response to Worker Question 11, Figure 2, on whether workmen "go along" willingly with changes in work methods, interpreted in terms of resistance to change, indicates some resistance occurs, but not seemingly as strong as that observed by contractors. This response may be attributable in part to the natural reluctance, even in a confidential survey, of the worker to fully admit to the existence of a condition that may be socially undesirable, either on his or his fellow worker's part. In the worker interviews, however, it was admitted by some that many workmen do resist change quite often with varying degrees of intensity, with the resistance being greatest when local economic conditions are good and when employment is easily obtained.

Union representatives admitted that there was some resistance on the part of workmen at times, qualifying their statements, however, to the effect that the resistance was due to the mis-handling of the introduction of change by the contractors in many cases, or to the poor quality of changes introduced. One union representative was highly critical of the resistance of some contractors

in not using the latest "superior" methods of performing certain operations.

Responses to Worker Question 25, Figure 2, wherein they were asked to state whether they would "go along" willingly if the change in work methods would not help them in their own work, show that they willingly "go along" with changes about half the time or less if the changes do not help them personally in their work. Some workers said that unless they perceived that a change would make the task less burdensome, or would result in safer working conditions, they would not willingly "go along" with it. Unless helped personally by a change, they were apathetic toward it on the one hand to outright refusal to accept it on the other hand, if the change was perceived as being more demanding of them both physically and/or mentally.

Inherent Tendency to Resist Change: Responses to Question W-5, Figure 3, show that workers tend, for the most part, to prefer doing their work in the same way every day rather than changing it often. Answers given to Question W-10, Figure 3, also show that workers are bothered at least part of the time when they must change the way they have been doing something.

Further discussion on this inherent tendency appears later in this chapter under the category of personal or

psychological reasons for resistance to change.

Resistance - Problem of Concern: It is apparent from the responses to Question C-5 that the majority of contractors queried considered resistance to changes in work methods a problem to be concerned about, as was reported in the Associated General Contractors of America survey cited in the introductory chapter of this study.

Some contractors who were interviewed stated that they were seldom personally concerned about resistance, not because in many cases it was not costly to them in monetary terms, but because they felt that they could do very little to overcome it and, therefore, showed little concern about it.

Summary - Extent of Resistance: Analysis of the survey data indicates that there is quite often some resistance to change in work methods by the construction workers considered in this study, i.e., those employed in the construction contracting industry in the cities of Anchorage and Fairbanks, Alaska.

The survey results would tend to substantiate the statements of some competent observers that there is an inherent tendency on the part of some people to resist change.

The data analysis further indicates that most of the Alaska contractors surveyed considered resistance to change in work methods a problem of concern to them.

Possible Contributing Conditions that Increase
the Likelihood of Resistance to Change

To delineate the possible contributing conditions and to simplify and facilitate the analysis and discussion of the survey data, most of the questions posed in the questionnaires were grouped into three broad, basic categories, corresponding to the classification used by some psychologists and competent observers in the fields of human relations and management to describe man's wants, i.e., economic, personal or psychological, and social. The possible emotional reasons for resistance to change in work methods on the part of construction workmen were categorized in the same way, even though there is some obvious over-lapping among these groupings (2, p. 395), (12, p. 307), (13, p. 306).

Economic reasons for resistance arise from the perceptions of the worker as to the short and long term effects of a change on his job security. Personal or psychological reasons for resistance arise from the perceptions of the worker of the effect of change on his personal life; his job is an integral part of his life, involving his basic needs

for self-respect and recognition and how he feels about and relates to his job. Social reasons for resistance arise from the perceptions of the worker of the effects a change will have on his established personal relationships on the job with his fellow workers and with his supervisors or managers.

Two other categories of contributing conditions were also used in the analysis and discussion: (1) the effect of construction trade working rules on the willingness of contractors to introduce changes in methods and on the resistance by workers to change and, (2) the feelings of the workmen toward the contractor methods of handling change and their resistance to it.

This chapter section on Contributing Conditions is divided into the following five sub-sections for ease of discussion and analysis of survey data:

1. Economic Reasons for Resistance to Change.
2. Personal or Psychological Reasons for Resistance to Change.
3. Social Reasons for Resistance to Change.
4. Construction Trades Working Rules as Reasons for Resistance to Change.
5. Contractor Methods of Handling Change as Reason for Resistance to Change.

Economic Reasons for Resistance to Change

Some reasons of an economic nature that might affect the workman's resistance to changes in work methods, considered in framing the survey questions, are that he:

1. Fears present trade skills will be in less demand in the future due to changes.
2. Does not benefit from perceived cost savings realized by the contractor through changes.
3. Does not recognize possible long term economic benefits of changes.
4. Does not fear termination of employment for not accepting changes.

These conditions are analyzed and discussed in the four sub-sections following.

Fears Lessening in Future Demand for Present Trade

Skills: To determine the concern of the worker about the future demand for his skills due to change in work methods, Question W-7 was asked: "Are workmen worried about their present skills being in less demand in the future as a result of changes in work methods?"

The 110 responses to Question W-7, in terms of percentages rounded to whole numbers, were: Always 3%; Often 18%; About 50-50 24%; Seldom 43%; Never 12%. The mean was 2.6.

The questionnaire response data show that they are seldom worried about this possible threat. The feeling was expressed by some interviewees that with the relatively slow progress in the introduction of new materials, equipment, and work methods, workers could readily acquire any new skills necessitated by innovation, thus offsetting any loss in demand for their present skills. They believed that this has been generally true in the past in the general construction contracting industry. It seemed inconceivable to most that their skills could be entirely eroded in their life-times, or that their compensation would be relatively less due to a decreased demand for their skills. Several workers commented that they looked forward to new and possibly better ways of doing things. With the protection of their trade unions in regulating entry to membership, they felt they could easily adapt in time to any new job or skill requirements. Others, however, did show concern for the future demand for their skills.

The Engineering News-Record of March 14, 1968, in reviewing a study just released by the Battelle Memorial Institute entitled "The State of the Art of Prefabrication in the Construction Industry", stated that:

. . . in respect to any radical change in prefabrication there would be certain restraints, one of which would be . . . [that] historically, unions have been skeptical of changes that reduce manpower or eliminate skill requirements. President C. J. Haggerty of the Building and Construction Trades Department of the AFL-CIO said, . . . the history of the industry is that a decline in union membership [due to reallocation of work in prefabrication] can be stemmed by organizing elsewhere. We have time to make adjustments (14, p. 19).

The survey data would indicate that worry about a lessening in demand for their skills in the future is, on the part of some workmen, a condition contributing to the likelihood that resistance to change in work methods may occur.

As stated in Chapter I, "automation" or major technological change is not considered in this study.

Does Not Benefit from Cost Savings: To determine the general industry practice with regard to the sharing of cost savings that may result from changes in work methods, each group was asked the same question: "Do contractors share with the workmen any of the cost savings that result from changes in the work methods?" (W-15, C-7).

To elicit the opinions of both groups as to whether the prospect of a bonus would make the worker more willing to accept change, each group was asked the same question:

"If workmen know that they will get a bonus when cost reducing changes are made, are they more willing to accept a change?" (W-29, C-26).

The responses to these two pairs of questions are shown in Figure 5.

It is very apparent from the answers to the first pair of questions that there is very little sharing of cost savings. Responses to the latter pair of opinion questions, W-29 and C-26, indicate strongly that both groups feel that the knowledge that a bonus might be received if the change results in cost savings will lead to the more willing acceptance of change on the part of workmen.

Interviews with workers revealed that some thought contractors realized considerable reductions in their costs through work changes, with very little direct credit or recompense to the worker.

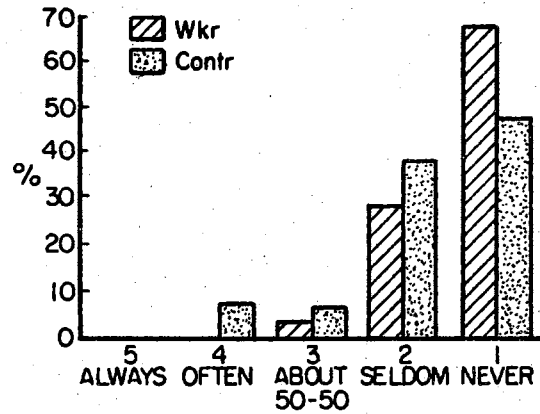
Several contractors stated that in many instances the cost saving made through a change was already allowed for in setting prices in competitive bidding, so there was no genuine saving to share directly with the workers.

Under union-management bargaining agreements, such savings cannot be passed on as incentive, task, or piece work payments. Any changes in payments to workers must be

OBSERVATIONS - Worker/Contractor

W-15, C-9. Do contractors share with the workmen any of the cost savings that result from changes in the work methods ?

	N	M
Wkr	110	1.3
Contr	68	1.7



OPINIONS - Worker/Contractor

W-29, C-26. If workmen know that they will get a bonus when cost reducing changes are made, are they more willing to accept changes ?

	N	M
Wkr	108	4.0
Contr	57	4.0

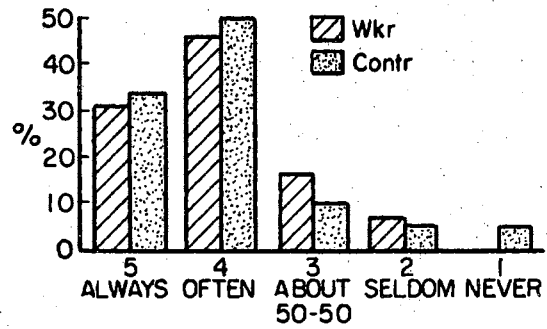


Figure 5. Observations and Opinions on Sharing Cost Savings - Worker/Contractor

negotiated in bargaining sessions among contractors and the workers' respective unions which might be involved. The building trade unions have been historically opposed to any type of compensation to the worker based on units of output, such as task or piece work.

From worker interviews, it seemed apparent that there was little recognition that the general wage increases received almost yearly through formal bargaining were made possible partly through gains in productivity resulting in some measure from changes in work methods, or that the contractor must depend upon innovation in work methods to keep abreast or ahead of his competitors. The same workmen, however, did acknowledge that it would be very difficult to fairly define, measure, and divide the savings made on each change, especially with minor ones.

A discussion of the merits and demerits of incentive payments, task work, piece work, and profit sharing plans are beyond the scope of this study.

As a result of the analysis of the questionnaire data, the evaluation of the interviews, and a review of union-management agreements in regard to worker compensation, it would appear that direct monetary payments to workers as a result of cost savings from specific changes made in work methods are not feasible due to union-management agreements

and to the complexity of computing the savings, even though such payments might serve as immediate inducement to fuller cooperation in a change.

Survey data analysis indicates that if the worker thinks that he most likely will not benefit from the cost savings resulting from a change, it becomes a contributing condition that increases the likelihood of resistance.

Does Not Recognize Long Term Economic Benefits of Change: It has been reported in the popular press that if workers would only recognize the long term benefits of change, they would resist it to a lesser extent or not at all. To determine whether contractors ever tell the workers that even though some might lose their jobs now as a result of a change in work methods, but in the long run everyone would profit by it, both groups were asked the same question: "Do contractors tell workmen that even though a few might lose their jobs as a result of changes in work methods everyone would be better off in the long run?" (W-18, C-12)

To elicit the opinions of both groups on how effective such statements of reassurance about future prospects in increasing the workers' willingness to change, the following question was asked each group: "If workmen are

told that even though a few will lose their jobs now, but in the long run everyone will be better off, are they more willing to accept a change?" (W-32, C-29).

Figure 6 shows the observations and opinions on this topic. Responses of both groups to identical Questions W-18 and C-12 point out that contractors seldom tell the workers that everyone will be better off in the long run due to changes. It might be said also, from the answers to the identical Questions W-32 and C-29, that telling the workmen that even though a few will lose their jobs now, but that in the long run everyone will be better off seldom causes the worker to become more willing to accept a change.

Dallas M. Young (C15, p. 239) comments:

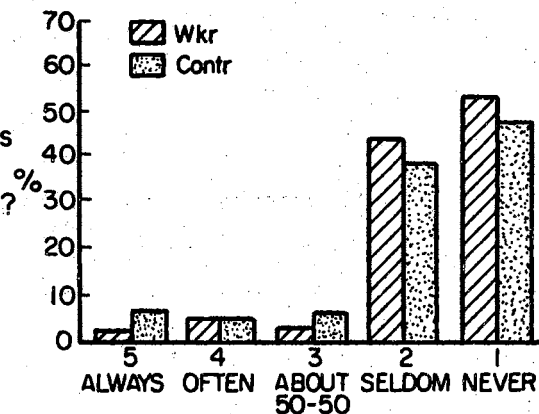
Economists will tell you that in the long run technological changes lead to a higher standard of living for our people. They say that restrictive practices mean higher costs to the American consumer. But the laborer or supervisor or vice-president who expends his energy for income is quick to reply that he and his family must live from day to day! The results 'in the long run' may be fine-if you live that long. If you have a choice between resisting changes, preserving income, and keeping out of debt and being unemployed, without income, and with growing debts, you will probably select the former.

The interviews brought out the relevancy of the Young quotation. Most workers with whom this was discussed said that they would, in fact, react in a negative or resistive manner if this statement were made to them with regard to

OBSERVATIONS - Worker/Contractor

W-18, C-12. Do contractors tell workmen that even though a few might lose their jobs as a result of changes in work methods everyone would be better off in the long run?

	N	M
Wkr	110	1.6
Contr	66	1.9



OPINIONS - Worker/Contractor

W-32, C-29. If workmen are told that even though a few will lose their jobs now, but in the long run everyone will be better off, are they more willing to accept the change?

	N	M
Wkr	110	2.4
Contr	63	2.2

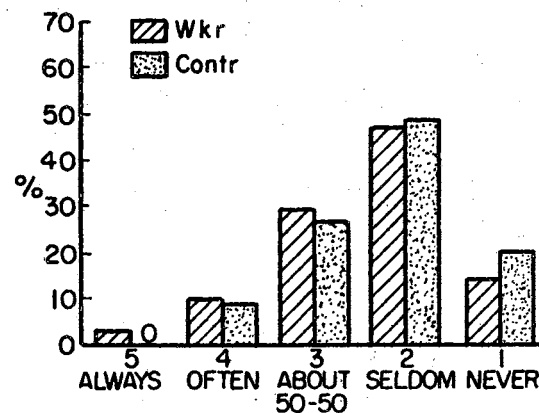


Figure 6. Observations and Opinions on the Recognition of Long-Term Benefits of Change - Worker/Contractor

the prospects of everyone being better off in the long run. The implication that they did not understand or appreciate the long term benefits of many changes was resented.

It would appear that even if the worker does recognize the long term benefits of changes, he is generally not likely to be more willing to accept the change if it is considered as detrimental in his present economic situation. Any attempt to encourage more willing acceptance of change by the contractor advising the worker of its long term economic benefits, will usually be non-productive and may have a negative effect.

Survey data analysis would indicate that the failure to recognize the long term economic benefits of a change is a contributing condition that increases the likelihood of resistance.

Does Not Fear "Termination" for Not Accepting Change:

To determine whether the industry uses an implied threat of "termination" for not accepting a change, similar questions were used for each group. The worker was asked in Question W-21, "Do contractors threaten workmen with "termination" for not accepting changes in work methods?" The contractor was asked in Question C-15, "Do contractors hold an implied

threat of "termination" over the heads of workmen for not accepting a change?"

To get opinions on the effectiveness of an implied termination threat on the willingness of the worker to accept change, both groups were asked the identical question: "If workmen know that they might be "terminated" if they don't accept a change, are they more willing to accept a change?" (W-36, C-31).

Figure 7 shows the responses to these question.

The responses to the two similar Questions W-21 and C-15 differ in that the worker generally feels contractors use the threat more than half the time, while the contractors replies are mixed in stating that they use an implied threat of termination less than half the time.

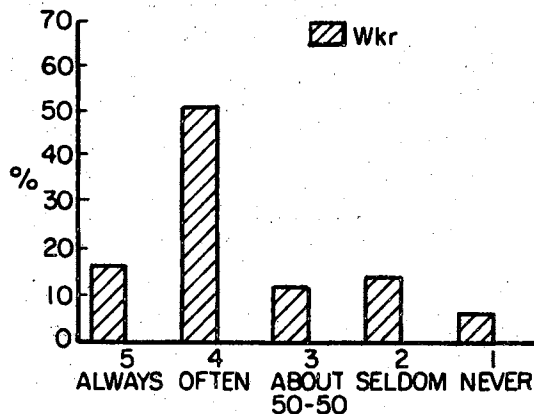
Responses to the identical Questions W-36 and C-31 indicate that both groups feel that the implied threat of "termination" for not going along generally makes the worker more willing to accept a change.

Interviews revealed that the workers in the geographical areas of the study are very much concerned about being laid off toward the end of the construction season in the early fall, when the chances of obtaining steady or even partial winter time employment are slight. When many

OBSERVATIONS - Worker

W-21. Do contractors threaten workmen with "termination" for not accepting changes in work methods ?

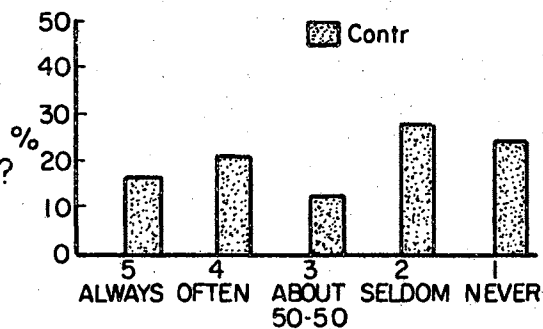
	N	M
Wkr	109	3.6



OBSERVATIONS - Contractor

C-15. Do contractors hold an implied threat of "termination" over the heads of workmen for not accepting a change?

