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INDIVIDUAL NEEDS: AN EMPIRICAL STUDY

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

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* * * * * * *

The Ohio State University

1966

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## CONTENTS

<table>
<thead>
<tr>
<th>ACKNOWLEDGMENTS</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VITA</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>iii</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLES</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>viii</td>
</tr>
</tbody>
</table>

## CHAPTER

### I. INTRODUCTION

<table>
<thead>
<tr>
<th>Statement of the Problem</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Method of Investigation</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Importance of the Study</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Limitations</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Definition of Terms Used</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organization of Remainder of the Dissertation</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17</td>
</tr>
</tbody>
</table>

### II. THEORETICAL FRAMEWORK

<table>
<thead>
<tr>
<th>Chapter Perspective</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Formal Organization</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bureaucratic Tendencies</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motivation Theory</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>36</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alternative Concepts</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incompatible Resolution</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>42</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Detached Union</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>48</td>
</tr>
<tr>
<td>CHAPTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Individual Uniquity</td>
<td>54</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>56</td>
</tr>
<tr>
<td>III. A REVIEW OF RESEARCH</td>
<td>65</td>
</tr>
<tr>
<td>Chapter Perspective</td>
<td>65</td>
</tr>
<tr>
<td>Operability of Higher-Level Needs</td>
<td>66</td>
</tr>
<tr>
<td>Satisfaction and Structure</td>
<td>70</td>
</tr>
<tr>
<td>Structure and Effectiveness</td>
<td>75</td>
</tr>
<tr>
<td>Effectiveness and Satisfaction</td>
<td>80</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>85</td>
</tr>
<tr>
<td>IV. METHODOLOGY</td>
<td>88</td>
</tr>
<tr>
<td>Chapter Perspective</td>
<td>88</td>
</tr>
<tr>
<td>Setting for the Study</td>
<td>88</td>
</tr>
<tr>
<td>Nature of the Sample</td>
<td>90</td>
</tr>
<tr>
<td>Method of Measurement</td>
<td>91</td>
</tr>
<tr>
<td>Questionnaire Formulation</td>
<td>93</td>
</tr>
<tr>
<td>Pretest</td>
<td>99</td>
</tr>
<tr>
<td>Effectiveness Rating</td>
<td>101</td>
</tr>
<tr>
<td>Data Collection</td>
<td>103</td>
</tr>
<tr>
<td>Tests of Correlation</td>
<td>104</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>106</td>
</tr>
</tbody>
</table>
V. RESULTS AND DISCUSSION ........................................ 111

Chapter Perspective ........................................ 111
Representativeness of the Sample ......................... 111
Nature of the Data ........................................... 118
Correlates of Structure ..................................... 123
Need Satisfactions ........................................... 125
Need Satisfaction Discrepancies ......................... 127
Need Intensities ............................................. 128
Individual Effectiveness .................................... 133
Correlates of Structure ..................................... 134
Need Satisfactions ........................................... 134
Need Satisfaction Discrepancies ......................... 136
Need Intensities ............................................. 138

VI. SUMMARY AND CONCLUSIONS .............................. 143

Area of Study ................................................. 143
Hypothesis Tested ............................................. 145
Method of Investigation ..................................... 147
Findings of the Study ....................................... 148
Recommendations ............................................. 152
## TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Need and Structure Item Measures</td>
<td>95</td>
</tr>
<tr>
<td>2. Distribution of Job Structure Scores</td>
<td>113</td>
</tr>
<tr>
<td>3. Distribution of Individual Effectiveness Scores</td>
<td>113</td>
</tr>
<tr>
<td>4. Distribution of Intensity Scores of Five Higher-Level Needs</td>
<td>115</td>
</tr>
<tr>
<td>5. Distribution of Satisfaction Scores of Five Higher-Level Needs</td>
<td>116</td>
</tr>
<tr>
<td>6. Distribution of Discrepancy Scores of Five Higher-Level Needs</td>
<td>117</td>
</tr>
<tr>
<td>7. Intercorrelations Between Intensities of Five Higher-Level Needs</td>
<td>119</td>
</tr>
<tr>
<td>8. Intercorrelations Between Satisfactions of Five Higher-Level Needs</td>
<td>120</td>
</tr>
<tr>
<td>9. Intercorrelations Between Need Satisfaction Discrepancies of Five Higher-Level Needs</td>
<td>121</td>
</tr>
<tr>
<td>10. Intercorrelations Between Intensities and Satisfaction of Five Higher-Level Needs</td>
<td>124</td>
</tr>
<tr>
<td>11. Pearson Product-Moment Correlation Coefficients Between Job Structure and Need Satisfactions</td>
<td>126</td>
</tr>
<tr>
<td>12. Pearson Product-Moment Correlation Coefficients Between Job Structure and Need Satisfaction Discrepancies</td>
<td>129</td>
</tr>
<tr>
<td>TABLE</td>
<td>PAGE</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>13. Pearson Product-Moment Correlation Coefficients Between Job Structure and Need Intensities</td>
<td>130</td>
</tr>
<tr>
<td>14. Multiple Correlation Coefficients Between Job Structure and Need Intensities, Need Satisfactions, and Need Satisfaction Discrepancies</td>
<td>132</td>
</tr>
<tr>
<td>15. Pearson Product-Moment Correlation Coefficients Between Individual Effectiveness and Need Satisfactions</td>
<td>135</td>
</tr>
<tr>
<td>16. Pearson Product-Moment Correlation Coefficients Between Individual Effectiveness and Need Satisfaction Discrepancies</td>
<td>137</td>
</tr>
<tr>
<td>17. Pearson Product-Moment Correlation Coefficients Between Individual Effectiveness and Need Intensities</td>
<td>139</td>
</tr>
<tr>
<td>18. Multiple Correlation Coefficients Between Individual Effectiveness and Need Intensities, Need Satisfactions, and Need Satisfaction Discrepancies</td>
<td>141</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

"Each man performs the same task over and over: tightens identical nuts, lifts identical parts off of a rack, and applies each one of them precisely to a something that is exactly like its predecessor to the thousandth of an inch. This accurate monotonous toil goes on swiftly, amid hissing air-valves and paint-streams, roar of drying ovens, clatter of tools, thunder of trucks arriving and departing. As evidence of the organizing faculty in master minds, as a study in unity and synchronized power over diverse beings and things, the action is impressive, in totality almost beautiful; but for its individual contribution it leaves something to be desired as an expression of the art of life. Not altogether for this, surely, is man made."

Pound's account of work with automatic machinery is possibly an exaggeration or, at best,
only applicable to a very small percentage of jobs in industry today. Nevertheless, his observation is introductory to a common theme in the writings of contemporary organization theorists. Certainly the organizing tools of specialization of labor, methods, the mechanization of labor, and the predetermination of tools and motions are necessary for organizational productivity. Unfortunately, strict adherence to the prescriptions of these devices may thwart satisfaction of the individual's needs which are operable in the work situation.

McGregor argues specifically that present day organizations are operating under the misconception that work, for the individual, is a means of satisfying physical needs. Adopting Maslow's

theory of motivation, he insists that the individual's physiological needs are virtually satisfied. Since a satisfied need is no longer motivating, he concludes that it is the higher-level needs, among which are achievement, recognition, and self-actualization, that the individual seeks satisfaction. Elaborating on this point, Cletton characterized work which is carried on with a preoccupation for physical needs as animal living. As a consequence, the individual comes to look upon his work as the price he must pay to satisfy organic cravings.

These are harsh views of the situation with which the industrial worker is confronted. There is a second school of thought which is diametrically opposed to this thesis. Basic to this theory are two tenets. First, the individual spends little more than 35 per cent of his waking hours in pursuit of his job. This being the case,


he has the majority of his time outside of work available to participate in activities which will provide him with a sense of craftsmanship, freedom, prestige. Among the latter, such activities as wood finishing, camping, and bowling could be included. Secondly, there is sufficient latitude between and around the organizing devices for the individual to pursue satisfaction of higher-level needs. Proponents of this approach cite examples wherein workers have devised elaborate fixtures to implement their jobs and emphasize the existence of an informal organization. In this view, these are methods by which individuals can enjoy a sense of fulfillment and recognition.

At the risk of stating the obvious, it seems entirely likely that a generalization regarding the operation and satisfaction of higher-level needs in the work situation is impossible. It would certainly not be necessary to argue the


point that most individuals are unique in some respect. Be that as it may, the prospect still offers little solace to the supervisor whose disenchanted subordinate appears compelled to disrupt the work place and the entire production process as well. And what answer do we give the capable worker who is continually put off for lack of "the right opening?"

In an elaborate study of the automotive industry, Walker and Guest reported some difference in attitude among workers as to their satisfaction on the job which exemplifies this point of individual uniqueness. A man on the motor line complained:

There's pressure on top of the monotony and that's bad. You get the two combined. You go in that place and you come out of it at the end of the day just a plain dummy. That's what happened to me; that's what causes sickness and nerves.

On the other hand, a man performing a similar operation remarked:

My job requires a consistent application of physical energy, not at all beyond my capacity or the others around me. In fact, we are a jolly

group of workers and never talk about fatigue or oppression. We kid each other a lot and sometimes we wish we could put in six days a week instead of five.

Statement of the problem

Herzberg, Argyris, and McGregor share the view that the specialization of labor, methods, mechanical pacing and other organizing and control techniques are appropriate management objectives because they lead to greater production. But mere production is too remote for worker satisfaction which resides in a challenging job well done and recognition for effort and achievement. In consideration of this thesis, it is the purpose of the present study to test three relevant hypotheses.

1. It is hypothesized that individual need satisfaction will correlate negatively with the degree to which the individual's range of behavior as an organization member is restricted, confined, or reduced by virtue of organizing and control techniques, e. g., specialization of labor, methods, mechanical pacing, policies, procedures, and rules.

2. It is hypothesized that individual effectiveness, i. e., the degree to which the
individual meets formal performance standards, will correlate positively with the behavioral restriction occasioned by the imposition of these organizing and control techniques.

3. It is hypothesized that individual effectiveness will correlate negatively with individual need satisfaction.

Method of investigation

A questionnaire of the Likert form will be administered to an initial sample of one hundred seventy-five line workers, selected at random from ten job categories of varying behavioral restriction among the twenty manufacturing departments of the Columbus Works of the Western Electric Company. The Likert-type questionnaire elicits the respondent's assessment of the importance and relevance a number of descriptive terms have, when applied to his work situation.

Quantification of the intensity and satisfaction of five higher-level needs together with a measure of behavioral job structure will be obtained for each subject by means of the questionnaire. The measure of individual effectiveness will be accomplished by a rating of the worker by his
immediate and second-level supervisors with emphasis placed on the history of his efficiency scores.

In order to test the significance of the relationships between (a) individual need intensities and behavioral job structure, (b) individual need satisfactions and behavioral job structure, (c) need satisfaction discrepancies and behavioral job structure, and (d) behavioral job structure and individual effectiveness, Pearson product-moment correlation coefficients will be computed.

Further, a multiple correlation coefficient describing the extent of the relationships between (a) the individual need intensities and individual effectiveness, (b) individual need satisfactions and individual effectiveness, and (c) need satisfaction discrepancies and individual effectiveness will also be computed.

The Pearsonian product-moment correlation would seem especially applicable in this study. This measure is particularly adapted to the demonstration of negative relationships if such exist as are hypothesized in this study. The M R 90 method for multiple correlation determination is equally adaptable here in view of the fact that the data are ungrouped. In addition, both have
formulas easily programmed for use with SCATRAN in electronic computation.

**Importance of the study**

If proponents of this theoretical conflict between the organization and the individual are correct and the satisfaction of certain operable needs is being thwarted, the resultant situation is likely to be frustration-producing. This could conceivably account for some of the unrest readily observable in industrial plants across the country. At the risk of earning the label of a pseudopsychologist, one cannot but be struck by the similarity in the symptoms of the disgruntled worker who disrupts production and the psychologist's description of aggressive and regressive tendencies associated with frustration. Grievances, absenteeism, and turnover are costly liabilities for any productive process. If there could be any assurance that these would be minimized

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by the adoption of appropriate job design or selection policies, surely the effort is worthwhile.

Turning from the economic implications, there are certain danger signals of greater social significance. There is substantial evidence that poor mental health correlates highly with occupancy of lesser-skilled jobs. It is granted that we cannot conclude that poor mental health is associated solely with the nature of the work. The possibility of its being also a function of low pay and, in general, low status is certainly clear. Nevertheless, if one were to continually point to the latter in explanation of the behavior of all discontented workers who perpetually grieve over some seemingly insignificant petty condition, the rationale is soon strained.