	N	M
Contr	68	2.8



OPINIONS - Worker/Contractor

W-36, C-31. If workmen know that they might be "terminated" if they don't accept a change, are they more willing to accept a change ?

	N	M
Wkr	110	3.9
Contr	65	3.5

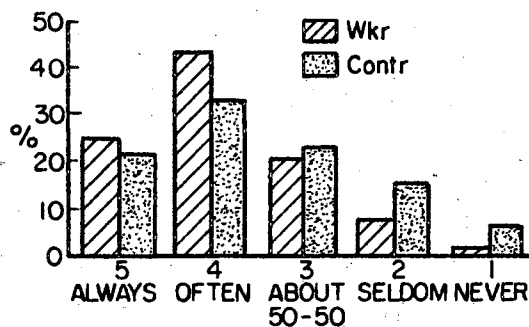


Figure 7. Observations and Opinions on Threat of Termination for Not Accepting Change - Worker/Contractor

overtime work hours occur on a project, which is typical in the survey areas, being "terminated" earlier than anticipated due to resistance to change can mean a substantial loss in income to the worker, for he may be unable to obtain another job with overtime hours or possibly any job. When times are good and jobs plentiful, however, the worker can be more independent, and the threat of termination is less effective as a deterrent to resistance.

Jones (6, p. 53) states that:

It would be wrong to say that enforcement by the threat of dismissal should not be an essential part of the implementation of new methods. It should be. However, new methods should be introduced and enforced in a manner and situation conducive to their acceptance.

It was stated in several interviews that the implied threat of termination or firing has a positive effect on the willingness of the worker to accept change only when prospects of getting another job are slight. This occurs, of course, in times of unfavorable general economic conditions and in any geographical area when there is high unemployment such as in Alaska among construction workers in the cold seasons.

According to Judson (16, p. 70):

. . . The effectiveness of authority as a means of control depends in large part on the ability to enforce it. Punishment is the means of enforcement. In business, the form of punishment can range between two extremes: compulsory termination of employment, and limiting the opportunities for advancement. However, in an economy where there is almost full employment, 'the sack' is no longer the threat it once was. Also, the use or threat of punishment can result

in counter-measures. Employees are often well protected by the power of their union. They can also act directly by limiting their performance or by refusing to accept responsibility. Thus, employees today are far less dependent on their management than they were fifty years ago. This fact tends to place a considerable limitation on the usefulness of authority as a contemporary method of social control.

For the geographical area of the study, analysis of survey data indicates that, at times, not fearing "termination" for not accepting change is a contributing condition that increases the likelihood of resistance.

Personal or Psychological Reasons
for Resistance to Change

Some of the personal or psychological reasons that might affect the workman's resistance to changes in work methods, considered in framing the survey questions, are that he:

1. Dislikes change inherently.
2. Fears skills not appreciated by the contractors.
3. Fears the unknown-reasons not given for changes.
4. Does not understand need for changes.
5. Fears changes irrevocable.
6. Feels contractors not sincere in requesting opinions.
7. Fears outcome of changes based on prior experience.
8. Dislikes learning new skills.

These conditions are analyzed and discussed in the eight sub-sections following.

Dislikes Change Inherently: To determine whether the worker showed an inherent dislike of change, two questions were asked: "Is doing your work in the same way every day more to your liking than changing it often?" (W-5), and "Does it bother you when you must change the way you have been doing something?" (W-10).

The responses to these two questions are shown in Figure 3 at the beginning of this chapter where this information was used in connection with the "Apparent Extent of Resistance to Change", but the responses were not discussed at that point in terms of the personal or psychological reasons for resistance. Responses indicate that workers do generally like to do things the way they have been, rather than changing often, and that they are generally bothered when they must change the way they have been doing something.

In worker interviews, it was stressed that it seemed natural to resist a change in work methods unless it is very apparent that it would result in some gain for the worker. This pointed out the difficulties for the contractor arising from changes that are made just for the "sake of changing." It was emphasized that if the worker had an understanding of a need for a change and how it would affect him and the company, he would be more willing to go along with it. Habits and patterns of work acquired over a long period of time are not easily changed without good reason, as such alterations in most cases require considerable mental effort and attention by the worker, so unless he understands the reasons and need for them he will resist.

Judson (16, pp. 19-21) says that there is a rather vague, predisposed feeling about changes of any kind which

is deeply ingrained in our minds and about which we are likely unaware. It dates back, he says, to childhood when many changes forced upon the child must have evoked unpleasant and distasteful feelings. He also points out that profound changes are made up to maturity, in most instances imposed on us without the benefit of discussion or consultation, and therefore without our understanding. The natural reaction of any child to significant changes of childhood is to resist them. He writes that we tend to develop in our earliest years some suspicion and distrust of changes. How a child is reared will affect his view on changes from objectivity on the one hand to suspicion and fear on the other. He says that it is a rare person who can undergo changes with comfort and confidence.

Davis states (2, p. 393):

As a result of homeostasis, social systems tend to resist change. Furthermore, individuals in the social system tend to resist many types of change because new habit patterns or sacrifices are required. This leads to the general proposition that people and their social systems will often resist change in organizations.

Selekman (17, p. 108) writes that the best conceived program may run into resistance in shop and office. He feels that since such resistance is virtually a universal human phenomenon, it points out the need for greater emphasis

on research in the social sciences that will help us understand and deal with this phenomenon.

It appears from analysis of the survey data that generally workers dislike change inherently. This is a contributing condition that increases the likelihood of resistance.

Fears Skills Not Appreciated: To determine the observations of the workers of the contractor's appreciation of his skills, Question W-6 was asked: "Do you feel that the skills required to do your work are fully appreciated by the contractor?"

To find what effect knowing that supervisors have a high regard for the skills on the willingness of the worker to accept a change, Question W-39 was asked: "If workmen know that supervisors have a high regard for the skills required in their work, are they more willing to accept a change?"

Allied questions were also asked. Worker Question 22, "Do contractors use the workmen's skills to the best advantage?", and Contractor Question 18, "Do contractors feel that they are using the skills of the workmen to the best advantage, considering limitations in negotiated agreements?"

were used to determine the degree to which each group thought the worker's skill was being employed.

Figure 8 shows the responses to the four questions.

Answers to Question W-6, showing the workers' perception of the appreciation of their skill by the contractors indicate that they feel their skills are appreciated more than 50 per cent of the time. Replies to Question W-39 show that the workers were much more willing to accept a change if they felt that their skills were appreciated by the contractor.

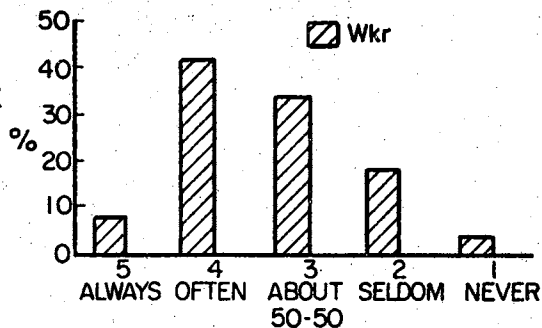
Interviews with craftsmen revealed that the skill which they strived to acquire was valued very highly by them, and their feeling about it was an important factor in their attitudes toward their jobs and toward changes in work methods. Failure of the contractor to recognize this prized skill was conducive to resistance to change. Several stated that they considered they had a better grasp of the intricacies of the work than most of their superiors who might originate changes. Therefore, they tended to resist if their skills were not recognized and respected as evidenced by the originators neglect in asking for their comments when a change was contemplated.

Maslow (18) and others, in considering man's needs, have discussed them in terms of a hierarchy of three major

OBSERVATIONS - Worker

W-6. Do you feel that the skills required to do your work are fully appreciated by the contractor ?

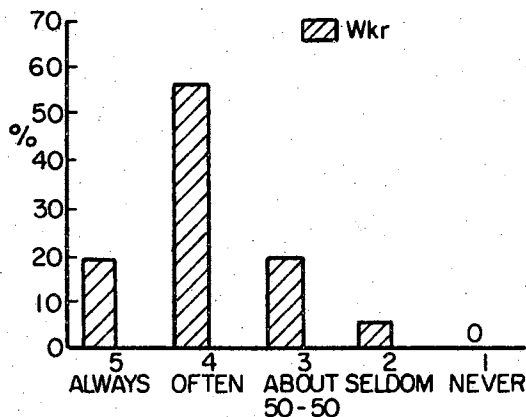
	N	M
Wkr	110	3.3



OPINIONS - Worker

W-39. If workmen know that supervisors have a high regard for the skills required in their work, are they more willing to accept a change ?

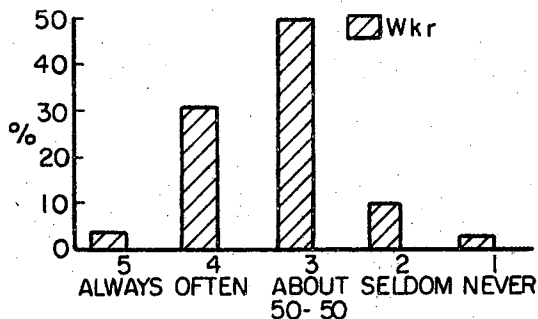
	N	M
Wkr	109	3.9



OBSERVATIONS - Worker

W-22. Do contractors use the workmen's skills to the best advantage ?

	N	M
Wkr	109	3.2



OBSERVATIONS - Contractor

C-18. Do contractors feel that they are using the skills of the workmen to the best advantage, considering limitations in negotiated agreements, etc. ?

	N	M
Contr	67	3.6

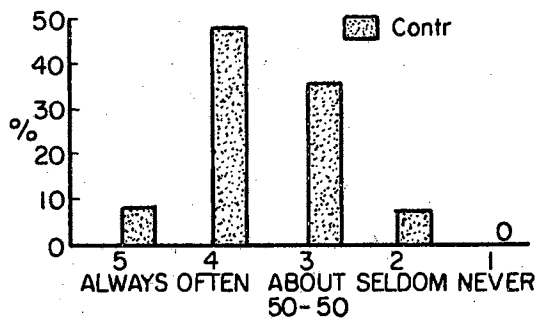


Figure 8. Observations and Opinions on the Use of and Regard for Workers' Skills - Worker/Contractor

types: physiological, social, and egoistic. The latter are needs an individual has for a high evaluation of himself and include such ones as achievement, independence, self-respect, respect of others, status, recognition, and self fulfillment. Sutermeister (19) states that to maintain a high estimate of ourselves, most of us never stop needing reassurance that we are held in esteem by others. Thus, our egoistic needs must be continually satisfied. To him, the continuing satisfaction of egoistic needs would seem to offer the best opportunity to motivate employees to improved performance.

No specific questions were included in the contractor questionnaire on the subject of appreciation of workers skills, since pretesting showed meaningful answers were not being obtained.

The responses to the other questions, W-22 and C-18, indicate that the skills of the workers are being used to the best advantage most of the time. Several workers who were interviewed revealed that their skills could be employed to still greater advantage, if they were given more voice in the planning of work and in making changes in work methods.

It appears from the survey data analysis that if workers feel that their skills are not appreciated, they are

less receptive to changes in work methods. This then is a contributing condition that increases the likelihood of resistance.

Fears the Unknown--Reasons for Change Not Given: To determine the observations of both groups on whether contractors give workmen the reasons for changes, the same question was asked each group: "Do contractors give workmen the reasons for making work methods changes?" (W-13, C-7).

To get the opinions of both groups on the effect of disclosing the reasons for change on the willingness of the worker to accept it, the same question was asked each group: "If workmen are given reasons for changes in work methods, are they more willing to accept a change?" (W-27, C-24).

Figure 9 shows the responses to these four questions.

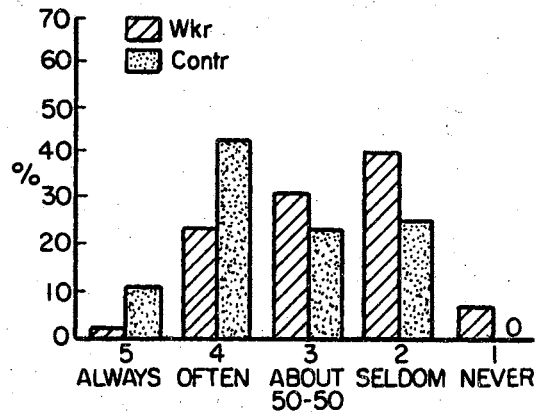
The responses to identical Questions W-13 and C-7 are not in close agreement. They would indicate the contractors give the reasons for changes more than half the time, and that workers receive this information less than half the time. It would appear that contractors may be giving the reasons but this advice is not always filtering down to all of the workers.

Answers to identical Question W-27 and C-7, show that giving the reasons for changes strongly affects the willingness of the worker to accept them.

OBSERVATIONS - Worker/ Contractor

W-13, C-7. Do contractors give workmen the reasons for making work methods changes ?

	N	M
Wkr	110	2.7
Contr	68	3.4



OPINIONS - Worker/ Contractor

W-27, C-24. If workmen are given reasons for changes in work methods, are they more willing to except a change ?

	N	M
Wkr	110	3.9
Contr	66	3.7

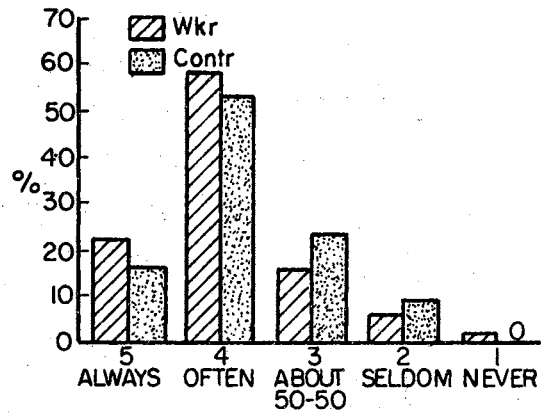


Figure 9. Observations and Opinions on Giving Workers the Reasons for Changes - Worker/Contractor

Worker interviews revealed that many times they were fearful of the outcome of a change in terms of their employment on a particular project due to a change being introduced without explanation. Some wondered if their skills were being questioned, or whether their supervisors were unhappy with their productivity. Most workers, they felt, have an interest in their jobs and in the way operations are carried out, and they can become very upset and resistant to change if they do not know what is in store for them due to changes. In addition, they are adversely affected by the perceived lack of respect on the part of their superiors in not giving the reasons for making changes in the work methods with which they are so vitally concerned as part of their daily work lives. Their status as skilled craftsmen or operators is felt to be downgraded as a result of such management behavior.

The literature makes many references to the fear of the unknown where a new way is always strange, threatening, and laden with uncertainties, even if it is an improvement over the old. Lack of factual information is one reason for this fear, as our present circumstances are known and the new ones are unknown. There is

another kind of uncertainty that cannot be dissipated by providing information. This is the anxiety that springs from the fear of the individual about how he himself will react to the new situation (13, p. 288).

Tannenbaum (20, p. 212) states that for people to accept new ideas or methods, several different things have to occur. One is that it is important that people understand the reason for a change. They have to get some insight into why a change is going to be made. Understanding the need for a change is important if people are not to set up barriers.

According to Zander (21), resistance can be expected if the nature of the change is not made clear to those who are going to be influenced by the change.

The data analysis indicates that workers do fear the unknown. Not being given the reasons for making a change is a contributing condition increasing the likelihood of resistance.

Does Not Understand Need for Change: To obtain the observations of each group as to whether contractors try to help workmen understand the need for a proposed change, each group was asked the identical questions: "Do contractors try to help workmen understand the need for a proposed change in work methods?" (W-16, C-10).

To get the opinions of each group on the possible effect on the workman's willingness to accept change by having them understand the need for the change, the same question was asked each group: "If workmen understand the need for the change in work methods, are they more willing to accept the change?" (W-30, C-27).

Responses to these four questions are shown in Figure 10.

The answers to identical Questions W-16 and C-10, when taken in sum, indicate that contractors try to help workmen understand the need for a proposed change only about half of the time or less.

The replies to identical Questions W-30 and C-27 reveal that both groups concur that having the worker understand the need for change is often to always desirable.

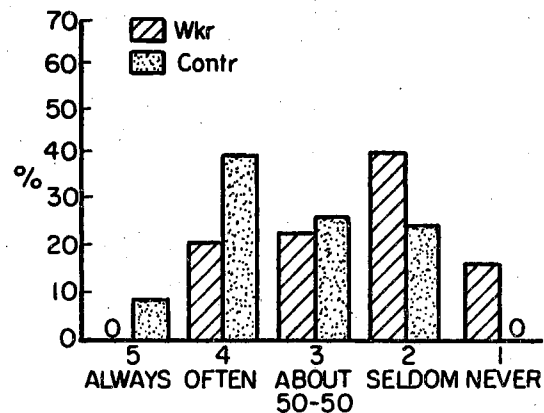
This condition of understanding the need and its response analysis are similar to the previous case of giving the reasons for a change to the workers.

Worker interviews revealed that many times when the need for making a change was not apparent or explained to them, they resisted, since it may have meant changing their work habits or procedures for no good reason. This action again was perceived to indicate a lack of respect by management for their trade skills and knowledge of the job

OBSERVATIONS - Worker/Contractor

W-16, C-10. Do contractors try to help workmen understand the need for a proposed change in work methods ?

	N	M
Wkr	110	2.5
Contr	68	3.3



OPINIONS - Worker/ Contractor

W-30, C-27. If workmen understand the need for the change in work methods, are they more willing to accept a change ?

	N	M
Wkr	110	3.8
Contr	66	3.9

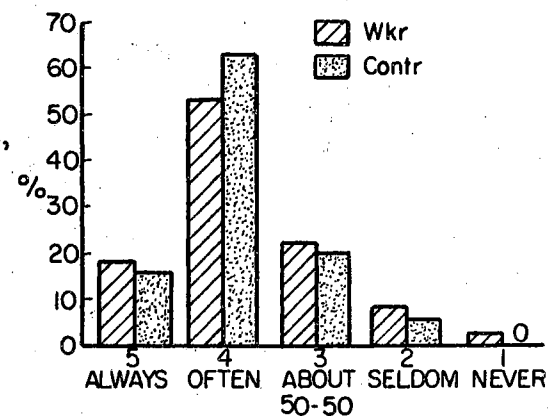


Figure 10. Observations and Opinions on Understanding the Need for a Proposed Change - Worker/Contractor

operations. The need to reduce costs, generally thought by workers to be the reason for making most changes, is not obvious to them in many cases, creating new doubts. If the change were being made because of contract provisions, safety codes, or liability insurance company recommendations, this has not always been made known to the worker, so he tends to resist because of lack of knowledge of the need.

Most contractors interviewed did make an effort to advise workers of the need for a change, but they realized that this communication does not always reach all of those concerned.

Krick (22, pp. 510-513), in discussing resistance to change, lists as one of the common causes the failure on the part of the proposee to see the need for a proposed change. He suggests as a method of minimizing resistance a convincing explanation of the need for a change. Dennis (23) feels that to gain support, those involved in a change must understand what is wanted and why.

Sartain and Baker (24, p. 229) state that change may be more acceptable to employees who clearly understand the nature of the change and the reasons for it.

From the survey data, it would appear that not understanding the need for a change is a contributing condition increasing the likelihood of resistance to it.

Fear Changes Irrevocable: To obtain the observations of both groups on the practice of making changes on a trial basis, similar questions were asked each. The worker was asked in Question W-14, "Do contractors change work methods on a trial basis with the understanding that they may go back to the old methods?" The contractor was asked in Question C-8, "Do contractors change methods on a trial basis with workmen understanding that the changes are not irrevocable?"

To get the opinions of both groups on the effect of making changes on a trial basis with the understanding that they are revocable, each group was asked the identical question: "If workmen know that the change is being made on a trial basis only, are they more willing to accept a change?" (W-28, C-25).

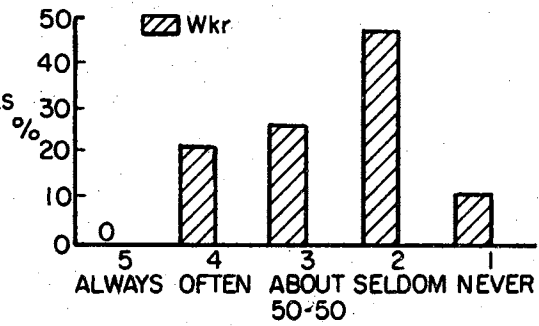
Figure 11 shows the responses to these four questions.

Answers to the two similar questions, (W-14, C-8), indicate that the workers have observed that contractors seldom, if ever, make changes on a trial basis. Contractor observations, however, indicate that changes are made on a trial basis more often than not. The difference between the

OBSERVATIONS - Worker

W-14. Do contractors change work methods on a trial basis with the understanding that they may go back to the old method?

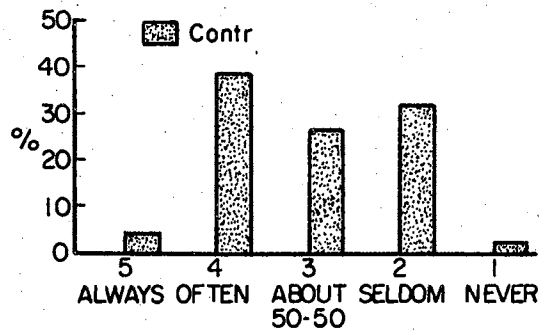
	N	M
Wkr	108	2.5



OBSERVATIONS - Contractor

C-8. Do contractors change methods on a trial basis with workmen understanding that the changes are not irrevocable?

	N	M
Contr	68	3.1



OPINIONS - Worker/Contractor

W-28, C-25: If workmen know that the change is made on a trial basis only, are they more willing to accept a change?

	N	M
Wkr	110	3.6
Contr	65	3.3

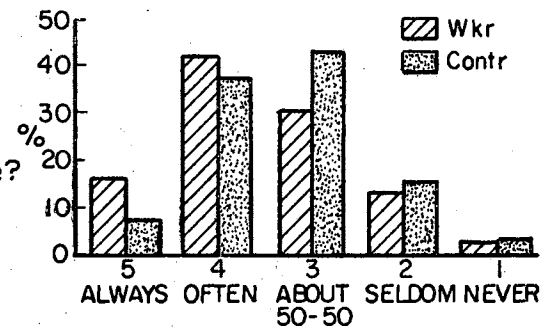


Figure 11. Observations and Opinions on Changing Work Method on Trial Basis - Worker/Contractor

observations of the two groups may be attributable to workmen not being fully informed of the intent of the contractor when a change is introduced.

Replies to identical questions W-28 and C-25 indicate that if the workmen know that a change is made on a trial basis, they are generally more willing to accept a change.

Interviews revealed that in many instances the workmen perceived the proposed change in work methods would be impractical and inefficient, so they showed a tendency to resist to a greater extent at the outset than if they knew they were not permanently "stuck with" the change. They felt that most people are often willing to "go along" with or "give a try" to something new in methods, provided their commitment is revocable; otherwise, they may resist change.

Contractors interviewed stressed that a change made on an experimental basis to test its feasibility cannot be economically carried out in cases involving purchases of new tools or equipment, or reorganization of a field plant layout. With minor changes, however, the trial basis scheme was thought to be effective in convincing some workers to cooperate at the outset.

Judson (16, p. 33) says that there will be problems if a change is presented as irreversible and irrevocable, for

should those affected believe that they are being made to travel down a one-way road and to cross a bridge that will then be burned behind them, their suspicions and fears about the change will inevitably rise.

Survey data analysis indicates that making changes in the knowledge that they are irrevocable is a contributing condition leading to the likelihood of resistance.

Feel Contractors Not Sincere in Requesting Opinions:

To obtain worker observations on the sincerity of contractors in asking for their opinions about proposed changes, Question W-20 was asked: "Do workmen feel contractors are sincere when they ask for opinions about proposed changes in work methods.?"

The effect of worker feelings about the sincerity of the contractors on their willingness to accept change was sought through Question W-34: "If workmen feel that contractors sincerely want their opinions about proposed work changes, are they more willing to accept a change?"

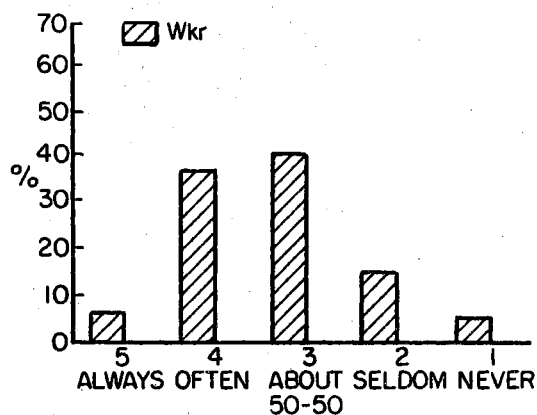
Figure 12 shows the responses to these two questions.

The responses to Question W-20 show that workers felt that contractors were sincere slightly more than half of the time when they asked for opinions about proposed work changes.

OBSERVATIONS - Worker

W-20. Do workmen feel contractors are sincere when they ask for opinions about proposed changes in work methods ?

	N	M
Wkr	109	3.3



OPINIONS - Worker

W-34. If workmen feel that contractors sincerely want their opinion about proposed work changes, are they more willing to accept a change ?

	N	M
Wkr	110	3.9

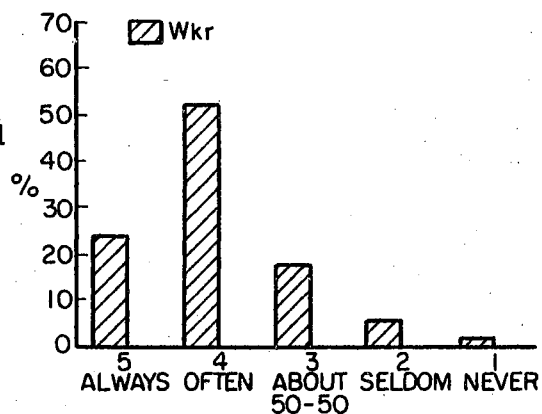


Figure 12. Observations and Opinions on Sincerity of Contractor in Change Situations - Worker

Responses to Question W-34 point out that if workers feel that the contractor is sincere in asking for their opinions, they are often more willing to accept a change.

Interviews with workers revealed that the practice of some in management of leading a worker to believe that his opinion is valued when in fact other actions of management indicate a lack of genuine sincerity results in strong resistance due to the feeling of being "conned" by management. Several workers felt that many times the "boss" had already made up his mind about a change before asking their opinions. This action was resented, and they tended then to resist the change because of it.

Furthermore, it was stated that if they sensed a lack of sincerity on the part of managers, then any explanations of the reasons and need for the change would not be conducive to worker acceptance. Several workers did not hesitate to say that they had confidence in the motives of very few management actions involving the worker.

Stagner and Rosen (25, p. 118) say that there is sometimes a tendency of management to make the basic decisions, e.g., on new machinery, then invite employees to discuss how the decision shall be implemented, causing unions to denounce the technique as "bogus democracy."

The impression was gained from most of the contractors interviewed, in spite of their different management philosophies, that they sincerely believed that most workers could, if they wished, offer constructive suggestions on proposed work methods changes. To quote one: "Even some morons come up with good ideas once in a while, so it pays to listen to everyone's suggestions when practicable."

Survey data analysis indicates that the perceived sincerity of the contractor in asking for suggestions on proposed changes is a contributing condition that increases the likelihood of resistance.

Fears Outcome of Changes Based on Prior Experience:

Worker observations on the quality of changes made in work methods by their superiors were sought through Question W-4: "How often do changes in the methods of work that are made by your superiors lead to better ways of doing things?"

To determine how their willingness to accept change was affected by their experience with past changes, Question W-35 was posed: "If workmen know from experience that most changes made in work methods turn out for the best, are they more willing to accept a new change?"

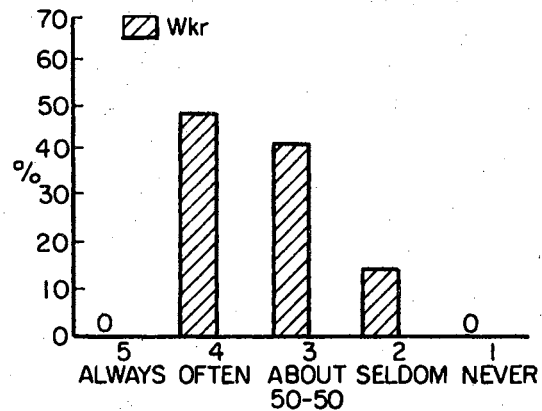
Responses to the two questions are shown in Figure 13.

The answers to Question W-4 reveal that changes in work

OBSERVATIONS - Worker

W-4. How often do changes in the methods of work that are made by your superiors lead to better ways of doing things ?

	N	M
Wkr	110	3.3



OPINIONS - Worker

W-35. If workmen know from experience that most changes made in work methods turn out for the best, are they more willing to accept a new change ?

	N	M
Wkr	110	3.9

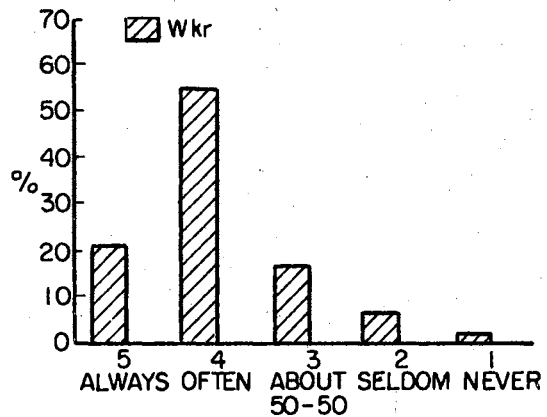


Figure 13. Observations and Opinions on Quality of Changes - Worker

methods made by their superiors more often than not lead to better ways of doing things.

The replies to Question W-35 show that the willingness of the worker to accept is strongly influenced by his past experience with change. Successful changes witnessed in the past lead to a more positive attitude toward acceptance in the future of other changes.

Some interviewed workers revealed that they had seen some poorly conceived changes, causing them to be "gun-shy" of many new ones. Others, however, who experienced beneficial changes were less concerned about the outcome of new proposals.

One of the obstacles to cost reduction in connection with methods changes mentioned by Walter Scott (26, p. 8-235) was that of the derisive attitude of workers resulting from past failures.

Stewart (27) feels that the workers past experience with the firm in relation to changes may cause variations in resistance.

The data indicate that the worker's prior experience with change, if it tends to be on the negative side, is a contributing condition that increases the likelihood of resistance.

Dislikes Learning New Skills: One question, W-38, was posed to the workmen to get their opinions on their willingness to accept change, if the change required the learning of new skills: "If workmen don't have to learn new trade skills because of a change in work methods, are they more willing to accept a change?"

The 110 responses to Question W-38, in terms of percentages rounded to whole numbers, were: Always 4%; Often 27%; About 50-50 49%; Seldom 17%; Never 3%. The mean was 3.1.

Answers to Question W-38 indicate that about half of the time or more, the fact that the worker does not have to learn new trade skills does increase his willingness to accept a change.

Contractor interviews revealed that possibly some older workers resented having to learn new skills. In interviews with both groups, however, the impression was gained that most workers were not greatly perturbed at having to acquire new skills. If they could see especially that the new skills would be beneficial to them in the long run, there seemed to be no strong dislike for learning new ones to add to their present level of skill.

It has been pointed out in many places in the literature that "unlearning" a skill is, many times, as difficult

as learning a new one, which compounds the problem. Workers felt that with most changes they witnessed, the learning of new skills was not a major problem for them to be concerned about, but they could conceive of situations where the learning of a new skill would require major extended effort on their parts. This, then, might influence their resistance, if they were not assured that they could acquire the skill without heavy monetary expense to them. It was the feeling of some that joint union-management courses should be instituted to assist them in any extensive learning of new skills should it ever be required. The actual learning process under these conditions did not seem to worry most of these workers.

Krick (22, p. 510) points out that when a new system is proposed, a fear of the inability to become equally proficient under the new system may well cause any man to be apprehensive as to his future value and security in that job, with likely resistance to the change.

Survey data analysis indicates that if a worker must learn a new skill because of a change, this is a contributing condition that increases the likelihood of resistance to it.

Social Reasons for Resistance to Change

Some of the social reasons that might affect the workman's resistance to changes in work methods, considered in framing the survey questions, are that he:

1. Dislikes changes suggested by superiors.
2. Sees the contractor getting "something for nothing".
3. Dislikes disruption of social relationships.
4. Resents not being asked for suggestions.
5. Resents not being asked to participate in group discussions on decisions about changes.
6. Resents not being given opportunity to use own ideas.

These conditions are analyzed and discussed in the six following sub-sections.

Dislikes Changes Suggested by Superiors: To determine worker observations on the source of origination of changes, Question W-8 was asked: "Who proposes most of the changes made in the methods of work?" A similar Question, C-4, was asked the contractors: "Who suggests most of the changes that are made in the methods of work?"

To get the opinions of workers and contractors on the effect of the willingness of the worker to accept changes in relation to whether the change originated from an equal

or a superior, the same question was asked both groups: "If workmen know that the idea for a change is that of a fellow craftsman, and not that of a superior, are they more willing to accept a change?" (W-37, C-32).

Responses to these four questions are shown in Figure 14.

Both groups are in close agreement as to who proposes or suggests most changes in work methods, as noted in their answer to Questions W-8 and C-4. Most changes are proposed by superintendents with very few by foremen and craftsmen. Since many of the firms surveyed do not employ staff engineers as such, the number of engineers shown as suggesting changes is naturally low. Many superintendents in these same firms have engineering training, however.

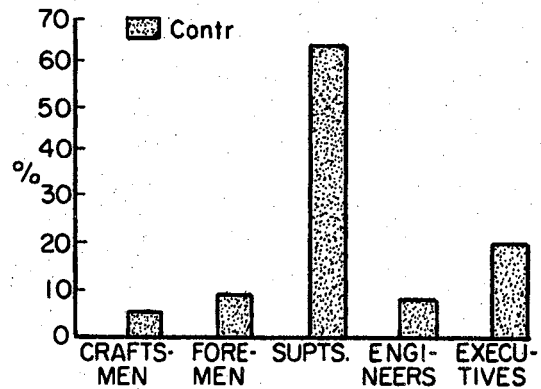
Replies to identical Questions W-37 and C-32 show that if the suggestion for a change comes from a fellow craftsman and not from a superior, this more often than not affects the willingness of the worker to more readily accept it.

Interviews with workers revealed that in many cases they resented the orders for changes passed down from above, for they felt that the higher the position occupied by the one suggesting the change, the less practical the suggestion. The proposers, they felt, were too removed from the details of the job and were not cognizant of all the

OBSERVATIONS - Contractor

C-4. Who suggests most of the changes that are made in the methods of work ?