The problem of mental illness in industry is growing in proportions. Last year a major manufacturing corporation reported that some thirty-five to forty percent of sickness absences were

directly associated with poor mental health. Of these, some 95% or more were hourly paid personnel. This is obviously a greater proportion than would have been predicted by the company's salary to hourly paid personnel ratio.

Finally, there is some evidence that in a variety of industrial jobs, there is higher job satisfaction continually reported by mentally deficient workers. After an extensive study into the problem of the mentally deficient in industry, Abel concluded that the mentally retarded brings little into the shop that is not brought into play in his job. He is therefore, in large measure, immune to interpersonal aggravations, less concerned with the monotony of mechanization and less bothered by the routine of procedure and method. The implication is clear. That is, if the majority of the "normal" individual's abilities are unused or unchallenged, we must assume that there will be an associated dissatisfaction.

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Limitations

The data for this study will be collected at the Columbus Works of the Western Electric Company. There may be immediate criticism of the selection of this company as an appropriate setting for behavioral research. Some may feel that the results would necessarily be contaminated due to some preconditioning on account of the volume of such research which has been done with this organization in the past. By far the majority of behavioral research performed with members of this company has been done at the Hawthorne Works in Chicago, Illinois. There have been no studies of this nature conducted at the Columbus Plant in the ten years of its existence. There is but a small percentage of the personnel from the Chicago location and, with very few exceptions, they hold positions in the middle and upper management ranks. For these reasons, it is not felt that there would be any cause to suspicion the results due to fear of a preconditioning of the participants.
All of the subjects will be operative members of the line organization. The decision to use only hourly paid line workers involved weighing the demands for consistency against the opportunity to generalize the results of the study. In the absence of the consistency afforded by selecting only line workers, it would be difficult to convince many that the results were not merely a function of the status of salary versus hourly paid personnel. A second criterion for limiting the study to line workers was the measurability of two pivotal variables. First, the nature of a number of the salaried jobs which would have to be included would make it extremely difficult to place a numeric value on the effectiveness of the occupants. Secondly, due to the inherent latitude in the performance of many salaried jobs, it is often difficult for the occupants of these jobs to evaluate the degree to which they are imposed upon by certain organizing and control techniques. For example, there are many everyday tasks which are performed in just such a way that the employee may feel that it is a procedural matter but one
which is not so formal that he would be criticized for noncompliance. Would he respond that his range of behavior was, to some extent, restricted to this manner of operating? Or, on the other hand, would he evaluate his job as unstructured because he believes policies or procedures will not be enforced? Certainly the occasion of this sort of dilemma is substantially reduced by confining the sample to operative members of the line organization. In this study, the inability to generalize to all organization members due to the exclusion of salaried jobs is a small price to pay for consistency.

**Definitions of terms used**

The following are definitions of certain terms the means of which are not otherwise definitively stated in the body of the dissertation.

**Autonomy need.** A need to feel that one has power over one's actions; is independent; has freedom to make decisions and initiate effective action.

**Achievement need.** A need to feel that one is
accomplishing something of value or importance.

Recognition need. A need to feel that one is valued by others; that one's achievements are acknowledged, i.e., praise or reward; that one's achievements are communicated to others.

Affiliation need. A need to be related to people; to have friends; to have the feeling of belonging; to be accepted by one's fellows.

Self-actualization need. A need to realize the extent of one's potential; to feel that one's activities contribute to one's continual self-development and self-fulfillment.

Behavioral job structure. The degree to which the individual's range of behavior as an organization member is restricted, confined, or reduced by virtue of certain organizing and control techniques, e.g., the specialization of labor, methods, mechanical pacing, policies, procedures, and rules.

Individual effectiveness. The degree to which the individual meets formal performance standards.
Organization of remainder of the dissertation

The following chapter develops the conceptual framework underlying the adoption of certain organizing and control techniques for the sake of organizational efficiency. It also analyzes the alternative explanations of the reaction of the line worker to the resultant work environment.

Chapter III discusses previous research in the area of need satisfaction and structural imposition. The chapter devotes particular emphasis to an analysis of the relevance of the research to this study.

Chapter IV presents the methodology of the study. The nature of the sampling procedure is reviewed and the appropriateness of the statistical tests employed is discussed.

Chapter V displays the results of the study and presents an analysis of the findings in light of the hypotheses. In this chapter, indication is also made of the special problems encountered in the performance of the study.

Chapter VI presents a summary of the find-
ings of the study and some conclusions as to the confirmation of the hypotheses. In this chapter, in light of these findings, several operational recommendations are considered.
CHAPTER II

THEORETICAL FRAMEWORK

Chapter perspective

In this chapter, the organizing and controlling techniques of present-day management, i.e., those necessary for the efficient operation of the formal organization, will be briefly identified. The tendency for the implementation of these techniques to lead to the bureaucratic form of organization is then discussed. It is then pertinent to introduce a theory of motivation. Finally, conceptual explanations of the reaction of individuals to the organizational environment effected by the aforementioned techniques will be explored.

The formal organization

Roethlisberger and Dickson suggest that there are two major functions of an industrial

organization. The first of these is the production of an economic product. The function is totally economic and is assessed in terms of cost, productivity, and efficiency. The second is that of creating and distributing satisfactions among the individual members of the organization. The latter function is assessed in terms of wages, turnover, and employee attitudes. Surely there are those who would argue that these functions are not all-inclusive in describing that for which they were proposed. The argument also might be that they are too simply stated. A debate on the merits of this conclusion is not intended. The statement does, however, point out the theoretical existence of two "sub-systems," the objectives of which are conceptually dissimilar. Further, viewing the industrial organization as committed to this dual function provides a convenient point of departure for an analysis of the vehicle through which economic production is occasioned, i.e., the formal organization. In this same context, an explanation of the individual
member's reaction to the organization's ability to distribute satisfactions within the confines of the formal organization should logically succeed this analysis.

The formal organization is defined in an operational sense as:

A system of well-defined jobs, each bearing a definite measure of authority, responsibility and accountability, the whole consciously designed to enable the people of the enterprise to work most effectively together in accomplishing their objectives. It is characterized by being well-defined, bound by delegation, and relatively stable.\(^5\)

The work of each individual is a part of a larger design of which each plays a particular role. Few of the members of the organization enjoy a vantage point where they can observe the entire process by which the many applications of individual

effort summate to the creation of an economic product. Since each member is incapable of such vision, he cannot determine the place of his contribution in the over-all task of the organization. This must be done for him by the management of the enterprise. His part in the over-all activity of the formal organization must be made clear to him. Preceding this problem of coordination is still a more basic one. The individual member must have the requirements of his job and the "boundaries" of his position made clear for him. Over the history of the development of the present state of organization and management theory, there are certain organizing and control techniques which have consistently met the pragmatic test of results. It is their purpose to give effect to

16 The authority and responsibility formally associated with a position which define the position itself and its relationship with other positions are the "boundaries."

17 These management techniques have been labeled organizing and control techniques because the nature of certain of their implementations emphasizes more the regulating or constraining of activities to some prescribed plan or standard.
the efficient creation of economic value through the vehicle of the formal organization.

The organizing and control techniques involve the identification of the authority and responsibility of positions in the enterprise, the maintenance of coordination, and the assurance of the most effective and economical employment of human effort. Specifically, these are: the specialization of labor, methods and standardization, organization structure, business policy and procedure, and mechanical pacing.

In his classic work, The Wealth of Nations, Adam Smith presents a rationale for the contention that the opulence of an economic society is based on the unrestrained individual pursuit of self-interest implemented by an effective division of labor. The specialization of labor implies the breakdown of the work to be done into minute elements such that, when assigned the work, each individual will have but one specialized

function to perform. It permits certain economies which are not possible were a single worker to perform the total of the work of a particular operation. Advantage can be taken of the human capacities and skills of each worker by assigning him to the exact kind of task for which he is fitted. A change in material involves much less time and difficulty than does a change from one job to another. The worker can gain skill through repetition and a shorter training period is required since the work is less difficult.

Within the formal organization there is specialization in organization and function, subdivision of activities by departments and sections, by process and by operation until a single machine, tool, or worker performs a minute task exclusively. Allen cautions that this process of specialization tends to make the individual member of the organization myopic to his own job and virtually

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"blind" to the necessity of his interdependence 20 with the remaining members. This is a problem in coordination which is implemented largely through the construction of an effective organization structure. Before turning to the problem of coordination, however, it would seem appropriate first, to develop further the nature of the demands on the individual occasioned by the subdivision of work and the organizational environment thereby produced.

The essence of the application of motion study is the determination of "the one best way" to do the work. The conservation of human effort and the elimination of waste are products of the scientific measurement and arrangement of the 21 elemental motions of any manual task. It is not sufficient to merely divide the work to be done among a number of men. There must also be a standard of efficiency in their operations. The

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20 Allen, op. cit., p. 61.
work must be carried out by the most direct path. The most advantageous methods must be employed and the equipment and materials placed so as to facilitate the separate operations and the completion of the total of the work. In this way, each individual is assigned a relatively simple set of motions to carry out. This quality of the work is that which enables the individual to become dexterous in the performance of an operation to the point where it becomes instinctive.

Standardization of operations is the final step in motion study. If a plan of organization is to be highly effective, it must be specific, clearly defining the duties of each individual and coordinating every effort toward the ultimate objective. The essence of standardizing operations is control. Through standardization of methods and the conditions surrounding their performance, uniformity and consistency are realized. If there can be assurance that the best methods are being employed, these qualities serve as the foundation upon which the economy and effectiveness of the organization are built.
Unfortunately, these specialized functions still must be operationally welded into a "smooth running whole." It is the organization structure which formally establishes the position of each individual in relation to all other members of the enterprise. It specifies the work for which each person is accountable and the person to whom he owes accountability. Due to the division of labor and the coincident specialization of much of the work of each individual, his position in the organization becomes, to a great extent, capsulized. That is, he lives in his own little vacuum, becoming myopic to the performance of his simplified and highly standardized function. The necessity of there being a structural pattern to combine such work into a coordinated accomplishment of the organization objective is certainly

obvious. If there is no misunderstanding as to the relationships which must exist between the numerous positions, between the various sections, and between the several divisions, there will be a natural tendency toward an over-all coordinated effort. The resultant environment should reinforce interdependence and teamwork.

The mere existence of a prescribed organization structure will not in itself cause these benefits. It is necessary that there be guides, routines, and rules adopted to supplement managerial supervision and facilitate the effective and economical accomplishment of the organization objectives. Business policy is the guide to action that keeps organizational activities in line with predetermined objectives. It can be visualized as a device through which certain constraints or boundaries on organizational


activities are identified. The boundaries to action which are established by the adoption of policies provide uniformity and consistency in the performance of activities associated with recurring situations or conditions. The likelihood of there being deviations from prescribed action is thereby lessened.

As an organizing and control technique, procedure contributes certain values to the operation of the organization. It arranges functions in steps which represent stages in the accomplishment of the ultimate objective of the work unit. The orderliness thereby occasioned assures an economy of effort. When a set of functions is proceduralized in the accomplishment of a block of work, there will be a consequent uniformity of results.

Few industrial workers (none of the participants in this study) are totally free from some


contact with machinery or mechanized equipment of some form. The demands of a growing prosperous society have caused the manufacture of goods to be accomplished on a mass-production basis. This form of production has certain characteristics which are directly associated with its preoccupation with volume. These characteristics are: the standardization of the product, the interchangeability of parts, the orderly progression of the product through the shop in a series of planned operations, the mechanical delivery of parts and of the product as it is assembled to and from operators, and the mechanization of the operations so far as is economical.

There is a popular principle in industrial engineering that the less impact the worker can have on the production process, the more effective

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the process will be. It commends itself logically for certainly the human element would be the weakest link. The extremes to which engineers have gone to relieve the worker from strenuous activity, both mental and physical, have left the worker with little control over his work. There are, however, those who are alarmed by these conditions. They warn that these conditions represent a departure from that upon which this country was built. In evidence of this contention, they argue that bureaucracy is an intermediate phase and that the organizing and control techniques of modern management are bureaucracy producing.

Bureaucratic tendencies

Bureaucracy has been defined by a famous sociologist, Max Weber, as a formal organization.

possessing the following characteristics:

1. Fixed and official areas of jurisdiction.
2. A graded system of authority.
3. A system of central files.
4. Official activities which demand the full time of personnel.
5. Systematic and general rules which define procedure, and which are followed.