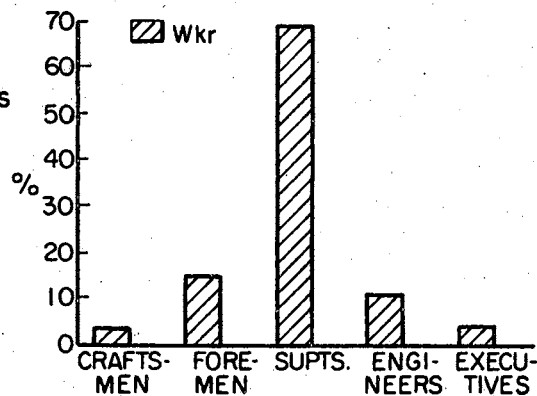
	N	M
Contr	67	—



OBSERVATIONS - Worker

W-3. Who proposes most of the changes made in the methods of work ?

	N	M
Wkr	110	—



OPINIONS - Worker/Contractor

W-37, C-32. If workmen know that the idea for a change is that of a fellow craftsman, and not that of a superior, are they more willing to accept a change ?

	N	M
Wkr	110	3.1
Contr	65	3.3

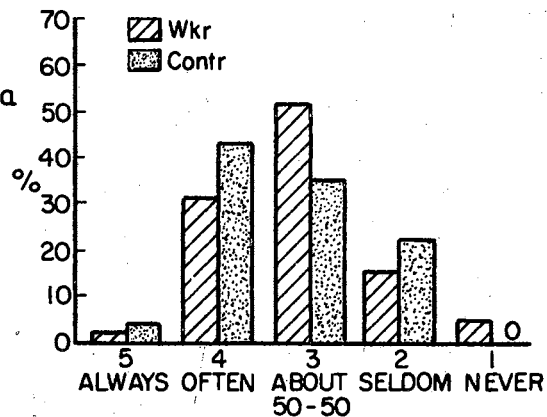


Figure 14. Observations and Opinions on Source of Change Suggestions - Worker/Contractor

job conditions that might nullify the supposed benefits of the change. Some felt, especially in the case of minor changes that were suggested from "above", that the foremen and craftsmen were being indirectly criticized for not having adopted a better method before that time, or for not having thought of the newly proposed method themselves.

Most generally, interviewed workers objected to change suggestions originating from high above their organizational level as these were introduced as a mandate in too many cases. They objected to the lack of consultation, explanation of need, and reasons for the change, in addition to the sometimes arrogant attitude of superiors who seemed to be neglecting their feelings entirely.

After spending many years learning certain techniques, it hurt their egos to have someone other than a fellow craftsman devise a better way of performing the same operation.

A few contractors interviewed were quite vehement in stating that workers and their unions were trying to usurp the complete direction of job procedures from management, so, they felt, the workers naturally resented any detailed changes originated by management.

According to Roethlisberger (28, p. 36)

Now it happens frequently that these logical plans to promote efficiency and collaboration do not work out as intended. From the point of view of sentiments, they involve consequences which sometimes defeat the logical purposes of the plan as conceived. Let me point out some of these possible nonlogical consequences. When skill is divorced from the job at the work level and put in the hands of a group of technologists, a situation is created whereby the worker is put in a position of having to accommodate himself continually to changes which he does not initiate. And not only is he asked to accommodate himself to changes which he does not initiate, but also many of these changes deprive him of those very things which give meaning and significance to this work. In the language of the sentiments, it is as if the worker were told that his own individual skills, his acquired routines of work, his cultural traditions of craftsmanship, his personal interrelations, had absolutely no value. Now, such nonlogical consequences have devastating effects on the individual. They make him feel insecure, frustrated, or exasperated.

Schleh (29) feels that if improvements are completely engineered by the "experts" and then simply explained to those involved, resentment and opposition inevitably follows, ultimately growing into group hostility toward the "outsider" engineering department.

Lawrence (30) says resistance is usually created because of certain blind spots and attitudes which staff specialists have as a result of their preoccupation with the technical aspects of new ideas.

Krick (22, p. 511) writes that a cause of resistance to change by workers is lack of confidence in the ability of the person proposing the change, and he goes on to say that this situation is commonly encountered by inexperienced engineers.

Survey data analysis indicates that the source of the suggestions for change, if from above the follow worker level, is a condition contributing to likelihood of resistance.

Sees the Contractor Getting "Something for Nothing":
Worker observations on whether the contractor is getting "something for nothing" in change situations, which might indicate their attitude about change in general, were sought through Question W-9: "Do workmen feel that the contractors are getting "something for nothing" when changes are made in work methods?"

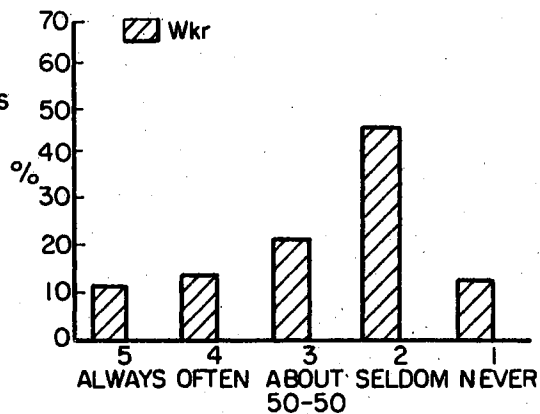
Contractor observations on this same factor were obtained through Question C-16: "Do contractors feel that workmen consider that they (the contractors) are getting "something for nothing" when a change is made in work methods?"

Figure 15 shows the responses to these two questions.

OBSERVATIONS - Worker

W-9. Do workmen feel that the contractors are getting "something for nothing" when changes are made in work methods ?

	N	M
Wkr	107	2.7



OBSERVATIONS - Contractor

C-16. Do contractors feel that workmen consider that they (the contractors) are getting "something for nothing" when a change is made in work methods ?

	N	M
Contr	67	3.1

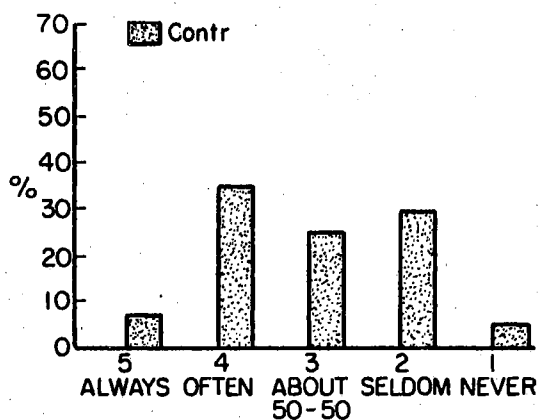


Figure 15. Observations on Contractors "Getting Something for Nothing" from Changes - Worker/Contractor

Responses of the two groups to the similar Questions (W-9, C-16) are not in very close agreement. Workers, for the most part, felt that contractors seldom or never get "something for nothing" when changes are made in work methods. Contractors, however, tended to feel that slightly more than half of the time the workers thought they were getting "something for nothing".

Some interviews of workers revealed that they felt the contractor was gaining much financially through changes, without any tangible reward to the worker. As a result, they tended to resist them. This tendency, they pointed out, existed because of seldom being told of the need or reasons for a change. A few indicated, as mentioned before, that they had little faith that management's motives were commendable in work method changes. They felt that the contractor was truly "getting something for nothing", reaping all the benefits of change at the expense of the workers.

Some contractors interviewed felt strongly that most workers believed that any reduction in man hours due to a change meant a near one hundred per cent profit for the contractor, forgetting that this perceived saving might be only partially offsetting cost overruns in other labor operations, in material costs, and in other charges. They felt that any explanations or statement to the workers

regarding the profit to be gained or not to be gained would not be believed and would probably more solidly convince some that the contractor was most surely getting "something for nothing". Others felt that some workers, especially their long-time employees, do appreciate that changes in work methods may not all be profit makers, but are frequently made just to keep the firm in competition with other contractors, with the dollar gains going mainly to the purchaser of construction.

Davis (2, p. 395) states, in describing a person's "social" reasons for resistance, that he may visualize the change as mostly benefiting the company rather than himself, his fellow workers, or the general public.

According to Strauss and Sayles (13, p. 287), workers under change situations many times reason that they may work themselves or their friends out of a job, or that the management is getting "something for nothing".

Gellerman (31) points out that there is often a mistrust of management with this attitude often predating any direct experience with a particular management and represents at times an indoctrination by ideologies or "class" feelings which in some groups are handed down from generation to generation. In other groups, hardened suspicion results from management's own ineptness in failing to permit its

employees to experience enough dignity and self respect on the job. He further states that when explanations of a change are attempted against such a background, they are quite likely to be interpreted as a type of trickery. When conditions have reached this point, resistance to change can scarcely be avoided.

Survey data analysis indicates that with certain workers who show a mistrust of management motives in change situations, there is a tendency to feel that the contractors are getting "something for nothing", and this becomes a contributing condition leading to the likelihood of resistance.

Dislikes Disruption of Social Relationships: A single question, W-8, was asked the workers to determine if they were "bothered" when their work teams were split up: "Does it bother workmen when their work team is split up on the job due to changes in work methods?"

To get the observations of both groups on whether contractors consider the possible effects of breaking up work teams, an identical question was asked each: "Do contractors consider the possible effects on workmen of breaking up work teams when a change in work methods is made?" (W-17, C-11).

Identical questions were asked both groups to get their opinions on the effect of the willingness of the worker to accept change if work teams are not to be broken up: "If work teams are not to be broken up when a change is made, are workmen more willing to accept a change?" (W-31, C-28).

Responses to these five questions are shown in Figure 16.

Answers to Question W-8 show that workers are quite often bothered when their work teams are split up.

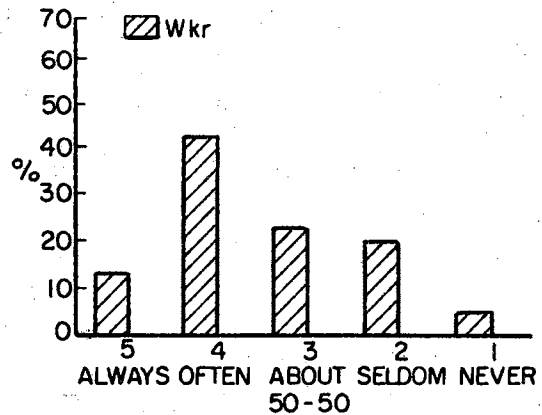
It is apparent from worker replies to Question W-17 that they felt contractors think of the possible effects on workmen of splitting up work teams only half the time or less. Contractors, in replying to the identical Question C-11, indicated that they felt they do generally consider such effects half the time or more. This difference is reasonable since the worker generally does not have full knowledge of the contractor analysis of the change situation. The contractor may consider this factor, but there may be other overriding conditions.

As to the effect on the willingness of the worker to accept change if the work team is not to be broken up, both groups in reply to Questions W-31 and C-28 indicate that this often has a strong positive effect on acceptance.

OBSERVATIONS - Worker

W-8. Does it bother workmen when their work team is split up on the job due to changes in work methods ?

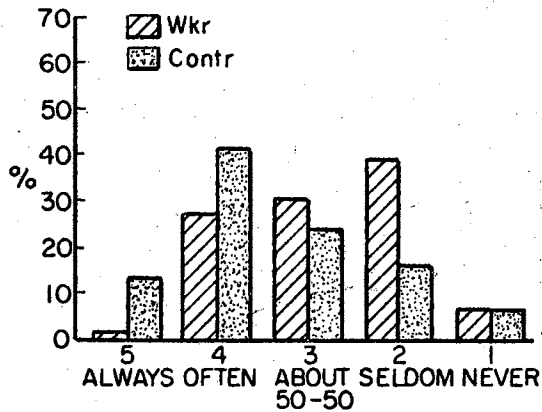
	N	M
Wkr	110	3.4



OBSERVATIONS - Worker/Contractor

W-17,C-11. Do contractors consider the possible effects on workmen of breaking up work teams when a change in work methods is made ?

	N	M
Wkr	110	2.8
Contr	68	3.4



OPINIONS - Worker/Contractor

W-31,C-28. If work teams are not to be broken up when a change is made, are workmen more will to accept a change ?

	N	M
Wkr	110	3.8
Contr	65	3.6

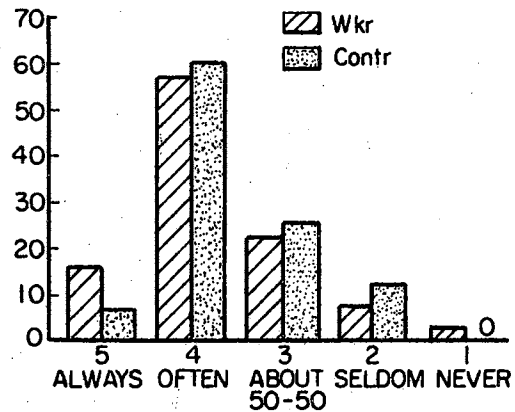


Figure 16. Observations and Opinions on Effects of Breaking Up Work Teams - Worker/Contractor

Worker interviews with some carpenters revealed that although in the course of a construction project working partners or teams must be frequently broken up to efficiently carry out the work, most of them disliked being separated from competent and sociable job partners due to changes in methods. They agreed that if an efficient team has been formed and then split because of a change in methods, the entire operation may be affected adversely, even though the change is a good one in principle. Some contractors interviewed agreed with this, but stated that at times it may appear advisable to split up men in work teams that are getting along well together since, in many cases, they tended to settle down to a slower than normal work pace.

All interviewed generally agreed that breaking up efficient and sociable work teams in change situations does lead to resistance on the part of workers.

Van Zelst (32), in a research study of work teams in building trades in the Chicago area, found that the use of "buddy-work teams" resulted in lower costs to the contractor, lower personnel turnover, and greater worker satisfaction due to the maintenance of some working partners over an extended period.

Tannenbaum (20) says that there are certain group influences to consider, and it must be recognized that the group affects the behavior of the individual as no individual lives in social isolation. As a result, he says, when changes are made that have effects on the established group norms or values, the group reinforces the feelings of insecurity of the individual and adds to the problems faced in introducing change.

Zander (21) in listing some conditions conducive to resistance states that resistance to change may be expected if the already established institutions in the group are ignored. The administrator who ignores institutionalized patterns of work and abruptly attempts to create a new state of affairs which demands the customs be abolished without further consideration will surely run into resistance.

Whyte (33, p. 577) says the manager must recognize that changes in technology, work flow, and organization structure will bring about changes in interactions, activities, and sentiments, and the skillful manager will think of such changes not only in terms of technical efficiency but also in terms of making more effective the relations among organizational members.

Nimkoff (34, p. 65) writes that there is a tendency for the group to resist changes that bring social dislocations.

Cartwright (35) feels that whether people do or do not resist change will be greatly influenced by the nature of the group of which they are members, so attempts to change them must be concerned with the dynamics of groups.

Lawrence (30) in discussing resistance states that people do not resist technical change as such and that most resistance that does occur is unnecessary. A key to the problem, he says, is to understand the true nature of resistance for actually what employees resist is not technical change but social change -- the change in their human relationships that generally accompanies technical change.

Survey data analysis indicates that breaking up work teams in the process of change is a contributing condition leading to the likelihood of resistance.

Resents Not Being Asked for Suggestions: To determine the observations of both groups on whether contractors ask workmen for suggestions, identical questions were asked: "Do contractors ask workmen for suggestions on changes in work methods that are being considered?" (W-12, C-6).

To get the opinions of both groups on the effect of asking for suggestions on the willingness of the worker to accept change, the same question was asked each: "If workmen are asked for suggestions on changes in work methods, are they more willing to accept a change?" (W-26, C-23).

The responses to the four questions are shown in Figure 17.

The answers of both groups to the identical Question W-12 and C-6 show that contractors often ask workmen for suggestions on changes about half the time or more.

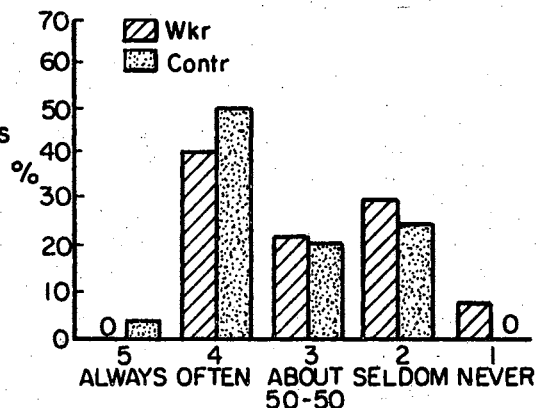
The opinions of each group as to whether the workmen are more willing to accept a change if they are asked for suggestions (W-26, C-23) correspond very well.

Almost all of those interviewed felt that asking for suggestions does increase the workers' interest, if sincerely invited, thus leading to more ready acceptance when a change is made whether their particular suggestions were adopted or not. Some workers qualified their statements to the effect that they were not eager to suggest methods that would cause their friends or themselves to be laid off because of a resultant decrease in manpower requirements. Several contractors and workers felt that it is not feasible or reasonable many times to ask the worker for suggestions, as the change may be too broad. If the worker does

OBSERVATIONS - Worker/Contractor

W-12, C-6. Do contractors ask workmen for suggestions on changes in work methods that are being considered ?

	N	M
Wkr	110	3.0
Contr	68	3.3



OPINIONS - Worker/Contractor

W-26, C-23. If workmen are asked for suggestions on changes in work methods, are they more willing to accept a change ?