Weber contended that this form of organization naturally complements the emphasis on group action. Whenever a large number of people are brought together for the purpose of accomplishing a stated objective, they must be given some direction. Likewise, the objectives of individuals must be subordinated or harmonized with those of the group. This commitment to the benefits of coordinated group effort is certainly necessary if an economic society is to realize the state of abundance to which its members are accustomed. To return to the age when each man stood alone, when self-reliance,


and individuality were the order of the day, would be to abandon our present state of prosperity. Monuments to the progress of our society have been built upon coordinated group effort.

Unfortunately, the industrialization necessitated by the demands of progress has certain inescapable needs which are compatible with the growth of bureaucracy. Generally, bureaucracy seems to develop in social organizations which experience considerable growth in size. Industrial expansion has been based, not on the aggregate of a number of small establishments, but rather on enormous, individual large-scale units. This growth has caused increased demands for vigorous regulation and control for the sake of efficiency. The demands of efficiency are emphasized all the more where a high degree of specialization exists.

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Industrial specialization depends on control of rate and quality of work which is highly compatible with the elaborate system of rules provided by the bureaucratic organization.

The employment of mechanization in industry also reinforces the growth of bureaucracy. With the success of the production process hinging on the synchronization of the work flow, the need for complete uniformity in the steady provision of materials and the performance of work in support of the mechanized task is answered by the bureaucratic rules and procedures. The consequent ability of top management to control and to predict the actions of members is requisite to effective long-range planning. A type of organization is needed in which the opportunity for human emotion to disrupt a plan is reduced to a minimum.

While the term bureaucracy, to politicians

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and the newspapers, describes an adverse state of affairs, as it is defined by sociologists, the efficiency it can provide the industrial enterprise cannot pass unnoticed. The make-up of the bureaucratic organization is highly rational. It involves the rigid control of the organization on the basis of a well-defined system of procedures and rules for the performance of work. Because of such control, it allows the greatest possible prediction of future events in the organization. The latter quality cannot be too highly valued when it comes to decision-making in a competitive industry.

What is that which causes an individual to occupy a position in this sort of environment? What are the forces which motivate him to contribute his efforts to the goals of the organization? Is it a satisfying experience? Need it be a satisfying experience? Answers to these questions will be offered in the following sections.

First, it would seem appropriate to develop the theory of motivation upon which the hypotheses under test are premised.

**Motivation theory**

A need is defined here as the lack of something deemed useful, required, or desired. When the individual recognizes the existence of a need, tension is produced. That is, the individual experiences a feeling of discomfort depending on the strength of the need and on the length of time it has been recognized. Need satisfaction is then the reduction of the tension state or even the total elimination of the need. It is within the process of need recognition and the individual's behavior to reduce the associated discomfort that motivation takes place. It follows then that to be motivated the individual must perceive that his actions will occasion the desired reduction of tension or discomfort. In this study, the concern

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is for the nature of these needs and for the
means by which they can be satisfied in the
work situation.

A noted scholar in the area of motivation,
Abraham Maslow, advances a theory based upon the
existence of a hierarchy of needs. The need
hierarchy represents a gradation of the operable
needs in terms of their motivational strength and
its relation to the force of the remaining needs.
There are three basic premises of his theory.
First, man is a wanting animal. Second, and here
emphasized, satisfied needs do not motivate
behavior. Third, needs are arranged in a hierarchy
of importance. The order of the needs is:
physiological needs, safety needs, social needs,
ego needs, and self-actualization needs. The
physiological needs are the most fundamental and
include the needs for oxygen, food, drink, rest,
activity, etc. These needs possess the quality of
prepotency. That is, the individual who is

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A. H. Maslow, Motivation and Personality
extremely deprived in life will most likely be motivated by physiological needs rather than any others.

When these physiological needs are satisfied, i.e., the individual has successfully undertaken some consummatory activity, other needs will immediately become recognized. These other needs will emerge and will dominate the individual. In turn, when these needs are satisfied, still others will succeed them. The second set of needs which will emerge when physiological needs are relatively well satisfied are classified as safety needs. These needs include the need for protection from physical dangers, the need for economic security, and the need for the familiar rather than the unfamiliar. As was mentioned, the security needs are not activated until an acceptable reduction of the discomfort associated with the physiological needs is experienced. Likewise, the social needs of affection and belonging will emerge.

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when such is the case with the safety needs.

This need to have friends and a feeling of belonging, i.e., affiliation, is the first of the higher-level needs which are the subject of this study. The ego needs include those for achievement and for recognition. Maslow points out that when an individual enjoys the status of an accepted group member, he then seeks for himself a firmly based self-esteem. That is, his feeling of personal worth is soundly based on personal achievement and the consequent respect from others, i.e., recognition.

The final need which acts as a motivator when all others are satisfied is the need to fulfill one's self, to do what one is fitted for, to realize the extent of one's potential. This need is visualized in an individual's desire for creative activity and craftsmanship. There are some in the field of industrial psychology who believe these needs to be the most pronounced and

\[37\] 
**Ibid.**, p. 93.
strongly motivating. They cite the worker's desire to improve the method of work and his sincere interest in assisting in the problems of quality and the pace of operations.

If this then be the nature of the needs of the organization member, are these higher level needs operable as motivators of behavior? If so, do individuals seek to satisfy them through their work? Does the formal organization reinforce or inhibit the individual's satisfaction of these needs? Answers to these questions have not, by any means, received the consensus of organization and management theorists. In the following section, an elaboration on the alternative points of view regarding this interaction will be undertaken.

**Alternative concepts**

Three alternative explanations of the relationship between the necessary structuring of the work environment by the formal organization and

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the individual's satisfaction of higher-level needs are recognized. There is a large body of organization theorists who contend that a basic incompatibility exists between the demands of the formal organization and the individual's need satisfaction. That is, the satisfaction of higher-level needs is thwarted by virtue of the employment of the organizing and control techniques characteristic of the large organization.

A second group of comparable stature argues that, to the contrary, there are many avenues available within the formal organization through which individuals can realize an acceptable level of satisfaction of these needs. They contend further that, in any event, the majority of such satisfactions are not experienced through the work situation, but in nonworking hours.

There is still another group who respect the possibility that either of the previous concepts may apply in a given case. They point out, however, that it is impossible to generalize as to the behavior of all organization members.
Emphasis is here given to the force of a large number of variables which, while seemingly insignificant, may, in a particular case, be the factors which condition the individual's need satisfaction. For ease of notation, these alternative concepts will be referred to respectively as: incompatible resolution, detached union, and individual uniqueness.

**Incompatible resolution.** Probably the leading spokesman for this view is Chris Argyris. Argyris points to such management and organization principles as the division of labor, chain of command, span of supervision, and procedure when he argues that the present day business organization fashions a work situation that conflicts with the individual's needs. It is his contention that the organization member works in an environment where (1) he is provided minimal control over his work-a-day world, (2) he is expected to be passive, dependent, and subordinate, (3) he is expected to

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have a short-time perspective, and (4) he is induced to perfect and value the frequent use of a few superficial abilities.

Continuing with this line of reasoning, the conflict arises when we turn to the nature of the individual. There are several characteristics which summarize the personality of the mature adult. Individuals in our society (1) develop from a state of passivity as infants to a state of activity as adults, i.e., initiate action for themselves, (2) develop from being capable of behaving in only a few ways and in a rigid manner as an infant to being capable of behaving in a variety of ways and in a flexible manner as an adult, (3) develop from being in a subordinate position as a child to occupying an equal or superior position as an adult, and (4) develop from a state of independence as a child to a state of independence as an adult.

40 Ibid., p. 66.
These characteristics are translated by Argyris into the needs of the individual which are operable in the work situation. These are: the need to define for himself the ratio of activity to passivity (autonomy); the need to feel that he has the respect of his fellow workers (recognition); the need to express feelings of interdependence in relation to the other people in the organization (affiliation); and the need to obtain from his job a degree of creature sufficiency (self-actualization). He concludes that since these needs are in direct conflict with the principles of organizing, it is inevitable that the organization member experience frustration.

Taking cue from Argyris' thesis, Worthy suggests that the "over-functionalization" which results from the adoption of traditional organizing and control principles is that which tends to destroy

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the meaning of the job for the individual. He and those around him are occupied with well-defined, highly specialized tasks. He cannot see the total process. He can see only the small and uninteresting part to which he and his co-workers are assigned. Therefore, a large number of workers are deprived of the sense of performing significant, important work.

In consequence, Worthy suggests that there is little feeling of responsibility for the work. Management, in the face of worker apathy, has no alternative then but to exact more strict procedures and rules, together with increasing supervisory pressure. Further, in order to achieve the necessary degree of coordination between units separated by functional specialization, management must not only build an elaborate hierarchy of supervisory levels, but institute a wide variety of formal controls.

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44 Ibid., p. 175.
In the same vein, Herzberg points out the lack of any opportunity for any real involvement by the worker as the essence of the conflict. As the employment of men as the major source of power gave way to the machine, men who were formerly craftsmen became machine tenders. Although it freed men from great physical work, the machine made them slaves to repetition and uniformity. The worker, then, in the absence of any control over the outcome of his work, has little opportunity for involvement. Merton has described the result of this state of affairs in the concept of "trained incapacity" and "professional deformation." That is, an inadequate flexibility in the application of skills is required. Actions based upon skills which have been successfully applied for long periods of time may result in inappropriate actions under changing conditions and possibly result in maladjustments.


In his book entitled "The Human Side of Enterprise," Douglas McGregor criticizes the use of the organization principles of present-day management on the grounds that by their very nature, there is a preoccupation with the satisfaction of the basic physiological needs. That is, it is assumed by the makeup of the formal organization that organization members are continuously striving to satisfy personal needs of essentially an economic nature, the highest level of need being financial security. Drawing on Maslow's premise that a satisfied need is no longer motivating, McGregor argues that the basic material and security needs, being reasonably satisfied by incentives and the existence of the union, are therefore not dominant in the individual's life. To the contrary, he suggests that the higher-level needs have taken the place of these satisfied needs and are the motivators of behavior. Such needs are those for fellowship, for the feeling

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of doing something worthwhile, for receiving acknowledgment for individual contribution, and for a sense of creativity or craftsmanship.

The dilemma is clear. If one accepts the theory that higher-level needs are operable with the satiation of the basic needs and the contention that these lower-level needs are reasonably satisfied in the work situation, then the issue resolves itself to the question of whether or not the organizing and control techniques can be adopted and the opportunity for higher-level need satisfaction still be provided. The position of those who contend that a conflict exists cannot be mistaken. As was pointed out previously, there is not consensus. A second group of organization theorists respond that there is no conflict, that there is rather a detachment of the individual's satisfaction of higher-level needs from the apparent confines of formal organization.

Detached union. There are several industrial psychologists who question first, whether the satisfaction of higher-level needs is rendered
impossible by the restrictions of formal organization, and second, whether the satisfaction of these needs must be realized in the work situation. Regarding the former, output restriction and grievances have been cited by some as the means for satisfying higher-level needs. The point has been made that merely "beating the system" is an ego-satisfying experience which serves to reduce the tension produced by higher-level needs. When the management identifies a worker as cantankerous and continually disruptive to production, they may be discussing an individual highly motivated by higher-level needs.

In this same context, Stagner emphasizes the perception of the worker in his approach to the performance of his job. He warns that academicians

are too quick to write off the mechanized or seemingly repetitious job as inhibiting and incapable of providing avenues for need satisfaction. To the contrary, he submits that the worker may view this same situation with relish. The habitual frees the mind from concentration and permits the higher mental processes to be committed to whatever the individual chooses. The sense of order is then quite comforting and the line worker may have a decided advantage over the engineer in higher-level need satisfaction.

Regarding this line of reasoning one cannot but recall that the satisfaction of a portion of higher-level needs is socially defined. That is, affiliation and recognition are functions of the interaction of the individual with other persons. While the habitual may free the individual to pursue that which is autonomous or self-actuating and possibly his performance of the job may give him a sense of achievement, it is still not clear how these needs would become dominant in the absence of an acceptable satisfaction of social and ego needs.
Probably the most outspoken of the critics of the theses of Argyris, McGregor, and Herzberg is Leonard Sayles. Sayles suggests that work for a majority of people represents an institutional setting that is not the central interest in the individual's life. In consequence, a general attitude of apathy and indifference prevails. Therefore, the individual does not feel imposed upon by the restriction associated with the organizing and control techniques of present-day management. Further, he contends that the individual seeks satisfaction of these higher-level needs outside of the work environment where the obstacles to such satisfaction are substantially lessened. The participation sports, e. g., bowling and golf, and hobbies, e. g., gardening and house decorating, are cited as likely avenues for the satisfaction of higher-level needs.