	N	M
Wkr	110	3.9
Contr	65	3.9

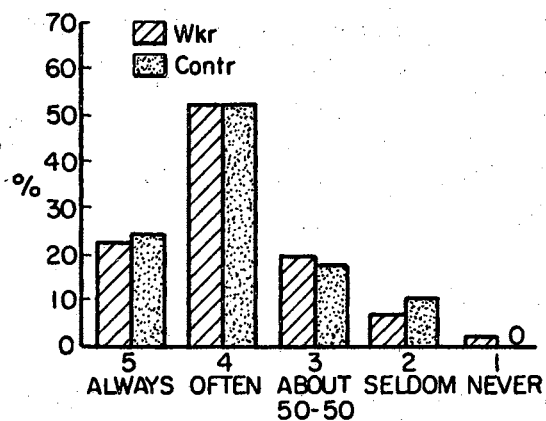


Figure 17. Observations and Opinions on Asking Workers for Suggestions on Changes - Worker/Contractor

not have a picture of the total project operation pertinent to the change, he cannot, therefore, offer fruitful suggestions encompassing the total plan. At the same time, however, contractors did try to encourage suggestions on specific details of a large plan of change or full suggestions on a minor one. It was well recognized by the majority of contractors that most workmen have potentially profitable ideas about how work should be best carried out and that these are well worth seeking. They are also cognizant of the fact that such requests for ideas that are sincerely made do boost the worker's ego and affect his eventual willingness to accept a change.

Workers indicated that any suggestions they made should be given directly to their foreman only, for to offer an idea to anyone else might be perceived by the foreman as an adverse reflection on his ability -- probably leading to some undesirable consequences for the proposer.

A few workers felt that it was the job of the supervisor to propose changes. It was what he was being paid to do and details of a proposed change were not the worker's concern for they were not being paid to do management's job.

The interviews revealed, in total, that workers as a rule resent not being asked for suggestions on work about which they feel they are as expert as most, if not all, of their superiors.

There are many literature references on the efficacy of asking for worker suggestions in change situations.

Selekman (5, p. 125), for one, feels that perhaps the first concrete measure offering promise for mitigating negative emotions is prior consultation with, among others, the particular workers involved. To him, it is the imposed change that constitutes the feared change: consultation offers an antidote against the sense of imposition.

Lawrence (30) feels that a blind spot of staff specialists is to the advantages and disadvantages of first hand production experience. It was amazing to him how many specialists fail to appreciate the fact that even though they themselves may have a superior knowledge of the technology of the production process involved, the foremen or operators may have a more practical understanding of how to get daily production out of a group of men and machines.

Survey analysis indicates that failing to ask workers for suggestions on proposed methods changes is a contributing condition leading to the likelihood of resistance.

Resents Not Being Asked to Participate in Group

Discussions on Decisions About Change: To determine the observations of both groups on whether contractors use group discussions enabling the workmen to participate in decision making on changes, the identical question was asked each: "Do contractors hold group discussions among workmen, supervisors, and engineers enabling the workmen to participate in making decisions about a change in work methods?" (W-19, C-13).

To get the opinions of each group on the effect on the willingness of workers to accept change, if allowed to participate in group discussions, the same question was asked each: "If workmen are asked, when it might be practical to do so, to join in a group discussion with other workmen, foremen, and engineers in making decisions about change, are they more willing to accept a change?" (W-33, C-30).

The contractors were asked an additional question (C-14) on whether they thought that the worker could contribute significantly to discussions on changes: "Do contractors feel that workmen can contribute significantly to discussions on changes in work methods?" Also, they

were asked whether they thought the workmen tried to improve work methods through Question C-20: "Do contractors feel that workmen try to improve work methods?"

Responses to these six questions are shown in Figure 18.

The data from the first two identical questions (W-19, C-13) indicate that group discussions among workmen, supervisors, and engineers are seldom held. It was the opinion of both groups, in reply to identical questions W-33 and C-30, that workmen are more willing to accept a change half of the time or more if they are asked to join in group discussions.

Responses to Question C-14 show that contractor observations of whether workmen can contribute significantly to discussions on changes in work methods are mixed, showing a bi-modal distribution.

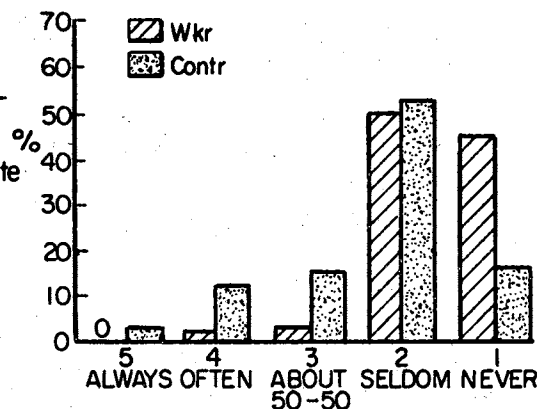
Replies to Question C-20 indicate that the contractors felt workmen try to improve work methods about half of the time.

Interviews revealed that most workers and contractors believed that due to the casual relationship of worker and employer in the industry, extensive use of group discussions would be costly in time, and would not generally produce one of the desired results of encouraging the

OBSERVATIONS - Worker/Contractor

W-19, C-13. Do contractors hold group discussions among workmen, supervisors, and engineers enabling the workmen to participate in making decisions about a change in work methods ?

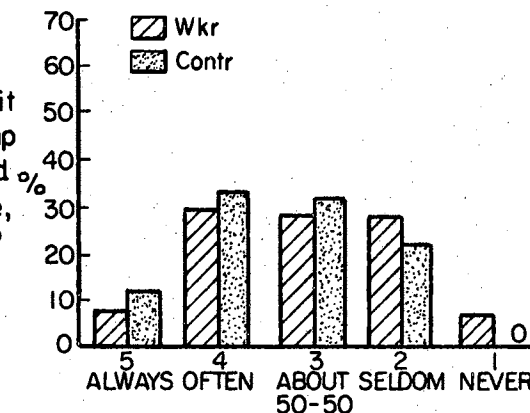
	N	M
Wkr	110	1.6
Contr	68	2.3



OPINIONS - Worker/Contractor

W-33, C-30. If workmen are asked, when it might be practical to do so, to join in a group discussion with other workmen, foreman and engineers in making decisions about change, are they more willing to accept a change ?

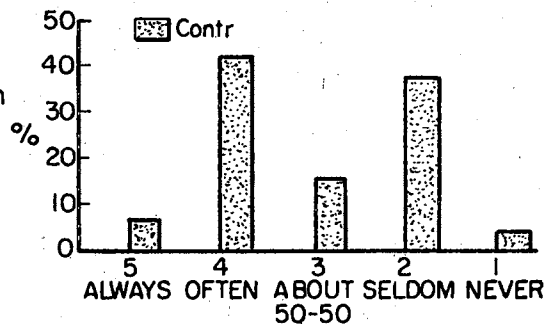
	N	M
Wkr	110	3.1
Contr	64	3.4



OBSERVATIONS - Contractor

C-14. Do contractors feel that workmen can contribute significantly to discussions on changes in work methods ?

	N	M
Contr	68	3.1



OBSERVATIONS - Contractor

C-20. Do contractors feel that workmen try to improve work methods ?

	N	M
Contr	67	2.9

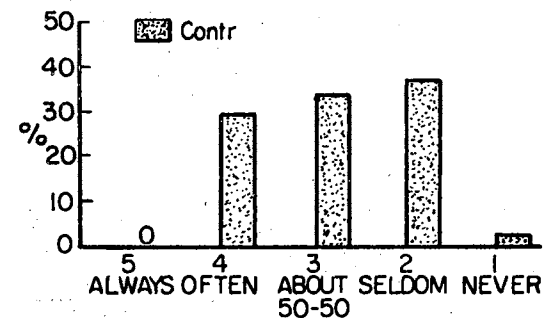


Figure 18. Observations and Opinions on Holding Group Discussions - Worker/Contractor

worker to more willingly accept a change. The disinterest of the casual worker and dominance of the discussion many times by certain members of a group were said to be deterrents to its use. Some interviewees had observed that this system proved to be effective in smaller firms employing fewer men who are long-time employees with a fairly comprehensive picture of company operations.

Group discussions are frequently held among foremen and others above that level. These meetings were considered by the workers and contractors interviewed to be fairly fruitful.

Interviews of contractors revealed that they felt some workers can contribute significantly to a discussion on proposed changes provided they have enough experience and have been with the company long enough to have a full appreciation of its overall operation. These qualifications may account for the bi-modal distribution of responses.

Contractor interviews also revealed that some workers do try to improve their methods and some do not, which was to be expected in any diversified group of people. Here again, it was felt that employees of long standing had an attachment to the firm and could be expected to take more

interest in work improvements. Several contractors were vehement in stating that some workers will never make a move to help improve methods.

As the condition of asking for suggestions is similar to the holding of group discussions, many of the interviewee comments and literature statements previously shown are also pertinent here.

Participation of workers in decision making is one of the most widely discussed topics in the literature of resistance to change. The well known investigations described by Roethlisberger and Dickson (36) at the Western Electric Company's Hawthorne plant revealed that employees are willing to try out many changes, even those affecting productivity, when they are allowed to participate. Another research study, invariably referred to in discussions on resistance to change, is that of Coch and French (37). It demonstrated how changes were favorably accepted by employees in a pajama factory when a participation method was used and that, without participation, the changes introduced undesirable results in the form of longer training and lower productivity.

Moore (38, p. 46) in speaking of business in general states:

The fact that participation is not used in our business rests with the managers on every level. I have long felt that they are deterred largely because of their preconceptions. The thought of the manager asking for advice goes against the administration grain. As the boss, he thinks that he cannot show those under him that he does not know all the answers. He cannot ever let them take control away from him for he will lose his managerial position, or at least his status.

Survey data analysis indicates that under certain favorable circumstances mentioned, neglecting to hold group discussions among workers, line supervisors, and engineers is a contributing condition leading to the likelihood of resistance.

Resents Not Being Given Opportunity to Use Own Ideas:

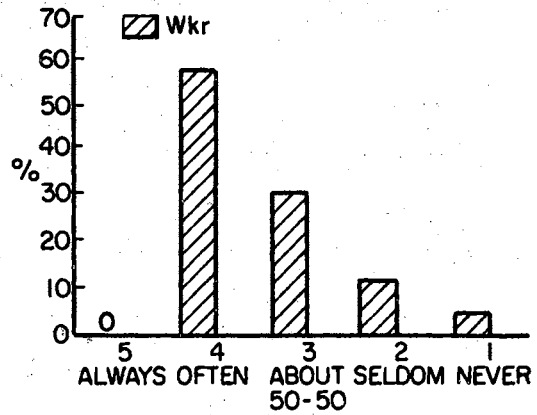
To get the observations of both groups on the opportunity given to the workmen to use their own ideas, almost identical questions were asked each group. Worker Question W-24 was: "Do workmen have the opportunity to use their own ideas in the day-to-day work methods?" Contractor Question C-21 was: "Do contractors give workmen the opportunity to use their own ideas in the day-to-day work methods?"

Responses to these two questions are shown in Figure 19.

OBSERVATIONS - Worker

W-24. Do workmen have the opportunity to use their own ideas in the day-to-day work methods ?

	N	M
Wkr	110	3.4



OBSERVATIONS - Contractor

C-21. Do contractors give workmen the opportunity to use their own ideas in the day-to-day work methods ?

	N	M
Contr	67	3.6

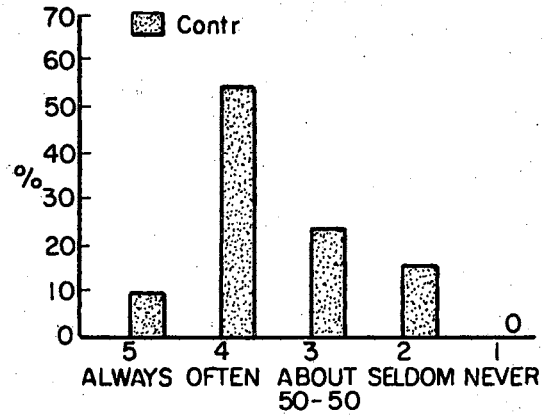


Figure 19. Observations on Opportunity of Workers to use Own Ideas in Work Methods - Worker/Contractor

The survey data indicate that workmen feel that they are often given the opportunity to use their own ideas in the day-to-day work methods which corresponds fairly well with the contractor observations on the same factor.

Interviews revealed that as a rule the detailed actions of the individual worker are not planned for him, rather he adapts to the overall planned efforts of the work group. This is so, since few operations in construction are carried out on a mass-production or continuous flow basis where each movement can be closely planned or designed in advance. Since much of the work is of a skilled nature, requiring at times a high degree of judgment on the worker's part, he resents having work planned for him in detail, thus preventing him from using his own ideas where feasible. It was pointed out by some craftsmen that if they could not have extensive freedom to plan and execute their work assignments, they would certainly lose interest in their trades and undoubtedly resist any change that would affect their autonomy and self-sufficiency.

Some contractors interviewed stated that because of the personal feeling of independence of highly skilled craftsmen, these workers are given their own way many times in determining their work methods. In addition, few contractors have the staff to plan work in detail and depend

upon the experience of their craftsmen to work out the details of the operation with a minimum of supervision.

Since there are virtually no formal on-the-job training programs, except for apprentice workers, it is assumed in most cases that the craftsman knows his trade when hired. He is expected to carry out any assignment with very little instruction from supervisors.

Blauner (39, p. 343) states that a factor in job satisfaction is the degree of control over his work that the individual feels he has.

Survey data analysis indicates that any changes in work methods that would lessen the opportunity of the worker to use his own ideas in his day-to-day work tasks is a contributing condition that increases the likelihood of resistance.

Construction Trades Working Rules as Reasons for Resistance to Change

The written working rules related to terms and conditions of employment or workers, incorporated into union-management collective bargaining agreements, affect the methods of work that might be proposed by, for instance, limiting the extent to which specific crew sizes can be reduced through a change in methods.

Since written rules are the result of negotiation, and since it was stated in connection with the questionnaires that the proposed work methods changes were not in violation of agreed upon working rules, a discussion of their merits or demerits is not included. For background on the evaluation of working rules and for some evaluation of written and unwritten rules, the following literature sources are highly recommended: Haber (40), Mathewson (41), Ryan (42), Slichter (43), Haber and Levinson (44), Bertram and Maisel (10), Mandelstamm (45), and Engineering News-Record (46).

With regard to the existence of unwritten working rules that might affect the contractors' willingness to introduce changes in work methods, they were asked Question C-22: "Do contractors feel that the existence of 'unwritten' working rules inhibits them from introducing changes in work methods?"

The 66 responses to Question C-22, in terms of percentages rounded to whole numbers, were: Always 5%; Often 21%; About 50-50 29%; Seldom 30%; Never 15%. The mean was 2.7.

It would appear from the responses that contractors are sometimes inhibited from introducing methods changes due to "unwritten" working rules.

Interviews revealed that the "rules" considered as possible inhibitors were informal agreements among the workers to limit output and restrict the use of labor saving tools and equipment. A few contractors believed that with certain trades, where units of daily output were standard and easily measured, there was a "feeling" among the workers that a specific number of units completed constituted a "fair day's work", and this was seldom exceeded. Even when changes were made that should have increased daily output, it often remained the same. These contractors then felt such experience tended to inhibit their introduction of further work method changes.

Other contractors, however, felt that there was no organized "agreement" among workers on the restriction of output or on the use of labor saving tools and equipment. They normally observed no other restrictive practices that would discourage them from introducing change.

Contractors had observed that acceptance of some new tools and machines was slow at times due to the tendency of many to want to retain the old and familiar. Eventually, however, all these were adopted by these same workers with no apparent desire to return to the old.

Other contractors stated that they never hesitate to introduce change, even though they may expect some

resistance at the outset. It is the only way, they felt, to eventually gain full acceptance, as they noted that historically the introduction of many improvements in this industry were resisted.

Not all workmen were questioned about this sensitive topic of unwritten working rules. Those asked stated that there were no unwritten rules limiting the use of new tools or machines. They insisted that there was no upper limit on production in their trades and hoped contractors would some day admit that many times low daily production could be due to poor planning, material purchasing and expediting, and supervising. Most contractors were strongly criticized for not having the proper tools available when needed. Furthermore, the implication that the contractor would be kept from introducing new changes due to the workmen's unwritten rules was resented. These same contractors, they stated, probably were held back because "they didn't have the brains to come up with new ideas, for so long as they can blame labor for high costs and then pass these on to the consumer, they are content."

As reported in Roads and Streets (47), Contractor Winton M. Blount made the following points in a talk before the Ohio Contractors Association:

Blount then used the word "appalling" to characterize the great laxity in modern management methods and improved techniques in the construction industry as a whole. Despite the inherent differences between construction and factory-type operations, this doesn't explain or excuse the industry's reticence to more aggressively explore newer methods and techniques.

Tannenbaum (48) comments:

It may be that the resistance of the managers themselves to the adoption of new methods of management currently represents one of the most serious barriers to the introduction of change in industrial organizations.

In 1959, the AFL-CIO adopted a work practices code known as the "Ten Commandments" (46, p. 82). The code seeks, through voluntary action, to reduce and stabilize construction costs by eliminating featherbedding, slowdowns, jurisdictional strikes, and other wasteful and non-productive practices. These practices, except for jurisdictional strikes, are largely untouched by the law. The fourth "commandment" states that:

There shall be no limit on production of workmen or restriction on the full use of proper tools or equipment and there shall not be any task or piece work.

Survey data analysis indicates that the existence of unwritten working rules, real or imagined, is a contributing condition that increases the likelihood that resistance to change may occur, and also inhibit the contractor at times from introducing changes.

Contractor Methods of Handling Change
as Reason for Resistance to Change

To determine if the methods of handling a change by the contractor affects worker willingness to accept it, one question was asked the worker in the questionnaire, and those interviewed were queried further. To get worker observations on the contractors' handling of change, Question W-23 was asked: "Do you generally approve of the way contractors go about making changes in work methods?"

The 110 responses to Question W-23, in terms of percentages rounded to whole numbers, were: Always 1%; Often 24%; About 50-50 55%; Seldom 17%; Never 3%. The mean was 3.0.