52 Ibid., pp. 70-76.
Finally, some argue that there is too little emphasis placed upon money as a motivator of behavior. Money is usually thought of in terms of its power to buy satisfaction of the basic needs for food, shelter, and clothing. Some time ago, Shuman wrote that there are motives associated with the satisfaction of higher-level needs which are transpecuniary. That is, the possession of money or, rather, what it can buy, may very well serve to satisfy higher-level needs. In an economic society, financial security is likely to be primary in the satisfaction of safety needs. Our American way of life stresses money as largely the measure of status and achievement which may serve to satisfy the ego needs of many. It is not unlikely that the possession of material things is also basic to the appraisal of an individual by the persons with whom he is associated.

In an indirect way, money may even contribute

to the satisfaction of self-actualization needs. It is unlikely that money would be the source of fulfillment for the individual. While this may be true, money could conceivably free the individual from economic obstacles to his satisfaction of the need for self-actualization. A man may expend great effort to amass a sizable sum of money for the sole purpose of providing an annuity which would free him to travel the world. This explanation may be dismissed by some on the grounds that the consummatory act is too remote. Nevertheless, there are scholars in the field of organization theory who contend that it is just this sort of explanation of behavior that must be searched out in the case of each individual. It is their premise that the factors which serve to condition the manner in which an individual will seek to satisfy his needs are by no means constant. That is, each individual is unique. There are those who for any of a variety of reasons feel compelled

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to achieve and to create in the job situation. On the other hand, there are those who see their jobs as means of subsistence and seek to satisfy higher-level needs elsewhere.

**Individual unicity.** In this instance, it is not the nature of the restrictions placed upon the job nor the nature of the individual's needs that receive emphasis. The emphasis is placed upon the extent to which any of a variety of factors may play a role in the individual's attitudes. Elton Mayo suggested that there is a large element of the personal equation involved. That is, "one man's meat is another man's poison." An occupation may be totally monotonous to one man and arouse his hatred and disgust. Another may find the same work quite agreeable and relaxing. It varies from individual to individual and even from time to time in the same individual.

Leavitt argues that for each individual, the process by which we seek to determine the manner

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in which he is motivated would be something like this. First, the "givens" in the individual's personality, e.g., intelligence, general energy level, educational background, his sensitivity to others, the level of concreteness or abstractness with which he thinks, his level of aspiration, his physical makeup and appearance, must be identified. Secondly, looking then to the higher-level needs, the methods for using these "givens" to obtain satisfaction must be ascertained. Obviously, this would present a difficult task; however, the process does serve to point out the probability that each individual with his personal abilities, aptitudes, etc., may have his own peculiar means for satisfying needs. Sometimes these methods may coincide and other times they may conflict with the behavioral structure associated with the formal organization.

Another factor which some have emphasized as a conditioner of the method for need satisfaction

is the home environment of the worker. If the individual's world outside of the work situation is plagued with unfavorable circumstances, e.g., marital problems, the weight of too much responsibility, financial difficulties, or ill health in the family, he is virtually forced to seek out methods for satisfying his needs through his job. On the other hand, certainly there are individuals who must virtually pull themselves away from the variety of activities in which they engage outside of work. While it is usually considered the easy way to say that there is no answer, in this instance, it is not beyond comprehension that to generalize as to the relationship between need satisfaction and the job situation is not possible.

Chapter summary

In this chapter, certain organizing and control techniques were identified. These were: the

specialization of labor, methods and standardization, organization structure, business policy and procedure, and mechanical pacing.

The specialization of labor yields certain economies which are not possible were one worker to perform each of the tasks required in a particular operation. The individual gains skill through repetition and, since the work is less difficult, training time is decreased. Further, each man can be assigned the work for which he is best suited. In this way, the individual is not forced to change the direction of his work and can enjoy the freedom associated with habit.

There is no waste of any kind that equals the waste from needless, ill-directed, or ineffective motions. The economization of effort and the time saved with the adoption of the appropriate pattern of motions in performing work is certainly vital to the industrial concern. By dividing the individual's task into its most fundamental elements, the synchronization of effective motions can be accomplished. Standardization is the final step in the adoption of
methods. If an industrial organization is to be highly effective, it must clearly define the duties of each member to ensure uniformity in performance in the provision of a "smoothly running whole."

The uniform and consistent performance of specialized functions is not enough. There must be an implementing device which effects the necessary coordination. Based on sound principles of organization and management, a good organization structure will clarify the task and design of the enterprise together with the contribution of each individual to this task. It eliminates any misunderstanding as to the relationships which are to exist between divisions, sections, units, and between the positions of the individuals assigned to them.

Policies and procedures are the tools with which management sees to the operationalization of the task of the enterprise within the organization structure. Policies provide standard decisions for recurring problems. As such, they are guides to
action, i.e., they establish boundaries or constraints on the activities of those affected. A procedure is a specific arrangement of functions intended to accomplish some objective. It represents the accepted manner by which operations of units and of the individuals making up the units are to be carried out. The orderliness occasioned by procedures assures an economy of effort and provides a sound basis for planning.

By the sheer pressure of consumer demand, mass-production techniques have been forced upon the industrial organization and, with them, the necessity for mechanizing or mechanically pacing work. Due to this mechanization, the work of many has been relegated to the position of "tender." While the effects of this condition on the individual have not as yet been established, it is directly responsible for the state of abundance realized in this country.

Although these techniques of organization may be sound and necessitated for the sake of efficiency, there are certain bureaucratic tendencies associated with their adoption. The
bureaucratic organization is characterized by fixed, official areas of jurisdiction, official activities demanding the full time of personnel, and systematic rules which define procedure. There are needs of the industrial organization which are compatible with this form of organization. The rapid growth of industrial enterprise together with greater specialization of labor has increased the demands for efficiency which are complemented well by the rigid control of an elaborate system of rules and procedures. The efficiency of a bureaucratic form in the industrial enterprise cannot be underestimated; however, the possibility of there being adverse conditions for worker motivation is clear.

A need represents a lack of something deemed useful, required, or desired. Satisfaction of a need comes when a consummatory act is undertaken which reduces the tension which accompanies the recognition of the need. Maslow's theory of motivation is based upon the existence of a
hierarchy of needs wherein needs are arranged in the order of their motivating power: physiological needs, safety needs, social needs, ego needs, and self-actualization needs. The three basic premises of this theory are these: (1) man is a wanting animal; as soon as a need is satisfied, another will take its place to motivate his behavior; (2) satisfied needs are not motivating; (3) needs exist in a hierarchy of importance.

There are several alternative explanations for the manner in which an individual satisfies his needs and its relation to the behavior structuring of the formal organization. Argyris et al. contend that a basic conflict exists. That is, the make-up of the organization reinforces passive behavior, a short-time perspective, and the frequent use of a few superficial abilities. In opposition to this, they depict the individual as desiring from his job situation; respect of others, a measure of creature sufficiency, and the opportunity to initiate effective action.
Consequently, there is little meaning in work. The individual can see only a small, uninteresting part of the over-all process and is therefore deprived of the feeling that his work is significant or important. The result is worker apathy which merely invokes greater regulation and supervisory pressure. McGregor contends that present-day management's attempts to overcome this feeling are abortive due to their preoccupation with satisfying basic needs which are already relatively satisfied and therefore not motivating.

Sayles et al. criticize this view and point out that there is much satisfaction provided the worker by merely "beating the game." Grievances and output restriction are cited as exemplary. Further, they warn that the sense of order afforded by the repetitious frees the individual's thought process and thereby affords him great "latitude" in his work. Sayles emphasizes the point that the organization is to many merely the institutional setting where a living is earned and that
satisfaction of higher-level needs is experienced elsewhere.

In the context, the possibility of there being "transpecuniary" motives associated with wages is recognized. It is pointed out that money can provide the means with which most higher-level needs can be satisfied. In the instance of achievement and recognition, money or what it can purchase has become the social standard by which the success of an individual is largely measured. While money is an unlikely source for the satisfaction of self-actualization needs, it may nevertheless serve to remove economic obstacles to the pursuit of these needs.

Finally, some contend that neither the existence of the needs nor the nature of the restrictions of the formal organization should receive emphasis. It is rather the personal make-up and the circumstances surrounding each individual's life to which we should look for the answer to the question of the alleged conflict between the formal organization and the individual's need
satisfaction. Some of the factors to consider in the individual's personal make-up are intelligence, energy, level of aspiration, physical abilities, and appearance. These together with the circumstances of his home life comprise the "givens" of an individual. The method for satisfying needs will then be determined by the logical application of the "givens." The methods then will likely be different as are the factors of personal make-up. The old adage, "one man's meat is another man's poison," should not be overlooked in explanation of the individual's satisfaction of higher-level needs within the confines of the formal organization.
CHAPTER III

A REVIEW OF RESEARCH

Chapter perspective

In this chapter, a review of the empirical research which has relevance to the alleged conflict between the individual's satisfaction of needs and the formal organization will be presented. This is done with a view to ascertaining the implications of previous research to the hypotheses of the present study, i.e., first, that individual need satisfaction will vary inversely with the degree of behavioral structure; second, that individual effectiveness will vary directly with the degree of behavioral structure; and, third, that individual effectiveness will vary inversely with individual need satisfaction.

Underlying Argyris' and McGregor's explanations of the individual's reaction to the organizing and control techniques of the formal organization is an implied premise that higher-level
needs are operable as motivators of men in the organizational environment. It would seem appropriate therefore, to include a review of research which tests the operability of these needs. The remainder of the chapter will be composed of presentations of empirical studies which seek to measure the interaction between structure and satisfaction, between structure and effectiveness, and between satisfaction and effectiveness respectively.

**Operability of higher-level needs**

Herzberg, Mausner, and Snyderman (1959) obtained a mass of data from depth interviews with some two hundred employees of a number of industrial firms in the Pittsburgh area. The data were somewhat unusual in that they were composed of experiences, judgments, and observations of the participants. On the basis of a factor analysis, they concluded that there are factors which cause

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satisfaction (but not dissatisfaction) and other factors which cause dissatisfaction (but not satisfaction). The factors which lead to positive job attitudes were achievement recognition, responsibility, and advancement. The researchers contend that the ability of these factors to satisfy the individual's need for self-actualization in his work is that which accounts for the creation of positive job attitudes.

In a series of studies which were carried on over a five-year period, Porter (1953) reported that greater emphasis was placed on esteem, self-actualization, and autonomy needs at each successive higher level of the organization. He found specifically that need-fulfillment deficiencies increased with each lower level of the organization. The greatest need-fulfillment deficiencies occurred with line workers. In subsequent

59 Herzberg, Mausner, and Snyderman, op. cit., p. 114.
studies limited to management personnel, Porter replicated his findings and concluded that the higher-level needs of esteem, autonomy, and self-actualization tend to be viewed as more important by upper-management personnel and, as well, the satisfaction of these needs is related to the level of management.

Certainly there are some who would discount the study by pointing to such factors as intelligence, education, and certain characteristics of the jobs to explain the findings. Be that as it may, the operability of these needs is surely confirmed.

Farris (1962) administered questionnaires to 513 scientists employed by university, industrial, and governmental laboratories. In this study, a

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quantification of the "motive for self-actualization," the "motive for status," and, in the same fashion, scores for the perceived provision by the organization for satisfying these motives were obtained. Farris found that "perceived incongruency," i.e., the difference between the motive and the provision for self-actualization and status, correlated directly with the degree of frustration reported by the subjects. His findings reinforce those of Porter in that the incongruency scores were inversely related to organizational level.

It is granted that a direct application of these findings to this study would be somewhat difficult in view of the obvious disparity in the nature of the sample. Nevertheless, the findings should reinforce the implications of Porter's studies, for, in this instance, the extraneous variables such as intelligence and education cannot be cited as the cause for there being differential measures of need-fulfillment directly associated with organization level.
Finally, in contrast to these studies, Beer (1964) tested the motivational aspects of higher-level needs with 129 clerical employees of a large insurance company. He found that the perceived opportunity for the satisfaction of higher-level needs was not significantly correlated with three measures of motivation. The motivational dimensions used were initiative, self-assurance, and perceived occupational level as measured by Ghiselli's self-description scales. The subjects of this study were female clerical workers. Ghiselli's motivation dimensions were developed solely on the basis of their correlations with managerial success. While a criticism of the study is not intended, the applicability of these measures in this setting might be questioned.