It appears that the responses are close to being normally distributed over the range of choice.

No specific reasons for a particular worker reaction to the handling of change by the contractor were elicited through the questionnaire. An attempt was made to bring out these reasons in the worker interviews.

Interviews with workers revealed, comprehensively, that their objection to the handling of change by the contractor was the apparent neglect to treat the worker as an individual with a sense of pride and personal worth and to realize that he was a member of a social work group at the same time. This, they felt, was evidenced by the general lack of consultation on change and explanation of the need

and reasons for change.

It was mentioned by several workers and contractors that much resistance might be eliminated by introducing a change at the start of the particular operation affected to minimize social dislocation of individuals and groups.

To determine contractor feelings toward the responsibility for making decisions about change, Question C-19 was asked: "Do contractors feel that the responsibility to make decisions about changes in work methods is theirs alone and not that of the workmen?"

The 67 responses to Question C-19, in terms of percentages rounded to whole numbers, were: Always 48%; Often 33%; About 50-50 12%; Seldom 4%; Never 3%. The mean was 4.2.

The majority certainly feel that the responsibility for making decisions about changes is that of the contractors.

This does not purport to be a measure or indication of the management philosophy of the respondents, and does not indicate that they seldom or never asked the worker to participate in decision making on changes.

In contractor and worker interviews, an effort was made in a broad way to subjectively determine if the contractor's general philosophy of management and his feelings toward the worker affected the latter's willingness to accept change.

Interviewed workers were asked what type of management attitude or philosophy seemed to them to be most beneficial to the contractor and the worker and would be most conducive to acceptance of change in work methods. This area of questioning was, of course, closely related to the previous ones on psychological and social reasons for resistance to change.

The interviews with experienced workers revealed that the management approach or attitude considered to offer the most advantages from all viewpoints was one in which management sincerely viewed the worker in a non-condescending way as a human being with deep personal feelings about his occupation, ambitious, and with a desire to work and accept responsibility -- not as just a "hand" to be coerced into working. There was no objection to the "hard driving" of some managers, so long as they were cognizant of workers as human beings. It was also stated that the "laissez-faire" and "benevolent" types of management (investigator's words) do not work profitably in the construction industry. The arrogant authoritarian type of manager, they observed, was fading from the scene as younger generations of managers appear who seem to be applying more "practical psychology", as they put it, but this was not to say that the authoritarian type did not also produce fine results at times. It

was admitted that all workers certainly do not qualify as having ambition, a desire to work and to accept responsibility, but it was felt that these men could be weeded out by the alert contractor.

The worker description of the preferred management philosophy resembles in some respects the modern "Theory Y" management views of McGregor (49). The modern philosophy of management is best illustrated by the writings of men such as McGregor, Rensis Likert (50), Mason Haire (51), March and Simon (52), Alfred Marrow (53) and Chris Argyris (54).

Beach (55, p. 44) in discussing this modern philosophy of management says:

Advocates of the modern school hold that people possess innate capacity for exercising initiative, accepting responsibility, and making worthwhile contributions. They do not inherently dislike work. Work can be a meaningful, satisfying experience. Employees will actively strive to achieve the goals of the organization when such behavior is compatible with their own goals. This demands an integration of the goals of the organization with those of the individual. While external controls must be available, it is felt that the best control of employee behavior is self-control. Management must share information and objectives with subordinates. It should set up the climate in such a way that subordinates may participate in shaping decisions affecting the business in those areas where the people possess competence.

Most of the contractors interviewed agreed in principle with the opinions of workers in advocating the modern type of management described by Beach. Although those interviewed did not see this quotation, the salient points in it were discussed. It may be said that their comprehensive feelings in relation to it would indicate that this is an enlightened manner of viewing the nature of man and his behavior. When applied to the minority of workers, however, they felt that it was not realistic for there are some who have no initiative, who do not seek responsibility, or who are unwilling or unable to contribute ideas for improved work methods. In spite of all the exceptions and criticisms that can be made of such a management philosophy, they believed that in the long-run such an overall outlook on the part of the contractor in handling change would result in less resistance by the workers.

A few contractors saw little merit as far as reducing resistance to change with the application of this philosophy of participation by the worker. It was stated that most workers would not make any effort to suggest change or cooperate fully in any change situation. The attitude of these few contractors might be summed up in the words of one, as closely as could be recalled, who said: "These men are hired to do a certain job, and if they don't do it the way I want and as fast as I want, they can 'hit the road.' We can't have all kinds of people standing around

wasting time in giving suggestions and concerning themselves with things that aren't their business at all. We are coddling workers too much these days." It might be noted that many of these same contractors complained bitterly about resistance to changes on the part of the worker.

From an analysis of the survey data, it appears that the method of handling the change, which indirectly reflects the contractor's management philosophy, is a contributing condition that increases the likelihood that resistance to change may occur.

Summary - Contributing Conditions

From the analysis of data drawn from questionnaires, interviews, and from the literature, contributing conditions were found that increase the likelihood that resistance to change in work methods may occur. These have been identified and are shown in condensed form in the next chapter under "Conclusions".

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

In this chapter a brief resumé of the study is made, the major findings and conclusions delineated, and recommendations made for future research in the subject area of resistance to change in the construction contracting industry.

SUMMARY OF THE STUDY

Industry publications have indicated that there is resistance to change in work methods and that it is one of the management problems of concern to the general construction contractor. As a result of resistance presently being experienced by contractors, plus the hesitancy to originate or introduce further changes, desirable increases in man-hour productivity are being foregone to the detriment of the economy.

The major problem of this study was to develop a generalized framework to enable the construction engineer or job superintendent to better identify and to relate the conditions contributing to resistance to change on the part of construction workers. With this background, the

objective of realizing more benefits from potential cost-saving changes in work methods may be more readily attained.

The scope of the study was three-fold:

1. To find the extent of resistance by construction workers to changes in work methods.
2. To identify some of the contributing conditions that increase the likelihood that resistance to changes in work methods may occur.
3. To suggest ways to reduce resistance to changes in work methods.

The data for analysis and discussion in relation to the aims of the study were obtained through a survey of construction workers, trade union officials, and contractor management and engineering personnel in the cities of Anchorage and Fairbanks, Alaska; and through a survey of the literature on resistance to change.

Sixty-eight contracting firm management or engineering personnel completed a questionnaire and twenty-eight of these were also interviewed. One hundred and ten workmen completed a questionnaire and twenty-four of them were interviewed as well.

CONCLUSIONS

The conclusions are divided into three categories in accordance with the statements of the scope of the study.

As this study was confined to conditions in two closely related cities in one State, it is not purported

that the findings and conclusions are universally applicable.

Extent of Resistance Found

It was found from the survey information that there is quite often resistance to change in work methods by the construction workers located in the geographical area of the survey.

Most of the contractors who were surveyed indicated that resistance to change in work methods is a problem of concern to them because of its deleterious effect on productivity.

Identification of Some Contributing Conditions That Increase the Likelihood of Resistance

Possible reasons for worker resistance to change were divided into five categories for analysis and discussion: economic, personal or psychological, social, trade working rules, and contractor handling of change.

As a result of the analysis of the survey data, including questionnaires, interviews, and relevant literature, the following were found to be contributing conditions that increase the likelihood of resistance to change in work methods. These conditions are listed in the same order as in the analysis and discussion and not in order of importance.

1. Economic:

- a. Fears present trade skills will be in less demand in the future due to changes.
- b. Does not benefit from perceived cost savings realized by the contractor through changes.
- c. Does not recognize possible long term economic benefits of changes.
- d. Does not fear termination of employment for not accepting changes.

2. Personal or Psychological:

- a. Dislikes change inherently.
- b. Fears skills not appreciated by the contractors.
- c. Fears the unknown-reasons not given for changes.
- d. Does not understand need for changes.
- e. Fears changes are irrevocable.
- f. Feels contractors not sincere in requesting opinions.
- g. Fears outcome of changes, based on prior experience with changes.
- h. Dislikes learning new skills because of changes.

3. Social:

- a. Dislikes changes suggested by superiors.
- b. Sees the contractor getting "something for nothing" from the changes.

- c. Dislikes disruption of social relationships on the job because of changes.
 - d. Resents not being asked for suggestions about changes.
 - e. Resents not being asked to participate in group discussions on decisions about changes.
 - f. Resents not being given opportunity to use own ideas in his day-to-day operations.
4. Construction Trades Unwritten Working Rules.
 5. Contractor Methods of Handling Change.

These contributing conditions were not listed in order of importance due to their complex interrelationships and as the influence of each may vary greatly in any particular change situation with respect to the geographical area, size and experience of the firm, age and experience of the workers, basic attitudes of the workers toward their jobs and toward management, general and local economic conditions, and other environmental factors. In addition, all of these factors are not at play at the same time in any specific change situation.

This listing of contributing conditions is not exhaustive in any respect, but it is felt that those shown represent the major conditions relevant to the industry studied and the geographical area of the survey. The final questionnaire coverage and interview scope, which emphasize the key contributing conditions, were determined

by pre-tests of questionnaires and exploratory interviews with interested, experienced people in the industry.

Almost all of the literature cited in the study bears on work situations other than construction, but since the underlying emotional reasons for resistance to change are generally typical under almost all conditions of work, these formal studies and statements by competent observers are of inestimable value in the study of resistance to change in the construction contracting industry.

Suggested Ways of Reducing Resistance to Change in Work Methods

From the analysis of the survey data, contributing conditions were found that might increase the likelihood that resistance to changes in work methods may occur. In light of these findings, some ways of reducing resistance to change may be suggested.

It should be recognized that impressions gained from the wide-ranging and in-depth interviews played an important part in the suggesting of ways to reduce resistance to change.

It also should be appreciated that resistance to change is not always an undesirable reaction on the part of the worker, as it should not be assumed that every change made in work methods is a "good" one, for many are not. Furthermore, it should be remembered that people do not resist all changes even though there may be an

inherent tendency to do so, as some changes are wanted and are enthusiastically received.

In this study, it has been assumed that the changes discussed were "good" ones, so that resistance, if any, to a specific change considered here is not based on its technical aspects, but rather on some broad emotional reasons that were analyzed and discussed in this study. This, then, places the emphasis on the human relations aspects of resistance to change, with the focus of attention on the individuals. Therefore, in order to suggest ways of reducing this type of resistance, it must be done in reference to the sentiments and feelings of the employees involved and of their fellow workers. The behavior of workers cannot be studied productively, however, when disassociated from the behavior of management as one affects and is affected by the other. The attitudes of worker toward management and management toward worker are then of prime importance in considering suggestions for reducing resistance to change.

With the recognition and appreciation of some of the broad underlying reasons for resistance involving the feelings of worker and management, the means for decreasing it become relatively clear. A person resists a change basically because the change as he perceives it will somehow adversely affect his own personal objectives, desires, or needs in an economic, psychological, or social sense as previously described. A change threatens the established

habit patterns of the worker and his job security, and may upset his social relationships with his fellow workers and with his management. It is natural for a worker to experience fear, doubt, and suspicions that must be recognized and allayed by management when attempting to reduce resistance to change in work methods.

The basic beliefs and assumptions that the contractor holds regarding the nature of man and the behavior of workers in the firm determine the methods and procedures used to accomplish the company objectives. The analysis of the data obtained in this study through questionnaires, interviews, and pertinent literature would indicate that a particular management philosophy is most conducive to the acceptance of change in work methods by workers.

The management philosophy indicated by the study analysis that would bring about the more ready acceptance of change is one in which the contractor exhibits a genuine respect for the worker as an individual and not as a tool to be manipulated as under some methods of management. It is a philosophy that recognizes in manager-worker relationships that the worker is a man with deep personal feelings of doubt, fear, and suspicion. It views the worker as one who wants to and likes to work and to accept responsibility. It recognizes that the worker gains personal satisfaction from his job and from his work environment through participation in decisions about change.

In addition to believing in the establishment of a positive climate for change acceptance through the recognition and adoption over a period of time of a management philosophy appearing to promote acceptance of change, the contractor should show by his everyday actions that he does sincerely respect the abilities and skills of the workers, and that he truly wants and needs their suggestions about changes in work methods.

Decreased resistance may not be apparent immediately, but the effects of this management attitude over an extended period of time should be beneficial. It is acknowledged that a manager is not able to alter his leadership style readily as such facility is certainly not natural and would have to be learned. Undoubtedly, some contractors could never change their management philosophies for very strong emotional reasons. It is further recognized that in spite of all positive measures taken to promote acceptance of change, certain workers will seldom or never willingly cooperate.

To develop an atmosphere for the more ready acceptance of change, management must set a good example through its own prompt and willing acceptance of new methods, materials, tools, and machinery. It must further set an example in its own pressing concern for cost reduction through efficient planning, purchasing, expediting, and supervising. This should prevent worker remarks such as: "Why should I go all out on this change? Management

doesn't seem to worry about inefficiencies in connection with their own duties."

As construction programs in the survey area have been curtailed in the past several years, the fear of termination undoubtedly was of greater concern to the worker at the time of this survey than it would have been in a period with a more favorable outlook for new construction. Thus, this fear could greatly reduce the tendency to resist change on the part of most workers. This, however, should not be considered by the contractor as a built-in protection against resistance, for if work becomes more plentiful this temporary deterrent may be lost, and reliance upon this fear of termination may be detrimental in the long-run.

The timing of the introduction of change is important. It is suggested that a change be introduced at the outset of the affected operation, thus excluding the need for workers to suddenly change their work patterns as would be the case if the change were made in its course. Also, if under the new method, fewer workers are required, the task can be started with the lesser number, eliminating direct layoffs and their attendant problems. Or, if this is not possible, the change can be made when the surplus can be transferred to another part of the project or to another company job.

Allowing workers to participate in group discussions

with supervisors and engineers with regard to work method changes seemed to be a very effective deterrent to resistance in smaller firms where the workers are long term employees with a comprehensive view of the company operations. This method did not appear to be very effective in larger firms that have more employee turnover and where there is oftentimes disinterest on the part of casual workers.

Perhaps one of the most important steps that could be taken to aid in promoting this acceptance atmosphere is for those in management and engineering positions, not directly assigned to job sites, to have more personal contact with all the job personnel, especially with the workers. This is not to suggest that any formal channels of supervision are to be by-passed. Those who originate change in the "home office" should get closer to the job and the workers if they are to avoid the suggesting of changes that may not be feasible at the time, or are not to have "good" changes resisted because they came from a stranger "way-up-above". Close contact with workers if sincerely motivated gives the manager or engineer an opportunity to become familiar with worker attitudes and values, to encourage workers to offer suggestions and to accept change, to give them a sense of belonging, and to treat them as individuals.

It should be noted that in suggesting ways to reduce

resistance to change based principally on questionnaire and interview data the attitudes and opinions of the respondents and interviewees may not truly correspond with their actual behavior in a real situation. In their observations of the behavior of others, it is important to recognize that each person is reporting his own perception of that behavior. These are weaknesses in this type of study plan. It is felt, however, with the five point scale used to measure willingness to accept change, for instance, that even if the responses had indicated less willingness by the respondents, the suggestions for reducing change would not be materially affected as the survey data were intended to indicate tendencies and not intensities of feelings.

By recognizing the various contributing conditions that increase the likelihood that resistance to change will occur, by evaluating the importance and influence of each in relation to the particular change situation, and then by taking action on method changes based on an analysis under a philosophy of management described, the negative factors that increase the likelihood of resistance may be mitigated.

RECOMMENDATIONS FOR FUTURE RESEARCH

This present study may be considered exploratory, having revealed areas of interest for more detailed investigation.

Further studies would probably provide insights that are nearer to hypotheses than theories. Descriptive models could be made which would better identify and relate the independent and dependent variables and make some order in the cataloging of independent variables.

Studies similar to this present one could be made in other States to note the differences and similarities in the responses. Finding predominant common characteristics in the observations and opinions of workers and contractors from a number of survey areas might be useful in connection with future studies that would delve into specific contributing conditions.

More than one worker suggested that a study be made of resistance to change on the part of contractor management. This is recommended as well as an in-depth study of contractor-management philosophies.

It is felt that any studies in construction concerned with the human relations aspects of resistance to change and allied areas can be made fruitfully by engineers or managers. Maneck S. Wadia (56), in writing about management education and the behavioral sciences, had this to say:

The area of inquiry of a behavioral science are not, and should not become, the monopoly of the anthropologist, the sociologist, or the psychologist. Some managers may be in a much better position to study their workers from a behavioral science point of view than would a sociologist, a psychologist, or an anthropologist . . . however, the latter groups remain the "professionals" in the realm of the behavioral sciences.

A SELECTED BIBLIOGRAPHY

- (1) _____. "Contractors' Basic Management Problems." The Constructor, 1963, 21-23.
- (2) Davis, Keith. Human Relations at Work, 3rd ed. New York: McGraw-Hill, 1967.
- (3) U. S. Department of Commerce/Business and Defense Services Administration. Construction Review, Vol. 14, no. 3 (1968) Washington: Government Printing Office.
- (4) _____. "College Housing Creates Jobs for Many". Engineering News-Record, 1965, 70.
- (5) Selekman, Benjamin M. Labor Relations and Human Relations. New York: McGraw-Hill, 1947.
- (6) Jones, W. Lloyd. Human Factors as They Affect Methods Improvement in Construction, Technical Report No. 45. Stanford: Constructing Institute, Stanford University, 1964.
- (7) Parker, Henry W. Methods Improvement Techniques for Construction and Public Works Managers, Technical Report No. 51. Stanford: Construction Institute, Stanford University, 1965.
- (8) U. S. Department of Commerce and Labor. Construction Volume and Costs, 1915-1956 - A Statistical Supplement to Construction Review. Washington: Government Printing Office, 1958.
- (9) Clough, Richard H. Construction Contracting. New York: John Wiley and Sons, 1960.
- (10) Bertram, Gordon W. and Maisel, Sherman J. Industrial Relations in the Construction Industry, The Northern California Experience. Berkeley: Institute of Industrial Relations, University of Calif., 1955.