Satisfaction and structure

For the most part, researchers have found that the satisfaction of higher-level needs in

Michael Beer, Leadership, Employee Needs, and Motivation doctoral dissertation, The Ohio State University, 1964, p. 121
the work situation tends to vary with the degree of freedom afforded the individual in his position. Since, in the typical case, greater freedom of action usually comes with successively higher levels in the organization, the importance and satisfaction of higher-level needs tends to increase as we ascend the organization hierarchy.

Argyris (1959) conducted a study with 300 workers of two major divisions of a large manufacturing company. The jobs of the employees in division A represented high-skilled crafts, i.e., the individual had to apply different skills on a variety of products. In division B, the jobs were unskilled and involved little more than tending semiautomatic machinery. By depth interviews, each employee's perception of the importance of higher-level need fulfillment and of the opportunity for such fulfillment in his job was obtained. If hypothesis 1 is valid, there

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should be more emphasis placed on higher-level need fulfillment and the opportunity for such fulfillment deemed greater in division A than in division B. These were the findings of the study. In addition, Argyris found that employees in division B placed significantly greater emphasis on money as a reward.

Morse and Reimer (1956) found that employee satisfaction was positively related to involvement in decision-making. Four clerical divisions of a large insurance company were reorganized in such a way that the rank-and-file of two divisions were given an increased role in decision-making (autonomy program). In the second two divisions, the role of upper management in decision-making was increased (centralization program). The autonomy program increased employee satisfaction while the centralization program decreased it. Specifically, the perceived opportunity for

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self-actualization increased in the divisions given more decision-making power.

Lodahl (1964) and Vroom (1962) have tested the relationship between employee satisfaction and ego-involvement. Ego-involvement was defined as the degree to which the worker was provided the opportunity for the use and development of diverse aptitudes and permitted knowledge of the results of his contribution by his job. Both studies were conducted in medium-sized electronic companies. A factor analysis of the measures of ego-involvement and job satisfaction obtained through structured interviews demonstrated a significant positive correlation between these variables.

In a study involving the employees of 93 industrial organizations in the Midwest, Talacchi (1958) tested the relationship between organization size and the employee's satisfaction of


nonmaterial needs, i.e., pride in workmanship, recognition, and achievement. Talacchi observed that as an organization increases in size, there is a consequent increase in the specialization of labor which narrows the work content and functional responsibility of the operative jobs. Workers' satisfaction of these nonmaterial rewards was found to be substantially lessened as the organization increased in size.

In contrast to these findings, Weiss (1957) concluded that no measurable correlation exists between the degree of specialization and employee satisfaction. On the basis of a twenty-two item check list, in which such items as degree of specialization and mechanization were included, Weiss quantitatively classified 60 industrial firms as to "centralization." He argued that the

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variables of turnover, unexcused absences, and grievances were valid indicators of a lack of employee satisfaction. A factor analysis of these variables showed that a correlation of zero existed between the centralization measure and scores for grievances, turnover, and unexcused absences. It should be noted that the hypothesis that these variables are indicators of employee "dissatisfaction" has not been consistently demonstrated by empirical research.

The most widely circulated study of the relationship between employee satisfaction and structure is that of Walker and Guest (1952) covering assembly line workers in the automotive industry. Walker and Guest scored the jobs in an automotive plant on the basis of "mass production" characteristics. A significant correlation was found between these scores and measures of turnover, grievances, and absenteeism. They reported that virtually all of the 180 workers in the sample specifically stated that they liked their jobs to

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the degree to which they lacked repetitiveness, mechanical pacing, or related characteristics.

Structure and effectiveness

A large number of experiments have been performed in which a communication net was employed to effect varying degrees of structure. Bavelas (1951), Leavitt (1951), and Christie, Luce, and Macy (1952) have tested the effectiveness of work groups and the satisfaction of members under varying degrees of structural imposition. 71, 72, 73

Groups of five subjects each were put to the task of solving problems which demanded the coordination of their activities. Three degrees of structure, i.e., the degree to which group members are restricted as to the number

of communication contacts, were occasioned by the use of the communication net. The three conditions simulated were (1) extreme structure - each subject has but one communication contact and that with the researcher; (2) moderate structure - each subject has contact with the researcher and one other member; (3) low structure - each subject has contact with the researcher and two other members.

It was found consistently that effectiveness varied inversely with the number of contacts available to the subjects, i.e., effectiveness was increased with the imposition of structure. On the other hand, based on a postexperimental questionnaire, it was found with equal consistency that there was greater member satisfaction as the number of communication contacts available to the subjects were increased, i.e., member satisfaction decreased as structure was increased.

Harrison (1961) studied the relationship between performance and the worker's awareness of his job requirements among 59 employees in the aircraft overhaul shops of a naval air
station. Workers were asked to describe their jobs and the accuracy of their descriptions was scored. A significant positive correlation was found between the knowledge of job requirements and individual performance. It is interesting to note that the accuracy with which the workers described their duties increased with the degree to which the jobs possessed the characteristics of mass production, e.g., routine and continuous. A positive relationship between structure and individual effectiveness is strongly implied in this study.

In contrast to this study, a negative relationship between these variables is implied in a study by Lawrence and Smith (1955). Measures of ego-involvement, i.e., the individual's perceived opportunity for development and for the knowledge of his contribution, were found to correlate positively with individual effectiveness. While

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the study likened ego-involvement more to employee participation, nevertheless, it seems clear that ego-involvement, as defined here, carries with it the individual's opportunity to enact a wider range of behavior. This being the case, individual performance should decrease rather than increase with greater structure.

Marks (1954) measured the effect of job design on productivity in a controlled experiment involving 35 line workers of a firm manufacturing hospital appliances. The performance of each worker was scored in each of five different job designs. The workers were asked to perform essentially the same operations in each case; however, the job designs were constructed in such a way that they could be ranked as to the degree to which the individual would be involved in the total production process. That is, the jobs ranged from a simple set of arm and

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hand movements on a single part to a series of operations on a subassembly. It was found consistently that the greater the individual's involvement with the total process, the less effective he was. Individual effectiveness was greater when the worker was required to exhibit but a limited range of behavior. This finding serves to reinforce hypothesis 2, i.e., individual effectiveness will correlate positively with behavioral structure.

**Effectiveness and satisfaction**

After an exhaustive review of the research, Brayfield and Crockett (1955) reported that there had been no consistent relationship between employee satisfaction and job performance. They found that the number of studies which reported a positive relationship, a negative relationship, and no relationship was virtually equal.

Brayfield and Rothe (1950) used a Thurstone

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type questionnaire to quantify employee satisfaction among 231 women office workers. No significant correlation was found between these scores and measures of job performance. Brayfield replicated this finding in several other studies with a substantial number of subjects from a variety of occupations, e.g., with Mangelsdorf (1951) and with Marsh (1953).

Kornhauser and Sharp (1932) had reported similar results in an often-cited study of 500 women workers performing repetitious jobs in a steel mill. By the employment of questionnaires and depth interviews, the researchers obtained an elaborate measure of employee satisfaction. The efficiency ratings of the participants were found to be totally unrelated to their scores for employee satisfaction. Bernberg (1952) employed

79 Brayfield and Crockett, op. cit., pp. 398-400.
a similar technique with 390 line workers in an aircraft plant and also reported no correlation between these variables.

In a study of 223 insurance agents, Baxter, Toofe, and Hughes (1953) found that a significant correlation existed between the agents' satisfaction with certain conditions of the job (including nonmaterial rewards) and his performance. To the contrary, Katz et al. (1951) found that among railroad workers those who were most productive were lowest in measures of job satisfaction. Specifically, they found a negative correlation between individual performance and employee satisfaction. Gordon (1955) reported similar findings in a study of civilian workers.

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in a large military installation. Gordon obtained measures of need intensity and need satisfaction and, by the method of factor analysis, tested the interrelationship of these variables with job performance. A negative correlation was found between job performance and the measures of need satisfaction. In contrast, a positive correlation was found between the intensity of the need for recognition and job performance.

The relationship between need intensity and performance has been the subject of several studies. Peck and Parsons (1956) used a modified Thurstone-type questionnaire to measure the intensities of the needs of the factory employees of a Midwest manufacturer of roller bearings. The subjects were, for the most part, operators of semi-automatic machinery. The researchers found that high producers had high need intensities.

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while low producers had low need intensities. Hughes (1960) reported similar findings among salesmen for IBM. The intensities of five higher-level needs were measured and found to correlate positively with job performance.

Rosen and McCallum (1962) studied 380 line workers of a large manufacturing concern which, in a way, resembles this study. The subjects completed a multi-item questionnaire which measured the importance and the experience of a large number of conditions surrounding their jobs. The difference between these measures was defined as a "job frustration" score. The 40 highest and the 40 lowest producers were identified and it was found that, with the exception of a mildly positive relationship between job performance and need intensity, no significant correlation existed.

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Chapter summary

In summary, there appear to be several identifiable tendencies with respect to the relationship between the variables of this study.

Although questions may be raised by the findings of isolated studies, it would appear a valid conclusion that higher-level needs tend to operate in the job situation. It is likely that the gravity of these needs will increase as the organizational hierarchy is ascended, i.e., the higher the level an individual occupies, the more emphasis he will place on these needs.

There appears to be ample evidence to suggest that the satisfaction which an individual realizes from his job will likely be greater the more he is granted freedom of action. An individual tends to be more satisfied when he is permitted

In reality, certainly a curvilinear relationship would exist. The extreme of freedom of action would be chaos which would be equally dissatisfying for the employee and for the employer.
the opportunity to exhibit an increasingly wider range of behavior in his job. There would appear to be measurably less satisfaction associated with jobs which possess the characteristics of mass production. It seems that repetition, mechanical pacing, and related conditions tend to thwart the individual's development of his aptitudes.

Studies which involve the simulation of varying degrees of structure invariably display direct positive relationship between the restriction of the individual's range of behavior and his performance. The phenomenon is likely explained by the reduction of task-irrelevant activities. These findings have been replicated in the industrial setting where the manipulation of job content provides a means to display the effectiveness associated with limiting the individual's role in the production process. On the other hand, the possibility of the factor of ego-involvement acting as the mediating variable between job content and individual effectiveness
is sufficient to warrant further research.

There is, by no means, a consensus as to the relationship between individual effectiveness and satisfaction. The most that can be said is that there is much evidence to support any position one would choose to take. There are a number of studies which report no correlation and an equal number which report both positive and negative correlations. It is left to the researcher to present the logic of his hypothesis.

There is some evidence, however, that individual effectiveness tends to vary with the intensity of the individual's needs. Where these variables are measured, although seemingly small elements of larger studies, a positive correlation has invariably been reported. This relationship, while not applying directly to the hypotheses under study, will be tested here.
CHAPTER IV

METODOLOGY

Chapter perspective

In this chapter, the nature of the setting for the study and the composition of the sample will be identified. A description of the requirements of the jobs from which the subjects were selected will be provided. Particular emphasis will be devoted to an explanation of the method of measuring the variables under study, i.e., the development of the questionnaire. Finally, a discussion of the sampling procedure and of the tests of the hypothesized interrelationships will be presented.

Setting for the study

The study was conducted at the Columbus Works of the Western Electric Company. Western Electric is the manufacturing arm of American Telephone and Telegraph. The primary function of the company is the production and distribution of telephone
and associated communications equipment to the Bell System. The company employs some 175,000 people and has eight manufacturing locations in the Midwest and eastern states.

At the Columbus Works, there are approximately 7,000 employees, of which about 5,500 are line workers. The plant was established in Columbus 9 years ago. In this time it has become the center for the production of electronic switching systems which make direct long distance dialing possible. The physical facilities are quite modern and show the results of the company's preoccupation with the problems of plant layout and work flow.

The process is one of continuous manufacturing with a number of production and assembly lines serving as the bases for the intermediate stages of the product's manufacture. Due to these conditions, a high degree of specialization can be observed. In this connection, a large number of jobs possess the single requirement of an acceptable gross dexterity score. This accounts largely for the fact that 30 percent of line workers are female.
Nature of the sample

Participants for the study were selected at random from the company's personnel rolls. Each employee at the Columbus Works is assigned an "E-number" upon his initial employment with the organization. Approximately 9800 "E-numbers" have been issued to date. This being the case, a four-digit random numbers table was supplied to the personnel department. Employees whose E-numbers corresponded to those in the table were selected as subjects.

While the employees were selected at random, the selection procedure was continued until 17 subjects had been obtained from each of ten job classifications. The job classes were (1) vertical unit assembler, (2) cableformer, (3) press operator, (4) wireman, (5) stock selector, (6) inspector, (7) tester, (8) welder, (9) toolmaker, and (10) maintenance man. These jobs were selected on the basis of descriptions provided by supervision
and the industrial engineering department. The criterion for inclusion was solely the degree of behavioral job structure. It was hoped that the structure scores obtained for occupants of these positions would be well distributed. This proved to be the case.

Of the 175 employees selected for the sample, approximately 29 percent were female. The female workers were well dispersed among the first seven categories; but, as one might expect, there are no women involved in welding, toolmaking, or maintenance. Ages of the subjects ranged from 21 years to 53 years, with an average of 35 years. The shortest company service was 7 months and the longest, 8 years, with an average of approximately 3 years, 4 months.

Method of measurement

In order to test the hypothesized inter-relationships between behavioral structure, individual need satisfaction, and individual effectiveness, a quantification of these variables was undertaken.
Inasmuch as structure and satisfaction, as viewed by Argyris, McGregor, et al. are, for the most part, perceptually defined, the individual worker can be the only judge of the nature of his job and the satisfaction of his needs. Personal interview was eliminated as an alternative not only for economic reasons but also for the complexity which it would introduce in interpretation.

The simple measurement of the need satisfaction experienced by the individual would not be sufficient. Certainly a given score for need satisfaction cannot be the sole indicator of the motivational state of each individual receiving such a score. In light of the findings of Peck and Parsons, noted in the previous chapter, consideration should also be given to the intensity of the needs. For example, two individuals may report similar levels of satisfaction with their work: however, in one case, the level of satisfaction may be acceptable, while in the other case, the individual may possess a need intensity
in excess of such a level of satisfaction. It seems clear that a valuable supplement to the measures of need satisfaction would be those of need intensity and of the discrepancies between these measures. Likert's technique for measuring individual attitudes and perceptions is particularly adaptable to this task.

**Questionnaire formulation.** Likert's questionnaire is composed of a number of items to which the respondent is asked to indicate the degree to which he "endorses" the item. Typically, the "degree of endorsement" ranges from strongly agree to strongly disagree. These qualitative judgments are scored. For example, the response could be scored from 1 to 5, with 1 representing the extreme pro answer and 5, the extreme anti.

A modified version of Likert's questionnaire was employed in this study. The subjects were presented with a number of items which were to be

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assessed on the basis of, first, their importance to the individual and, second, the accuracy of their description of the individual's present job. These items are one-word descriptive adjectives referring to the individual's job, to his performance of his job, or to the conditions surrounding his job. Forty-eight such items were included in the final questionnaire, eight items to measure each of the 5 higher-level needs and eight items to measure the structure variable. (See Table 1).

Initially, one hundred and forty-seven items were compiled from a number of previous studies including Guion (1965), Porter (1958), Osgood (1953), and Bain (1938). Ten doctoral candidates in the Business Organization Department

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91 Porter, op. cit.
**TABLE 1**

NEED AND STRUCTURE ITEM MEASURES

<table>
<thead>
<tr>
<th>ACHIEVEMENT</th>
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<td>7. challenging</td>
<td>7. harmonious</td>
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<td>8. congenial</td>
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<th>AUTONOMY</th>
<th>RECOGNITION</th>
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<td>5. commendable</td>
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<td>6. praiseworthy</td>
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<td>7. individualistic</td>
<td>7. appreciative</td>
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<th>SELF-ACTUALIZATION</th>
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<td>7. creative</td>
<td>7. uniform</td>
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<tr>
<td>8. exciting</td>
<td>8. formal</td>
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</table>
with Behavior Science minors were employed as judges. They were asked to evaluate each of the original items on the basis of its measurability of any of the five higher-level needs or the structure variable. If the judges thought that an item would not be a measure, they could label it "not applicable". Seventy-eight items were retained on the basis that 8 or more judges agreed as to the item's measurability. In an effort to assure the respondent's understanding of the items, the adjectives were then checked against Buckingham's school grade work lists. Items not appearing in the 6th grade vocabulary of the Free Association Study were eliminated. Sixteen items were eliminated.

In order to obtain scores for both the intensity and the satisfaction of needs, for the sake of consistency, it was felt that the same set of items should be used in each case. That is, in Section 1, the respondent was asked to rate the importance

of each item to him as a quality of any job, his performance of any job, or the conditions surrounding any job which he might undertake. His response was by way of a check mark on a scale graduated from "No Importance" to "Extreme Importance". Responses were then scored from 0 to 8, 0 representing "No Importance," 4 representing "Undecided," and 8, "Extreme Importance". (See example on following page). This would yield one of the eight measures of the intensity of the subject's need for autonomy.

In Section II, the respondent was asked to rate the same items as to the accuracy of their description of his present job, his performance of his present job, or the conditions surrounding his present job. Again, he was asked to check a point on a scale, this time graduated from "Not at All" to "Very Much". Responses were again scored from 0 to 8, 0 representing "Not at All," 4 representing "Undecided," and 8, "Very Much". This would yield one of the eight measures of the subject's satisfaction of his need for autonomy.
AN EXAMPLE OF ITEM SCORING

SECTION I:

independent

No Importance  Little  Undecided  Important  Extreme

Importance

(In this instance, the response would receive a score of 5, or 5 points, on the scale measuring the intensity of the subject's need for autonomy.)

SECTION II:

independent

Not at All  Somewhat  Undecided  Quite  Very

Much

(In this instance, the response would receive a score of 2, or 2 points on the scale measuring the subject's satisfaction of his need for autonomy.)
Likert's system of scoring calls for totaling the scores on the individual items to obtain a measure of the subject's attitude. This method was employed in scoring the questionnaire in this study. For each of the needs, a score from 0 to 64 was obtained for intensity and a score in the same range for satisfaction. In the same fashion, a score from 0 to 64 was obtained for the degree of behavioral structure associated with the respondent's present job. These values provided the bases for calculation of the correlations.

Pretest. The original questionnaire composed of the remaining sixty-two items was administered to two management classes of 35 members at The Ohio State University. Comments and the general reaction suggested the reconstruction of the format, as well as the elimination of several items. A revised questionnaire was then given to two freshman classes in Business Organization. These classes were composed of a number of students of ages comparable to the participants in the study. On this occasion, the response to the questionnaire
indicated a need for more detailed instruction and the inclusion of several example responses. On both of these occasions, the scores for need intensity, satisfaction, and structure (the latter two in the case of those who were employed) provided a good distribution over the range of the scales.

Finally, with the hope of testing the questionnaire with people of comparable backgrounds to those in the sample of the study, the final version, composed of the 48 items, was administered to the members of an introductory business class at a night university in the downtown area. Virtually all of the students whose ages ranged from 20 to 48 years were employed in essentially industrial jobs. A complete understanding of the instructions and of each of the items was indicated. The final questionnaire (Appendix A) was given once more to a second of these classes and, despite constant encouragement for critical evaluation, complete understanding was again indicated.
On both of these occasions, as before, a good distribution of scores for all of the variables was obtained.

**Effectiveness rating.** It was first thought that the most objective measure of an individual's effectiveness, i.e., the degree to which he meets formal performance standards, would be his efficiency rating. Two problems became immediately apparent with this criterion. First, it would be extremely difficult to equitably translate percentages ranging from 50 to 175 on the standard of 100 percent into scores on a scale which would effectively rank the subjects. Secondly, the first line management is of the opinion that the efficiency scores are more a function of the piece rate the manufacturing unit is able to obtain from the industrial engineers than the effectiveness of the workers.

In the light of these conditions, an effectiveness score was obtained for each individual by the use of supervisory rating. Both the immediate supervisor and the department chief of each subject completed an "Employee Effectiveness" rating on the worker (Appendix B). They were first impressed
with the need for objectivity in the rating and for exactness in measuring the individual's contribution in relation to what they knew to be unacceptable, acceptable, and quality performance.

The first-line supervisor and the department chief of each subject were asked to check the point on a scale graduated from "Poor" to "Excellent" which best described the performance of the worker, for example:

As in the case of the questionnaire items, the response was scored from 0 to 3, with 0 representing "Poor," 1 representing "Average," and 2, "Excellent". (In the example above, the individual would receive a score of 7 on the effectiveness scale.) The individual effectiveness score was accomplished by merely totalling the ratings of the supervisor and the department chief. Therefore, for each subject, an effectiveness score in the range, 0 to 16, was obtained.
Data collection

In this study, a primary requirement was the anonymity of each respondent. Since the inter-relationships between the measures of individual effectiveness and those of the other variables were to be tested, a method had to be devised whereby each subject's effectiveness score and his questionnaire responses could be identified and his anonymity still maintained. After the effectiveness ratings were received from the supervisors and department chiefs, each was assigned a number from 1 to 175. The company was provided with one-hundred-seventy-five introductory letters (Appendix A), stamped, addressed envelopes, and questionnaires coded from 1 to 175. An introductory letter, a stamped, self-addressed envelope, and the questionnaire corresponding to the employee's assigned number were sent to his home. He was requested to return the completed questionnaire in the envelope previously addressed to the College of Commerce, The Ohio State University. The original list of names was disposed of after these materials were mailed.
Tests of correlation

For the tests of the interrelationships between scores of behavioral structure and scores of need intensity, need satisfaction, and need satisfaction discrepancy for each of the five higher-level needs, Pearson product-moment correlation coefficients of the form,

\[ r_{xy} = \frac{N \sum xy - \sum x \sum y}{\sqrt{N \sum x^2 - (\sum x)^2} \sqrt{N \sum y^2 - (\sum y)^2}} \]

were calculated. This method for calculating the degree of relationship was also used in testing the interrelationships between the intensity, satisfaction, and satisfaction discrepancy of these needs and the scores of individual effectiveness. In this case, the Pearson technique would seem the most appropriate in view of the

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fact that the data are raw scores and ranking would be too cumbersome with the sample size. Further, the formula lends itself to electronic computation with SCATRAN.

Hypothesis 3 suggests that individual effectiveness will vary inversely with need satisfaction (or positively with need satisfaction discrepancy). In an effort to test this hypothesis fully, it would appear necessary to calculate not only the correlation between effectiveness scores and scores of intensity, satisfaction, and satisfaction discrepancy of the individual needs but also the correlation of the five needs with effectiveness scores. Therefore, multiple correlation coefficients of the form

\[ r = \sqrt{\frac{\beta_1 P_1 + \beta_2 P_2 \cdots + \beta_i P_i}{(\sigma y)^2}} \]

where: \( \beta_i \) = regression coefficients
\( P_i \) = covariance of \( x \) with \( y \)
\( (\sigma y)^2 \) = variance of \( y \)

were calculated for each relationship. The computation of the beta coefficients, the covariance of the effectiveness scores with those of the
intensities, satisfactions, and satisfaction discrepancies of all of the five needs, and the variance of the effectiveness scores were also accomplished by the use of the computer. The SCATRAN program "Multiple Correlation and Regression," (MR-90) is readily adaptable to this task.

Chapter summary

The study was performed at the Columbus Plant of the Western Electric Company which employs approximately 7800 people in the production of telephones and allied communication equipment for the Bell System. The manufacturing process is one of continuous manufacturing centered around several production and assembly lines.

The sample was made up of 175 line workers selected at random from the company's personnel rolls. Seventeen employees were selected from each of ten different jobs which represented varying degrees of behavioral restriction on the structure scale. Twenty-nine percent of the sample were
female. The ages of the subjects ranged from 21 years to 53 years, with an average of 35 years. The average company service was approximately 3 years, 4 months.

In order to obtain a quantification of the variables under study, a questionnaire of the Likert form was developed. A large list of items was compiled from previous research. The items were one-word adjectives describing the individual's job, his performance of his job, or the conditions surrounding his job. From this list, ten judges labeled 78 items as measures of the five higher-level needs. After a check of the school grade vocabulary lists, 62 of the items were retained. On some six occasions, the questionnaire was tested with students of business courses. Revisions were made in instructions and format. The final questionnaire composed of 48 items, 8 measuring each of the five needs and 8 measuring the structure variable, was administered on two occasions to students with comparable backgrounds to those in the sample. On these
occasions, complete understanding was indicated and a good distribution of scores was obtained on all scales.

Measures of the intensities of the higher-level needs would appear to be a valuable supplement to the need satisfaction scores. The questionnaire measures these as well as need satisfaction on a 64-point scale. An individual's score for the intensity or satisfaction of a particular need is obtained by totaling his responses to each of the eight items measuring that need on a subscale ranging from 0 to 8.