- (11) Berelson, Bernard and Steiner, Gary A. Human Behavior, an Inventory of Scientific Findings. New York: Harcourt, Brace and World, 1964.
- (12) Saltonstall, Robert. Human Relations in Administration. New York: McGraw-Hill, 1959.
- (13) Strauss, George and Sayles, Leonard R. Personnel: The Human Problems of Management, 2nd ed. Englewood Cliffs: Prentice-Hall, 1967.
- (14) _____. "Greater Use of Pre-fabs Predicted". Engineering News-Record (1968), 19.
- (15) Young, Dallas M. Understanding Labor Problems. New York: McGraw-Hill, 1959.
- (16) Judson, Arnold S. A Manager's Guide to Making Changes. New York: John Wiley and Sons, 1967.
- (17) Selekman, Benjamin M. "Businessmen in Power". Harvard Business Review, Vol. 39, No. 5 (1961), 95-110.
- (18) Maslow, A. H. "A Theory of Human Motivation". Psychological Review, Vol. 50 (1943), 370-96.
- (19) Sutermeister, Robert A. "Toward an Integrated Concept of Productivity". The American Behavioral Scientist (1963), 11-12.
- (20) Tannenbaum, Robert. "When It's Time for a Change". Leadership on the Job, Staff of Supervisory Management ed. New York: American Management Assoc., 1953.
- (21) Zander, Alvin. "Resistance to Change -- Its Analysis and Prevention". Advanced Management, 1950, 9-11.
- (22) Krick, Edward V. Methods Engineering. New York: John Wiley and Sons, 1962.
- (23) Dennis, Jamie. "Managing Change". Personnel Administration, Vol. 28, No. 5 (1965), 6-11.
- (24) Sartain, Aaron Quinn and Baker, Alton Wesley. The Supervisor and His Job. New York: McGraw-Hill, 1965.

- (25) Stagner, Ross and Rose, Hjalmar. Psychology of Union-Management Relations. Belmont: Wadsworth Publishing Co., 1965.
- (26) Scott, Walter. "Cost Reduction Procedures". Industrial Engineering Handbook, Harold B. Maynard, ed., 2nd ed. New York: McGraw-Hill, 1963.
- (27) Stewart, Michael. "Resistance to Technological Change in Industry". Human Organizations, Vol. 16, No. 3 (1957), 36-39.
- (28) Roethlisberger, F.J. Management and Morale Cambridge: Harvard University Press, 1941.
- (29) Schleh, Edward C. "Selling Technological Change as the Company's Why of Life". Personnel, 1960, 57-66.
- (30) Lawrence, Paul R. "How to Deal with Resistance to Change". Harvard Business Review, Vol 32, no. 3 (1934), 49-57.
- (31) Gellerman, Saul W. Motivation and Productivity. New York: American Mangement Assoc., 1963.
- (32) Van Zelst, Raymond H. "Sociometrically Selected Work Teams Increase Production". Personnel Psychology, Vol. 5 (1952), 175-185.
- (33) Whyte, William Foote. Men at Work. Homewood: Dorsey Press, 1961.
- (34) Nimkoff, Meyer F. Technology and Social Change. New York: Appleton-Century-Crafts, 1957.
- (35) Cartwright, Dorwin. "Achieving Change in People: Some Applications of Group Dynamics Theory". Human Relations, Vol. 4, no. 4 (1951), 381-392.
- (36) Roethlisberger, F. J. and Dickson, W. J. Management and the Worker. Cambridge: Harvard University Press, 1939.
- (37) Coch, Lester and French, John R. P., Jr. "Overcoming Resistance to Change". Human Relations, Vol. 1 (1948), 512-532.

- (38) Moore, Leo B. "Too Much Management Too Little Change". Harvard Business Review, Vol. 31, No. 1 (1956), 41-48.
- (39) Blauner, Robert. "Work Satisfaction and Industrial Trends in Modern Society". Labor and Trade Unionism, Walter Galenson and Seymour Martin Lipset, eds. New York: John Wiley and Sons, 1960.
- (40) Haber, William. Industrial Relations in the Building Industry. Cambridge: Harvard University Press, 1930.
- (41) Mathewson, Stanley B. Restriction of Output Among Unorganized Workers. New York: The Viking Press, 1931.
- (42) Ryan, Frederick Lynne. Industrial Relations in the San Francisco Building Trades. Norman: University of Oklahoma Press, 1936.
- (43) Slichter, Sumner H. Union Policies and Industrial Management. Washington, D. C.: The Brookings Institute, 1941.
- (44) Haber, William and Levinson, Harold M. Labor Relations and Productivity in the Building Trades. Ann Arbor: Bureau of Industrial Relations, University of Michigan, 1956.
- (45) Mandelstamm, Allan Beryle. "The Effects of Unions on Efficiency in the Residential Construction Industry: A Case Study". (unpub. Dissertation, University of Michigan, 1962).
- (46) _____. "Featherbedding: Fact and Fancy". Engineering News-Record (April 30, 1959), 82-88.
- (47) _____. "A Successful Contractor Looks at Management". Roads and Streets (March, 1961), 42-43.
- (48) Tannenbaum, Robert. "The Introduction of Change in Industrial Organizations". General Management Series: Number 186, Elizabeth Martinez, ed. New York: American Management Assoc., 1957.

- (49) McGregor, Douglas. The Human Side of Enterprise.
New York: McGraw-Hill, 1960.
- (50) Likert, Rensis. New Patterns of Management. New York:
McGraw-Hill, 1961.
- (51) Haire, Mason. Organization Theory in Industrial
Practice. New York: John Wiley and Sons, 1962.
- (52) March, James G. and Simon, Herbert A. Organizations.
New York: John Wiley and Sons, 1958.
- (53) Marrow, Alfred J. Making Management Human. New York:
McGraw-Hill, 1957.
- (54) Argyris, Chris. Personality and Organization.
New York: Harper and Row, 1957.
- (55) Beach, Dale S. Personnel: The Management of People
At Work. New York: The MacMillan Co., 1965.
- (56) Wadia, Maneck S. "Management Education and the
Behavioral Sciences". Advanced Management.
(Sept. 1961), 7-10.

APPENDIX A

CONSTRUCTION WORKER QUESTIONNAIRE
ON WORK METHOD CHANGES

The following have been entered on the sample questionnaire form:

1. An upper number indicating the number of responses to each alternative answer to each question.
2. A lower number indicating the percentage of respondents choosing each alternative answer to each question.

1820 West Northern Lights Blvd.
Anchorage, Alaska 99503

Dear Sir:

Your help is sought in completing a survey which is part of a research project concerning the construction industry. This research is part of my advanced study program at Oklahoma State University, and because I teach at the University of Alaska and live in Anchorage, the survey is being conducted in Alaska.

I need your views and those of your fellow construction men on changes made in work methods in the construction industry.

The attached questionnaire was developed to obtain your frank thoughts with the least trouble to you. However, the value of the results from the questionnaire depends upon your taking the time to select the answer to each question which most nearly reflects your observations. Men in unions and contracting firms have helped me by reviewing and improving these questions.

Since I do not want to connect any questionnaire with any individual, please do not sign your name or give any other identification.

Would you kindly return the completed questionnaire in the enclosed stamped, addressed envelope as promptly as you can do so conveniently.

Sincerely yours,

John H. Manning

P.S. If you have any questions regarding this questionnaire, you may call me at the University of Alaska Regional Center in Anchorage (272-1424).

CONSTRUCTION WORKER QUESTIONNAIRE ON WORK METHOD CHANGES

The first objective of this survey is to get your observations of how changes in work methods are made in the construction industry. This is covered by Part I of the questionnaire.

The second objective is to get your feelings about certain ways of handling changes in work methods that might affect your willingness to accept changes. This is covered by Part II of the questionnaire.

In this questionnaire, the expression "change in work methods" means any alteration in a particular way of doing things, generally with the intention of reducing costs, and making the work easier and safer to perform. For example, it might include changes in sequence of operations, in the layout and organization of the work, in the manner of handling and installing materials, in the makeup of work crews, or in the kind and use of tools. These changes might apply, for instance, to the every day methods of building concrete forms, placing concrete, laying hot-top, excavating earth, or installing pipe.

You should assume that the changes in work methods considered here are not in violation of any existing collective bargaining agreement between the unions and contractors.

Please indicate your observations or feeling by making a check mark (✓) over or to the right of one, and only one, of the choices given below or to the right of each question.

PART I

1. What is the principal type of construction you work on? (Check only one)

N= 84	21	5	—	—
% 76.36	19.09	4.55	—	—
<u>Building</u>	<u>Highways</u>	<u>Utility Lines</u>	_____	_____

2. How many years of construction experience have you had?

N= 8	13	31	26	32
% 7.27	11.82	28.18	23.64	29.09
<u>Less than 5</u>	<u>5 to 10</u>	<u>10 to 15</u>	<u>15 to 20</u>	<u>More than 20</u>

3. Who proposes most of the changes made in the methods of work?

N= 3	17	74	12	4
% 2.73	15.45	67.27	10.91	3.64
<u>Craftsmen</u>	<u>Foremen</u>	<u>Supts.</u>	<u>Engineers</u>	<u>Executives</u>

	5 Always	4 Often	3 About 50-50	2 Seldom	1 Never
4. How often do changes in the methods of work that are made by your superiors lead to better ways of doing things?	0 0	51 46.36	44 40.00	15 13.64	0 0
5. Is doing your work in the same way every day more to your liking than changing it often?	20 18.18	33 30.00	41 37.27	10 9.09	6 5.45
6. Do you feel that the skills required to do your work are fully appreciated by the contractors?	8 7.27	45 40.91	36 32.73	18 16.36	3 2.73
7. Are workmen worried about their present trade skills being in less demand by contractors in the future as a result of changes in work methods?	3 2.73	20 18.18	26 23.64	47 42.73	14 12.73
8. Does it bother workmen when their work team is split up on the job due to changes in work methods?	14 12.73	46 41.82	24 21.82	22 20.00	4 3.64
9. Do workmen feel that the contractors are getting something for nothing when changes are made in work methods?	12 11.21	14 13.08	22 20.56	47 43.93	12 11.21
10. Does it bother you when you must change the way you have been doing something?	3 2.73	40 36.36	33 30.00	25 22.73	9 8.18
11. From your experience, do workmen generally "go along" <u>willingly</u> with changes made in work methods?	2 1.82	15 13.64	53 48.18	36 32.73	4 3.64
12. Do contractors ask workmen for suggestions on changes in work methods that are being considered?	0 0	45 40.91	25 22.73	32 29.09	8 7.27
13. Do contractors give workmen the reasons for making work methods changes?	1 0.91	25 22.73	33 30.00	43 39.09	8 7.27
14. Do contractors change work methods on a trial basis with the understanding that they may go back to the old method?	0 0	21 19.44	26 24.07	50 46.30	11 10.19
15. Do contractors share with the workmen any of the cost savings that result from work method changes?	0 0	0 0	3 2.73	32 29.09	75 68.18

	5 Always	4 Often	3 About 50-50	2 Seldom	1 Never
16. Do contractors try to help workmen understand the need for a proposed change in work methods?	0 0	23 20.91	25 22.73	44 40.00	18 16.36
17. Do contractors consider the possible effects on workmen of breaking up work teams when a change in work methods is made?	1 0.91	29 26.36	32 29.09	42 38.18	6 5.45
18. Do contractors tell workmen that even though a few might lose their jobs as a result of changes in work methods everyone would be better off in the long run?	1 0.91	4 3.64	2 1.82	46 41.82	57 51.82
19. Do contractors hold group discussions among workmen, supervisors, and engineers enabling the workmen to participate in making decisions about a change in work methods?	0 0	1 0.91	3 2.73	55 50.00	51 46.36
20. Do workmen feel contractors are sincere when they ask for opinions about proposed changes in work methods?	7 6.42	39 35.78	43 39.45	15 13.76	5 4.59
21. Do contractors threaten workmen with "termination" for not accepting changes in work methods?	18 16.51	55 50.46	13 11.93	16 14.68	7 6.42
22. Do contractors use the workmen's skills to the best advantage?	5 4.59	35 32.11	54 49.54	12 11.01	3 2.75
23. Do you generally approve of the way contractors go about making changes in work methods?	1 0.91	26 23.64	61 55.45	19 17.27	3 2.73
24. Do workmen have the opportunity to use their own ideas in the day-to-day work methods?	0 0	62 56.36	33 30.00	12 10.91	3 2.73
25. If changes in work methods would not help you in your work, do you <u>willingly</u> "go along" with the changes?	4 3.64	15 13.64	49 44.55	35 31.82	7 6.36

PART II

26. If workmen are asked for suggestions on changes in work methods, are they more willing to accept a change?
27. If workmen are given reasons for changes in work methods, are they more willing to accept a change?
28. If workmen know that the change is made on a trial basis only, are they more willing to accept a change?
29. If workmen know that they will get a bonus when cost-reducing changes are made, are they more willing to accept the change?
30. If workmen understand the need for the change in work methods, are they more willing to accept the change?
31. If work teams are not to be broken up when a change is made, are workmen more willing to accept a change?
32. If workmen are told that even though a few will lose their jobs now, but in the long run everyone will be better off, are they more willing to accept the change?
33. If workmen are asked, when it might be practical to do so, to join in a group discussion with other workmen, foremen and engineers in making decisions about change, are they more willing to accept a change?
34. If workmen feel that contractors sincerely want their opinions about proposed work changes, are they more willing to accept a change?

	5	4	3	2	1
	Always	Often	About 50-50	Seldom	Never
	24 21.82	57 51.82	21 19.09	7 6.36	1 0.91
	23 20.91	63 57.27	17 15.45	6 5.45	1 0.91
	17 15.45	46 41.82	33 30.00	13 11.82	1 0.91
	33 30.56	50 46.30	18 16.67	7 6.48	0 0
	19 17.27	57 51.82	24 21.82	9 8.18	1 0.91
	17 15.45	61 55.45	24 21.82	7 6.36	1 0.91
	2 1.82	10 9.09	32 29.09	52 47.27	14 12.73
	9 8.18	33 30.00	31 28.18	31 28.18	6 5.45
	27 24.55	57 51.82	19 17.27	6 5.45	1 0.91

35. If workmen know from experience that most changes made in work methods turn out for the best, are they more willing to accept a new change?

	5	4	3	2	1
	Always	Often	About 50-50	Seldom	Never
35. If workmen know from experience that most changes made in work methods turn out for the best, are they more willing to accept a new change?	23 20.91	60 54.55	19 17.27	7 6.36	1 0.91
36. If workmen know that they might be "terminated" if they don't accept a change, are they more willing to accept a change?	29 26.36	48 43.64	23 20.91	9 8.18	1 0.91
37. If workmen know that the idea for a change is that of a fellow craftsman, and not that of a superior, are they more willing to accept a change?	1 0.91	34 30.91	56 50.91	16 14.55	3 2.73
38. If workmen don't have to learn new trade skills because of a change in work methods, are they more willing to accept a change?	4 3.64	30 27.27	54 49.09	19 17.27	3 2.73
39. If workmen know that supervisors have a high regard for the skills required in their work, are they more willing to accept a change?	21 19.27	61 55.96	21 19.27	6 5.50	0 0

40. Kindly write here any comments you wish to make on the subject of changes in work methods in the construction industry.

WRITTEN RESPONDENT COMMENTS MADE ON
CONSTRUCTION WORKER QUESTIONNAIRE

1. If a workman has been taught to be a true craftsman who takes pride in the appearance and workability of the finished product, he will tend to accept any change which will accomplish these ends.

It is felt that instilling pride of craftsmanship in workmen is sadly neglected during the present era.

Not all students can be academic whizzes, some could be innovating craftsmen if properly taught very early in school, then instructed in tools and methods during apprenticeship.

2. If have found that most journeyman craftsmen are ready to use any new method that will make their work easier, faster and more efficient. Very few wish to hold on to old or obsolete methods of work.
3. I feel that when the individual's curiosity is aroused about a certain job, he is willing to experiment and try new methods and new materials.

Providing the individual is given the understanding and feeling that by working with new things and ideas he will better himself and his trade.

4. Many changes should be started through the unions.
5. Everybody should know you have to make the boss money to stay on the job.
6. Quite a few changes in methods for daily routine work do come from the craftsman himself.

Sometimes they come from past experience and sometimes it is the workman's own ingenuity. All these changes

do make the particular job more efficient and do result in cost savings. Changes that will affect the entire job are usually made in the office before the work has begun on the project.

7. Contractors should consult more often with their workers. Suggestion boxes are no good.
8. More safety for the workman.

MEANS AND STANDARD DEVIATIONS FOR EACH QUESTION:
CONSTRUCTION WORKER QUESTIONNAIRE

Question	Mean	Std. Dev.	Question	Mean	Std. Dev.
1.	-----	-----	21.	3.560	1.126
2.	-----	-----	22.	3.248	0.818
3.	-----	-----	23.	3.027	0.748
4.	3.327	0.705	24.	3.400	0.792
5.	3.464	1.064	25.	2.764	0.898
6.	3.336	0.931	26.	3.873	0.858
7.	2.555	1.019	27.	3.918	0.814
8.	3.400	1.060	28.	3.591	0.922
9.	2.692	1.177	29.	3.009	0.859
10.	3.027	1.018	30.	3.764	0.867
11.	2.773	0.797	31.	3.782	0.817
12.	2.973	1.000	32.	2.400	0.890
13.	2.709	0.932	33.	3.073	1.064
14.	2.528	0.922	34.	3.936	0.849
15.	1.345	0.532	35.	3.882	0.843
16.	2.487	1.002	36.	3.864	0.933
17.	2.791	0.930	37.	3.127	0.768
18.	1.600	0.780	38.	3.118	0.832
19.	1.582	0.596	39.	3.890	0.774
20.	3.257	0.937			

APPENDIX B

CONTRACTOR QUESTIONNAIRE ON WORK METHOD CHANGES

The following have been entered on the sample questionnaire form:

1. The upper number indicating the number of responses to each alternative answer to each question.
2. A lower number indicating the percentage of respondents choosing each alternative answer to each question.