Supervisory ratings were used to obtain individual effectiveness scores for the subjects. Certain conditions associated with the local organization and the nature of efficiency ratings prevented more objective measures. The immediate supervisor and the department chief of each subject rated his performance on an 8-point scale. As before, totaling these scores provided an effectiveness measure ranging from 0 to 16 for each participant.
The questionnaires were sent to the homes of the one-hundred-seventy-five employees together with stamped envelopes previously addressed to the College of Commerce, The Ohio State University. In order to assure the anonymity of each respondent, the questionnaires were coded to correspond with a number assigned to each effectiveness rating. The list of the subjects' names was then destroyed.

In order to test the interrelationships between the variables, Pearson product-moment correlation coefficients were calculated. This method was selected due to its applicability with raw scores and the fact that a rank order correlation would have been extremely cumbersome with the sample size. In the case of hypothesis 3, it is suggested that individual effectiveness will vary inversely with the satisfaction of the five higher-level needs. On the basis of Peck and Parsons' research, a positive correlation is suggested between effectiveness and need intensities. The calculation of multiple correlation coefficients was clearly
indicated. The SCATRAN program, "Multiple, Correlation, and Regression," was chosen to carry out the calculations both for its adaptability to the nature of the data and its expediency.
CHAPTER V

RESULTS AND DISCUSSION

Chapter perspective

In this chapter, the data collected in the study are presented and their implications to the hypotheses of the study are discussed. The question of the representativeness of the sample is first explored. Then intercorrelations between the intensities and satisfactions of the five higher-level needs together with those between the discrepancy scores are analyzed. Finally, the correlations found between these and the other major variables of the study, i.e., job structure and individual effectiveness are interpreted.

Representativeness of the sample

Ninety-two of the original one-hundred seventy-five questionnaires were returned, and of these, eighty-three were sufficiently completed to be used in the study. There were no
less than six nor more than nine subjects of the eighty-three employed in each of the ten job categories from which the original sample was selected. Twenty-eight percent of those who returned the questionnaire were female. This corresponds to the proportion which existed in the original sample which was identical to that proportion employed at the Columbus plant. The average age of those responding was 34 years, with a range from 22 years to 51 years. The shortest company service was 10 months and the longest, 8 years, with an average of 4 years, 1 month. These statistics also correspond very well with those of the original sample and of the 7800 persons employed locally by the Western Electric Company.

The job categories from which the subjects were selected were included for the purpose of obtaining an adequate dispersion of scores for job structure. The distribution of these scores is reported in Table 2. Immediate supervisors, in cooperation with Industrial Engineering personnel, ranked the job categories on the basis of job
### TABLE 2
**DISTRIBUTION OF JOB STRUCTURE SCORES**

<table>
<thead>
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</tr>
<tr>
<td>0 - 8</td>
<td>2</td>
</tr>
</tbody>
</table>

Mean: 31.157
Standard Deviation: 12.218

### TABLE 3
**DISTRIBUTION OF INDIVIDUAL EFFECTIVENESS SCORES**

<table>
<thead>
<tr>
<th>Effectiveness Scores</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 - 16</td>
<td>8</td>
</tr>
<tr>
<td>13 - 14</td>
<td>20</td>
</tr>
<tr>
<td>11 - 12</td>
<td>24</td>
</tr>
<tr>
<td>9 - 10</td>
<td>14</td>
</tr>
<tr>
<td>7 - 8</td>
<td>8</td>
</tr>
<tr>
<td>5 - 6</td>
<td>6</td>
</tr>
<tr>
<td>3 - 4</td>
<td>2</td>
</tr>
<tr>
<td>0 - 2</td>
<td>1</td>
</tr>
</tbody>
</table>

Mean: 11.084
Standard Deviation: 2.781
structure as defined in this study. Structure scores for the subjects corresponded perfectly with the expected range for each job category. With a confidence interval of 95.5% and an error estimate of ±.05$, the sample size of 83 proves to be adequate.

The distribution of scores of individual effectiveness is reported in Table 3. The dispersion of these scores is sufficient to permit differentiation in the calculation of correlation coefficients. In order to provide a check on the validity of these scores, the respondents were ranked on the basis of the average of their efficiency scores for the 3-month period prior to the date of the study. With the exception of some five minor displacements, the rankings were identical. Once more, with a confidence interval of 95.5% and an error estimate of ±.05$, the sample size of 83 is adequate.

The distributions of the scores of need intensities, of need satisfactions, and of need satisfaction discrepancies are reported in Tables 4, 5, and 6, respectively. It is readily apparent that
### TABLE 4

**DISTRIBUTION OF INTENSITY SCORES OF FIVE HIGHER-LEVEL NEEDS**

<table>
<thead>
<tr>
<th>Scores</th>
<th>Achievement</th>
<th>Affiliation</th>
<th>Autonomy</th>
<th>Recognition</th>
<th>Self-Actualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>57 - 64</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>49 - 56</td>
<td>27</td>
<td>9</td>
<td>21</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>41 - 48</td>
<td>36</td>
<td>31</td>
<td>25</td>
<td>19</td>
<td>31</td>
</tr>
<tr>
<td>33 - 40</td>
<td>12</td>
<td>31</td>
<td>23</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>25 - 32</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>17 - 24</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>9 - 16</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>0 - 8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Mean**  
Achievement: 45.92  
Affiliation: 40.68  
Autonomy: 41.69  
Recognition: 36.31  
Self-Actualization: 42.10

**Standard Deviation**  
Achievement: 7.53  
Affiliation: 8.4  
Autonomy: 9.3  
Recognition: 10.01  
Self-Actualization: 8.97
### TABLE 5

DISTRIBUTION OF SATISFACTION SCORES OF FIVE HIGHER-LEVEL NEEDS

<table>
<thead>
<tr>
<th>Scores</th>
<th>Achievement</th>
<th>Affiliation</th>
<th>Autonomy</th>
<th>Recognition</th>
<th>Self-Actualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>57 - 64</td>
<td>9</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>49 - 56</td>
<td>13</td>
<td>12</td>
<td>13</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>41 - 48</td>
<td>20</td>
<td>11</td>
<td>19</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>33 - 40</td>
<td>18</td>
<td>23</td>
<td>24</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>25 - 32</td>
<td>12</td>
<td>14</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>17 - 24</td>
<td>5</td>
<td>13</td>
<td>4</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>9 - 16</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>0 - 8</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Mean: 39.82  34.09  37.602  27.867  31.723  
Standard Deviation: 13.05  12.82  12.03  11.91  13.732
TABLE 6

DISTRIBUTION OF DISCREPANCY SCORES
OF FIVE HIGHER-LEVEL NEEDS

<table>
<thead>
<tr>
<th>Scores</th>
<th>Achievement</th>
<th>Affiliation</th>
<th>Autonomy</th>
<th>Recognition</th>
<th>Self-Actualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>57 - 64</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>49 - 56</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>41 - 48</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>33 - 40</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>25 - 32</td>
<td>5</td>
<td>15</td>
<td>13</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>17 - 24</td>
<td>28</td>
<td>20</td>
<td>21</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>9 - 16</td>
<td>47</td>
<td>46</td>
<td>48</td>
<td>46</td>
<td>43</td>
</tr>
<tr>
<td>0 - 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mean | 8.822 | 9.772 | 8.05 | 9.126 | 10.73 |

Standard Deviation | 5.835 | 8.12 | 7.227 | 7.443 | 8.341 |
the variance within the distributions of these scores is of a magnitude to facilitate the display of significant intercorrelations if such exist. It is noted that the largest discrepancy scores are reported for the need of self-actualization which is only surpassed by the achievement need in intensity. Several contemporary organization theorists have questioned the operability of this need with persons occupying nonmanagerial positions.

**Nature of the data**

In order to view the consistency of the scores for need intensities, for need satisfactions, and for need satisfaction discrepancies, intercorrelations between these scores for the five higher-level needs were calculated. The intercorrelations between the need intensities, between the need satisfactions, and between the need satisfaction discrepancies are reported in Tables 7, 8, and 9, respectively.

It is noted that moderately high intercor-

---

96 Sayles, op. cit., pp. 71-74.
TABLE 7

INTERCORRELATIONS BETWEEN INTENSITIES
OF FIVE HIGHER-LEVEL NEEDS

<table>
<thead>
<tr>
<th>Need Intensities</th>
<th>Achievement</th>
<th>Affiliation</th>
<th>Autonomy</th>
<th>Recognition</th>
<th>Self-Actualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td></td>
<td>.335</td>
<td>.574</td>
<td>.645</td>
<td>.695</td>
</tr>
<tr>
<td>Affiliation</td>
<td></td>
<td></td>
<td>.457</td>
<td>.460</td>
<td>.445</td>
</tr>
<tr>
<td>Autonomy</td>
<td></td>
<td></td>
<td></td>
<td>.566</td>
<td>.652</td>
</tr>
<tr>
<td>Recognition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.686</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 8
INTERCORRELATIONS BETWEEN SATISFACTIONS OF FIVE HIGHER-LEVEL NEEDS

<table>
<thead>
<tr>
<th>Need Satisfaction</th>
<th>Achievement</th>
<th>Affiliation</th>
<th>Autonomy</th>
<th>Recognition</th>
<th>Self-Actualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>1</td>
<td>.480</td>
<td>.506</td>
<td>.769</td>
<td>.753</td>
</tr>
<tr>
<td>Affiliation</td>
<td></td>
<td>1</td>
<td>.432</td>
<td>.549</td>
<td>.518</td>
</tr>
<tr>
<td>Autonomy</td>
<td></td>
<td></td>
<td>1</td>
<td>.443</td>
<td>.568</td>
</tr>
<tr>
<td>Recognition</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>.725</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
### TABLE 9
INTERCORRELATIONS BETWEEN NEED SATISFACTION DISCREPANCIES OF FIVE HIGHER-LEVEL NEEDS

<table>
<thead>
<tr>
<th>Need Satisfaction Discrepancies</th>
<th>Need Satisfaction Discrepancies</th>
<th>Self-Actualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>.328</td>
<td>.482</td>
</tr>
<tr>
<td>Affiliation</td>
<td>.326</td>
<td>.165</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.171</td>
<td>.317</td>
</tr>
<tr>
<td>Recognition</td>
<td></td>
<td>.489</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
relations exist between the need intensities and between the need satisfactions. To a lesser extent, the same is true of the need satisfaction discrepancy scores. This is not surprising, for it suggests that the scores for the five need intensities and for the five need satisfactions were rather homogeneous. This is to be expected, for it would be the unusual case if a sufficient number reported great disparity in the intensities or in the satisfactions of these needs. If such were the case, consideration then would have to be given to the prospect of there being an unusual test situation or faulty measurement.

The fact that there are moderately high intercorrelations between the need intensities and between the need satisfactions is not sufficient in itself to exempt the measures from further question. In order to obtain some indication of the ability of the scores to differentiate between the various intensities and satisfactions of the needs, intercorrelations between each of the need intensities

and each of the need satisfactions were calculated. These intercorrelations are reported in Table 10. The highest of these correlation coefficients, .593 (the intensity of the recognition need and its satisfaction) was not sufficient to warrant concern for the possibility that respondents were unable to distinguish between the items.

Correlates of structure

A negative relationship between behavioral job structure and need satisfactions and a positive relationship between behavioral job structure and individual effectiveness were hypothesized in this study. These hypotheses are based substantially on the conclusions of Argyris, McGregor, et al. that the structuring of an individual's job has the effect of prohibiting or restricting his ability to satisfy his higher-level needs. For the purpose of testing these hypotheses, Pearson product-moment correlation
TABLE 10

INTERCORRELATIONS BETWEEN INTENSITIES AND SATISFACTIONS OF FIVE HIGHER-LEVEL NEEDS

<table>
<thead>
<tr>
<th>Need Satisfactions</th>
<th>Need Intensities</th>
<th>Achievement</th>
<th>Affiliation</th>
<th>Autonomy</th>
<th>Recognition</th>
<th>Self-Actualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>.559</td>
<td>.398</td>
<td>.314</td>
<td>.467</td>
<td>.478</td>
<td></td>
</tr>
<tr>
<td>Affiliation</td>
<td>.329</td>
<td>.454</td>
<td>.279</td>
<td>.429</td>
<td>.406</td>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
<td>.462</td>
<td>.362</td>
<td>.421</td>
<td>.392</td>
<td>.505</td>
<td></td>
</tr>
<tr>
<td>Recognition</td>
<td>.427</td>
<td>.440</td>
<td>.336</td>
<td>.593</td>
<td>.430</td>
<td></td>
</tr>
<tr>
<td>Self-Actualization</td>
<td>.566</td>
<td>.401</td>
<td>.418</td>
<td>.459</td>
<td>.512</td>
<td></td>
</tr>
</tbody>
</table>
coefficients and multiple correlation coefficients between job structure and the need intensities, need satisfactions, and need satisfaction discrepancies were calculated. A Pearson $\gamma$ was also calculated between job structure and individual effectiveness.