1820 West Northern Lights Blvd.
Anchorage, Alaska 99503

Dear Sir:

Your help is sought in completing a survey which is part of a research project concerning the construction industry. This research is part of my advanced study program at Oklahoma State University, and because I teach at the University of Alaska and live in Anchorage, the survey is being conducted in Alaska.

I need your views and those of other contractors on the handling of changes in work methods in the construction industry.

The attached questionnaire was developed to obtain your frank thoughts with the least trouble to you. However, the value of the results from the questionnaire depends upon your taking the time to select the answer to each question which most nearly reflects your observations. Men in contracting firms have helped me by reviewing and improving these questions.

Since I do not want to connect any questionnaire with any individual, please do not sign your name or give any other identification.

Would you kindly return the completed questionnaire in the enclosed stamped, addressed envelope as promptly as you can do so conveniently.

Sincerely yours,

John H. Manning

P.S. If you have any questions regarding this questionnaire, you may call me at the University of Alaska Regional Center in Anchorage (272-1424).

CONTRACTOR QUESTIONNAIRE ON WORK METHOD CHANGES

The first objective of this survey is to get your observations of how changes in work methods are made in the construction industry. This is covered in Part I of the questionnaire. The second objective is to get your feelings about certain ways of handling changes in work methods that might affect the worker's willingness to accept changes. This is covered in Part II of the questionnaire.

In the questionnaire, the expression "change in work methods" means any alteration in a particular way of doing things, generally with the intention of reducing costs, and making the work easier and safer to perform. For example, it might include changes in the sequence of operations, in the layout and organization of the work, in the manner of handling and installing materials, in the makeup of work crews, or in the kind and use of tools. These changes might apply, for instance to the everyday methods of building concrete forms, placing concrete, laying hot-top, excavating earth, or installing pipe. Not considered are major technological changes that may be industry-wide in scope and that often lead to severe economic and social problems. You should assume that the changes in work methods considered here are not in violation of any existing collective bargaining agreements between the unions and the contractors.

"Resistance to change" as used here is defined as an unwillingness to fully accept or co-operate in a change. It may be evidenced by a reduction in output, a decline in the quality of the work, an increase in complaints and grievances, and in many other changes in worker behavior.

Please indicate your observation or feelings by making a check mark (✓) over or to the right of one, and only one, of the choices given below or to the right of each question.

PART I

1. What is your principal position in the organization? (Check only one)

N= 6	4	15	11	32
% <u>8.82</u>	<u>5.88</u>	<u>22.06</u>	<u>16.18</u>	<u>47.06</u>
Job Super.	General Super.	Engineer	Executive	Owner

2. What is the principal type of construction your company is involved in?

N= 51	13	4		
% <u>75.00</u>	<u>19.12</u>	<u>5.88</u>	<u>—</u>	<u>—</u>
Building	Highway	Utility Lines		

3. What is the approximate annual value of construction work completed by your firm in the millions of dollars?

N= 8	15	13	9	23
% <u>11.76</u>	<u>22.06</u>	<u>19.12</u>	<u>13.24</u>	<u>23.82</u>
0.5 or under	0.5 to 1.0	1.0 to 1.5	1.5 to 2.0	More than 2.0

4. Who suggests most of the changes that are made in the methods of work?

N= 3	5	41	5	13
% <u>4.48</u>	<u>7.46</u>	<u>61.19</u>	<u>7.46</u>	<u>19.40</u>
Craftsmen	Foremen	Supts.	Engineers	Executives

	5	4	3	2	1
	Always	Often	About 50-50	Seldom	Never
5. Do contractors consider resistance by workmen to changes in work methods a factor to be concerned about?	24 35.82	11 16.42	16 23.88	15 22.39	1 1.49
6. Do contractors ask workmen for suggestions on changes in work methods that are being considered?	2 2.94	35 51.47	14 20.59	17 25.00	0 0
7. Do contractors give workmen the reasons for making work methods changes?	7 10.29	29 42.65	15 22.06	17 25.00	0 0
8. Do contractors change methods on a trial basis with workmen understanding that the changes are not irrevocable?	2 2.94	26 38.24	18 26.47	21 30.88	1 1.47
9. Do contractors share with workmen any of the cost savings that result from changes in work methods?	0 0.0	5 7.35	4 5.88	27 39.71	32 47.06
10. Do contractors try to help workmen understand the need for a proposed change in work methods?	6 8.82	27 39.71	18 26.47	17 25.00	0 0
11. Do contractors consider the possible effects on workmen of breaking up work teams when a change in work methods is made?	9 13.24	28 41.18	16 23.53	11 16.18	4 5.88
12. Do contractors tell workmen that even though a few might lose their jobs as a result of changes in work methods everyone would be better off in the long run?	4 6.06	3 4.55	4 6.06	25 37.88	30 45.45
13. Do contractors hold group discussions among workmen, supervisors, and engineers, enabling workmen to participate in making decisions about a change in work methods?	1 1.47	8 11.76	11 16.18	36 52.94	12 17.65
14. Do contractors feel that workmen can contribute significantly to discussions on changes in work methods?	4 5.88	28 41.18	10 14.71	24 35.29	2 2.94
15. Do contractors hold an implied threat of "termination" over the heads of workmen for not accepting a change?	11 16.18	14 20.59	8 11.76	19 27.94	16 23.53

	5 Always	4 Often	3 About 50-50	2 Seldom	1 Never
16. Do contractors feel that workmen consider that they (the contractors) are getting "something for nothing" when a change is made in work methods?	4 5.97	23 34.33	17 25.37	20 29.85	3 4.48
17. Do construction workmen resist changes made in the work methods?	13 19.40	22 32.84	20 29.85	11 16.42	1 1.49
18. Do contractors feel that they are using the skills of the workmen to the best advantage, considering limitations in negotiated agreements, etc.?	6 8.96	32 47.76	24 35.82	5 7.46	0 0
19. Do contractors feel that the responsibility to make decisions about changes in work methods is theirs alone and not that of the workmen?	32 47.76	22 32.84	8 11.94	3 4.48	2 2.99
20. Do contractors feel that workmen try to improve work methods?	0 0	20 29.85	22 32.84	24 35.82	1 1.49
21. Do contractors give workmen the opportunity to use their own ideas in the day-to-day work methods?	6 8.96	36 53.73	15 22.39	10 14.93	0 0
22. Do contractors feel that the existence of "unwritten" working rules inhibits them from introducing changes in work methods?	3 4.55	14 21.21	19 28.79	20 30.30	10 15.15
PART II					
23. If workmen are asked for suggestions on changes in work methods, are they more willing to accept a change?	15 23.08	33 50.77	11 16.92	6 9.23	0 0
24. If workmen are given reasons for changes in work methods, are they more willing to accept a change?	10 15.15	35 53.03	15 22.73	6 9.09	0 0
25. If workmen know that the change is being made on a trial basis only, are they more willing to accept a change?	4 6.15	24 36.92	27 41.54	9 13.85	1 1.54
26. If workmen know that they will get a bonus when cost-reducing changes are made, are they more willing to accept a change?	19 33.33	28 49.12	5 8.77	3 5.26	2 3.51

	5	4	3	2	1
	Always	Often	About 50-50	Seldom	Never
27. If workmen understand the need for the change in work methods, are they more willing to accept a change?	10 15.15	40 60.61	13 19.70	3 4.55	0 0
28. If work teams are not to be broken up when a change is made, are workmen more willing to accept a change?	4 6.15	38 58.46	16 24.62	7 10.77	0 0
29. If workmen are told that even though a few will lose their jobs now, but in the long run everyone will be better off, are they more willing to accept a change?	0 0	5 7.94	16 25.40	30 47.62	12 19.05
30. If workmen are asked, when it might be practical to do so, to join in a group discussion with other workmen, foremen, and engineers in making decisions about changes, are they more willing to accept a change?	8 12.50	22 34.38	20 31.25	14 21.88	0 0
31. If workmen know that they might be "terminated" if they don't accept a change, are they more willing to accept a change?	14 21.54	22 33.85	15 23.08	10 15.38	4 6.15
32. If workmen know that the idea for change is that of a fellow workman and not that of a superior, are they more willing to accept a change?	2 3.08	27 41.54	22 33.85	14 21.54	0 0
33. Kindly write here any comments you wish to make on the subject of resistance by workmen to changes in work methods.					

WRITTEN RESPONDENT COMMENTS MADE ON
CONTRACTOR QUESTIONNAIRE

1. I think there's a basic difference in attitude between the equipment operators who are accustomed to new procedures due to new equipment and the greater variety of construction problems and the building craftsmen, some of whom I understand are quite resistant to changing methods or materials. I understand from some old timers that there has been quite a bit of "Balkanization" of the building trades into more limited specialities in the, say last twenty or thirty years, and this may be a factor worth investigating.

You might be interested in Bob Byrnes' editorial in a recent Western Construction (I think it was April) in which he makes the point that there is a very limited communication to the workers on a construction job. This editorial pretty well summarizes my observations in the heavy construction business. In other words, there is so little communication that it is unusual for the workers to have any idea of the overall schedule, or plan of operation -- much less to be consulted about work methods.

2. Substitute robots for men!
3. It seems to be the nature of humans to reject any change, unless they themselves have thought of it or had a part in it, thereby justifying their deviation from their well defined procedure.
4. Most workmen who are not long-standing employees, and these are the majority, do not wish to do anything to speed up their job and therefore try to avoid changes for the better. I do not say this with a chip on my shoulder, but disinterestedly.

5. Our operation is not applicable regarding Part II, as we're involved with primarily an operator-machine combination rather than a labor force as such.

Employees do not offer resistance when changes are requested. Being journeymen they know we have to make a profit to stay in business to provide them employment.

6. We find most men willing to work hard but majority of trades have few skilled craftsmen.

Also, since our average age workman is probably 50 years old, they tend to be very set in their ways and many are hard to teach new methods, etc.

7. In my 16 years of contracting, I feel the biggest contributing factor against better work methods is the labor unions. This is an indirect influence -- the union believes every worker to be equal and that they should be paid according to needs, not deeds. If I reward a man for job incentive, this is usually reported back to the business agent or the applicable union and this man is let known that he owes his job to the union and not to the contractor. I have a close working relationship with most of my employees and I have experienced instances when actions the men were forced to agree with (by the union) went against every principle they ever had. The business agent is a little "Tin God", believe me, and he has numerous methods of reprisal. In other words, incentive is killed by the unions and the first men sent out on a job are usually satraps of the B.A. or money passed hands; ability had nothing to do with it.
8. There is too little communication with the worker. He could suggest many more changes and would be more receptive to changes if he felt he were being consulted.
9. My limited observations indicate a business-working-man "communications gap" that inherently hinders changes unless the contractor has a very good working relationship with his workmen.

10. Vertical communication is obviously an important facet of the success of a particular project or organization. The employee-employer relationship in construction is not necessarily comparable to any other industry, particularly in Alaska because of its seasonal nature and the fact that workmen are hired for a project and not an indefinite period of time.

Reference #9 and #26: Under the present union-management agreements the contractor is discouraged from any kind of an incentive program that would benefit an individual workman and not all the workmen.

11. a) A change in work methods resulting in fewer workmen should only be made in such a way that no one loses his place or employment on a given project. Put the displaced workers to work in another phase of the project, even if it means to speed up the whole project.
- b) The best time for a change in methods is at the beginning of a work phase. This leaves the men without a comparison with the past.
12. Many men now don't care one way or the other. All they care is to put in a day and receive their pay.

A few older workers of a craft are more reserved about changes, these workers all 55 years of age or older, most generally.

Many workers are willing to do a change if it means less physical labor and makes the job easier.

13. Under the tight union working conditions most employees are interested in producing as little as possible.
14. 1) Resistance more evident in older workmen.
- 2) It seems to me that many of your questions are not applicable to construction as they might be, for example, in manufacturing industry. Especially in Alaska construction, due to seasonal turnover in personnel.

15. We have not encountered any substantial resistance to change in methods. In matters involving union jurisdiction we have found little resistance if the prescribed procedure for settlement of jurisdictional disputes is followed.
16. Regarding Item #9: This is difficult to answer because often any saving in cost due to a change in work methods is more than eaten up by a periodic wage increase -- therefore, there is nothing to share. Only if there is a net increase of productivity per way dollar spent will there be any savings generated.
17. Discussion about work changes are usually only held with supervisors. Changes are often hard to enforce either because of existing union agreements or traditional working rules. However, competition will more often force work changes than any other reason.
18. Any time anything is discussed with the workmen (i.e., during working hours) they are on the payroll and will expect pay. Before or after working hours, the workmen will not take the time to discuss anything and therefore are not interested in the owners' problems nor in changes.
19. I find that the better a man is, the less worried he is about his job and future jobs. As a result the better men are very willing to accept changes that will make their work either faster or better. There are always a few men, especially older men, who will resist any change. The sad part of the construction industry is the fact that as men grow older, their skill does not always increase enough to compensate for age and the problems it brings.
20. In general, I feel that 90% of the workers on most construction jobs really want to do a good job. There is, unfortunately, a large percentage - size of which I do not know - that are mentally incapable of performing as well as they would like.

I have tried methods different from standard operating procedures on jobs where the crew was under my direct control and had nothing but their fullest cooperation when making these changes.

Because workers tend to go from job to job, they probably encounter large variations in operating procedures. I think this tends to condition them so they are not resistive to changes proposed in methods by any one company.

1820 West Northern Light Blvd.
Anchorage, Alaska 99503

Dear Sir:

A few weeks ago I sent your firm a questionnaire form on the handling of changes in work methods in the construction industry. Have you returned yours?

If you have not done so, I would greatly appreciate it if you would fill it out and return it to me as soon as possible in the stamped, addressed envelope that was enclosed. It should take only a few minutes.

To insure the validity of the survey, it is necessary to have a high return. Therefore, I very much need your help as I am anxious to complete the tabulation so the research study can be completed.

Thank you very much.

Sincerely yours,

John H. Manning

MEANS AND STANDARD DEVIATION FOR EACH QUESTION:
CONTRACTOR QUESTIONNAIRE

Question	Mean	Std. Dev.	Question	Mean	Std. Dev.
1.	-----	-----	16.	3.075	1.034
2.	-----	-----	17.	3.522	1.035
3.	-----	-----	18.	3.582	0.762
4.	-----	-----	19.	4.179	1.014
5.	3.627	1.229	20.	2.910	0.848
6.	3.324	0.888	21.	3.567	0.857
7.	3.382	0.978	22.	2.697	1.109
8.	3.103	0.933	23.	3.877	0.875
9.	1.735	0.874	24.	3.742	0.829
10.	3.324	0.953	25.	3.323	0.850
11.	3.397	1.095	26.	4.035	0.981
12.	1.879	1.117	27.	3.864	0.721
13.	2.265	0.940	28.	3.600	0.766
14.	3.118	1.058	29.	2.222	0.851
15.	2.779	1.434	30.	3.375	0.968
			31.	3.492	1.174
			32.	3.262	0.834

VITA

JOHN HYNES MANNING

Candidate for the Degree of

Doctor of Philosophy

Thesis: A STUDY OF RESISTANCE TO CHANGE IN WORK METHODS
BY WORKERS IN THE GENERAL CONSTRUCTION INDUSTRY IN
ALASKA

Major Field: Engineering

Biographical:

Personal Data: Born in Boston, Massachusetts,
February 27, 1916, the son of James F. and
Catherine Hynes Manning.

Education: Attended grade school in Newton,
Massachusetts; was graduated from Newton High
School in 1934; received the Bachelor of Science
degree, with honor, from Northeastern University,
with a major in civil engineering, in June, 1939;
received the Master of Science degree from the
University of Alaska, with a major in Engineering
Management, in May, 1962; completed requirements
for the Doctor of Philosophy degree in July, 1968.

Professional experience: From 1939 to 1941 was survey
party member and draftsman, City of Newton; period
1941-1943 was estimator, office engineer, and
assistant area engineer, respectively, for Corps
of Engineers, U. S. Army; from 1943 to 1946 was
officer in Civil Engineer Corps of U. S. Navy,
attached to a Construction Battalion; period
1946-1950 was chief engineer for T. W. Cunningham,
Inc., General Contractors and Engineers, Bangor,
Maine; from 1950 to 1953 was project manager for
J. H. Pomeroy & Co., Inc., General Contractors

and Engineers, San Francisco, California; period 1953-1962 was president of J. H. Manning Corporation, General Contractors and Engineers; from 1962 to date served successively as lecturer, assistant professor, and associate professor of Engineering Management in the Graduate School of the University of Alaska, as well as operating a private consulting engineering business.

Professional societies and licenses: Member of the American Accounting Association, American Society of Civil Engineers, American Society for Engineering Education, National Society of Professional Engineers, Seismological Society of America, and the Society of American Military Engineers; hold a professional engineer license in both the Commonwealth of Massachusetts and the State of Alaska; am a licensed real estate broker, inactive, in the State of Alaska.

Professional publications: Co-Author of technical publication of the U. S. Coast and Geodetic Survey, Washington, D. C., on the Alaska Earthquake of 1964.