**Need satisfactions.** If hypothesis 1 be true, negative correlations should exist between scores for job structure and scores for the need satisfactions of the five higher-level needs. As will be noted in Table 1, this did not prove to be the case. Significant positive correlations were found between job structure and the satisfactions of both the achievement and autonomy needs at the .01 level of significance and between job structure and the satisfactions of both the affiliation and recognition needs at the .001 level of significance.

These findings do not, of course, support hypothesis 1. Based on these findings, it does not seem appropriate to adopt the premise that job structure is the satisfaction-inhibiting
### TABLE 11

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENT BETWEEN JOB STRUCTURE AND NEED SATISFACTIONS

<table>
<thead>
<tr>
<th>Need Satisfactions</th>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>0.3085*</td>
</tr>
<tr>
<td>Affiliation</td>
<td>0.4118**</td>
</tr>
<tr>
<td>Autonomy</td>
<td>0.2795*</td>
</tr>
<tr>
<td>Recognition</td>
<td>0.3846**</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td>0.1561</td>
</tr>
</tbody>
</table>

* Significant at $p = .01$

** Significant at $p = .001$
agent that certain contemporary organization theorists have suggested. In view of the extent and the direction of these correlations, the advancement of the antithesis might be entertained. Perhaps line workers are freed by repetition and the associated habit to pursue the satisfaction of their needs for belongingness and independence. Possibly the certainty of job structure reinforces an individual's needs for accomplishment and the recognition of contribution. This is nothing more than conjecture and is not meant as an interpretation of the findings. However, it is interesting to note that Beer (1964) and Stogdill (1965) report similar findings in studies of a wide variety of business organizations. It was found that measures of job satisfaction correlated positively with job structuring.

Need satisfaction discrepancies. The correlations between job structure and need satisfaction

98 Beer, op. cit., pp. 119-123.
99 Ralph M. Stogdill, Managers, Employees, Organizations (Columbus, 0.: Bureau of Business Research, 1965), Monograph 125.
discrepancies are reported in Table 12. Negative correlations were found between job structure and the discrepancy scores for the needs of achievement and affiliation at the .1 and .01 levels of significance, respectively. On the basis of hypothesis 1, positive correlations would have been expected. These findings reinforce those associated with the need satisfaction-structure correlations and strongly suggest the rejection of the hypothesis that job structure will serve to thwart the satisfaction of higher-level needs.

Need intensities. There was no relationship hypothesized between job structure and need intensity; however, correlation coefficients between these variables were calculated for the purpose of comparison with the correlations noted between job structure and need satisfaction. These correlations are reported in Table 13. It is noted that significantly positive correlations were found between the structure variable and the intensities of the needs of achievement, affiliation, recognition, and self-actualization. In as
<table>
<thead>
<tr>
<th>Need Satisfaction Discrepancies</th>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>-.169*</td>
</tr>
<tr>
<td>Affiliation</td>
<td>-.286**</td>
</tr>
<tr>
<td>Autonomy</td>
<td>-.070</td>
</tr>
<tr>
<td>Recognition</td>
<td>-.153</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td>.151</td>
</tr>
</tbody>
</table>

* Significant at p = .1  
**Significant at p = .01
TABLE 13

PEARSON PRODUCT-MOMENT
CORRELATION COEFFICIENTS BETWEEN
JOB STRUCTURE AND NEED INTENSITIES

<table>
<thead>
<tr>
<th>Need Intensities</th>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>0.2527*</td>
</tr>
<tr>
<td>Affiliation</td>
<td>0.3111**</td>
</tr>
<tr>
<td>Autonomy</td>
<td>0.1377</td>
</tr>
<tr>
<td>Recognition</td>
<td>0.2890**</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td>0.3279**</td>
</tr>
</tbody>
</table>

* Significant at \( p = .02 \)
** Significant at \( p = .01 \)
much as no hypothesis was advanced regarding this relationship, no interpretation of the finding will be offered. In any event, it is presented for the purpose of displaying the absence of any pattern of statistical relationships between the variables which might suggest an alternative explanation for the findings associated with the structure-satisfaction and structure-discrepancy relationships.

Finally, multiple correlation coefficients were calculated between job structure and the intensities, satisfactions, and satisfaction discrepancies of the five higher-level needs. These are reported in Table 14. It is noted that 17 percent of the variation in discrepancy scores and 25 percent of the variation in need satisfaction scores are accounted for by the structure variable. While these figures are not overwhelming, they do serve to reinforce the relationships found between the structure variable and the satisfaction of higher-level needs.
### TABLE 14

MULTIPLE CORRELATION COEFFICIENTS BETWEEN JOB STRUCTURE AND NEED INTENSITIES, NEED SATISFACTIONS, AND NEED SATISFACTION DISCREPANCIES

<table>
<thead>
<tr>
<th></th>
<th>Multiple r</th>
<th>$r^2$</th>
<th>F-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need Intensities</td>
<td>.414*</td>
<td>.170</td>
<td>3.17</td>
</tr>
<tr>
<td>Need Satisfactions</td>
<td>.539*</td>
<td>.252</td>
<td>6.37</td>
</tr>
<tr>
<td>Need Satisfaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discrepancies</td>
<td>.436*</td>
<td>.190</td>
<td>3.62</td>
</tr>
</tbody>
</table>

* Significant at $p = .025$
**Individual effectiveness.** Hypothesis 2 stated that individual effectiveness will vary positively with the degree of job structure. In order to test this hypothesis, a Pearson $r$ was calculated between the scores for individual effectiveness and those of job structure. The correlation coefficient between these variables was .1312. This finding does not support the hypothesis that individual effectiveness is enhanced by the imposition of such structuring techniques as methods and procedures. At the .05 level of significance an $r$ of .217 is required with this sample size.

It might be suggested that the reason for the lack of significance is associated with the fact that the structure variable is perceptually defined in this study and that the hypothesized relationship implies a measure of actual job structure. In this connection, it is pointed out that the structure scores obtained by the questionnaire provided a ranking of subjects identical to the expectations of the line and engineering
departments for the ten job categories. It seems clear that little disparity exists between actual and perceived job structuring in this case.

Correlates of effectiveness

Based once more on the theses of Argyris, McGregor, and others, it was hypothesized that, by virtue of the mediating variable of structure, the effectiveness of the individual worker will vary negatively with the satisfaction of the higher-level needs. For the purpose of testing this hypothesis, Pearson product-moment correlation coefficients were calculated between the effectiveness scores and the scores for need satisfactions, need satisfaction discrepancies, and need intensities.

Need satisfactions. If hypothesis 3 is true, significant negative correlations should exist between individual effectiveness and the need satisfactions. These correlations are reported in Table 15. The hypothesis is not supported by these findings. No significant correlation coefficients
TABLE 15

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS BETWEEN INDIVIDUAL EFFECTIVENESS AND NEED SATISFACTIONS

<table>
<thead>
<tr>
<th>Need Satisfactions</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>-.0173</td>
</tr>
<tr>
<td>Affiliation</td>
<td>-.0356</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.0963</td>
</tr>
<tr>
<td>Recognition</td>
<td>-.0724</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td>-.0599</td>
</tr>
</tbody>
</table>
were found. It would have been surprising if significant correlations did exist, for the hypothesized relationship was premised on a negative correlation between the structure variable and need satisfaction which did not prove to be the case.

These findings replicate those of Kornhauser and Sharp (1932), Brayfield and Rothe (1950), Bernberg (1952), and, more currently, those of Stogdill (1965), which have been previously cited. It was found that effectiveness does not correlate significantly (negatively nor positively) with measures of need satisfaction.

**Need satisfaction discrepancies.** Correlation coefficients between the scores for individual effectiveness and those for need satisfaction discrepancy are reported in Table 16. On the basis of hypothesis 3, positive correlations between these variables would have been predicted. The hypothesis is not supported by these findings. To the contrary, a correlation of -.176 (significant at the .1 level) was found between the discrepancy
TABLE 16

PEARSON PRODUCT-MOMENT
CORRELATION COEFFICIENTS BETWEEN
INDIVIDUAL EFFECTIVENESS AND
NEED SATISFACTION DISCREPANCIES

<table>
<thead>
<tr>
<th>Need Satisfaction Discrepancies</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>-.028</td>
</tr>
<tr>
<td>Affiliation</td>
<td>-.030</td>
</tr>
<tr>
<td>Autonomy</td>
<td>-.176*</td>
</tr>
<tr>
<td>Recognition</td>
<td>.0044</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td>.0042</td>
</tr>
</tbody>
</table>

* Significant at p = .1
scores for the autonomy need and those for effectiveness. While the correlation is not at a level of significance preferred by most researchers, the indication is that individual effectiveness may vary directly with the degree to which the individual satisfies his need for freedom and independence. It is also noted that, with the exception of the autonomy need, the correlations between the effectiveness scores and the need satisfaction scores were all negative.

Need intensities. There was no relationship hypothesized between effectiveness and need intensity; however, there was some indication in the previous research that a positive relationship could be expected. The correlations between these variables, which are reported in Table 17, do not support this conclusion. The highest correlation, -.155, is somewhat short of the .1 level of significance; however, it is interesting to note that this relationship between effectiveness and the intensity of the autonomy need is negative. There does not appear to be any obvious reason


TABLE 17

PEARSON PRODUCT-MOMENT
CORRELATION COEFFICIENTS BETWEEN
INDIVIDUAL EFFECTIVENESS AND NEED INTENSITIES

<table>
<thead>
<tr>
<th>Need Intensities</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>0.0091</td>
</tr>
<tr>
<td>Affiliation</td>
<td>0.059</td>
</tr>
<tr>
<td>Autonomy</td>
<td>-0.155</td>
</tr>
<tr>
<td>Recognition</td>
<td>0.070</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td>0.040</td>
</tr>
</tbody>
</table>
for this finding in association with the other relationships which were found. While this be true, it does not seem illogical, in this case, that the demands for interdependence in connection with such work as assembly line production may conflict with the intensity of the individual's need for freedom and independence. This is not offered for interpretation of this finding; however, such an explanation would be consistent with the effectiveness-need satisfaction relationships found.

Lastly, as a supplement to these measures of the relationships between effectiveness and the satisfactions, satisfaction discrepancies, and intensities of each of the higher-level needs, multiple correlation coefficients were calculated between the scores for these variables. Hypothesis 3 implies that the satisfaction of these needs will explain the variance in individual effectiveness. The multiple correlation coefficients reported in Table 13 do not support this hypothesis. None of the relationships proved to be significant.
### TABLE 18

**MULTIPLE CORRELATION COEFFICIENTS BETWEEN INDIVIDUAL EFFECTIVENESS AND NEED INTENSITIES, NEED SATISFACTIONS, AND NEED SATISFACTION DISCREPANCIES**

<table>
<thead>
<tr>
<th></th>
<th>Multiple</th>
<th>F-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need Intensities</td>
<td>.192</td>
<td>.588</td>
</tr>
<tr>
<td>Need Satisfactions</td>
<td>.185</td>
<td>.548</td>
</tr>
<tr>
<td>Need Satisfaction</td>
<td>.197</td>
<td>.629</td>
</tr>
<tr>
<td>Discrepancies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
With 5 and 77 degrees of freedom as in this case, a 2.33 F-value is required at the .05 level of significance. This finding lends support to the conclusion that the null hypothesis is true in this relationship, i.e., there is no reason to believe that anything more than sampling variation is reflected between these variables.
CHAPTER VI
SUMMARY AND CONCLUSIONS

Area of study
The problem to which this study is addressed is the reaction of the individual worker to the structuring of his job occasioned by the demands for efficient operations. The existence of procedures, methods, and standardization would seem to restrict the individual's range of behavior in the performance of his job. In the opinion of some organization theorists, this structuring acts to prohibit the worker's satisfaction of his needs. Specifically, Argyris contends that the organization member works in an environment where (1) he is provided minimal control over his workaday world, (2) he is expected to be passive and dependent, (3) he is induced to perfect the frequent use of a few superficial abilities. He argues that a conflict arises when one considers that the individual is motivated by needs which are diametrically opposed to such conditions. These are: the
need to define for himself the ratio of activity to possibility (autonomy); the need to feel he has the respect of his fellows (recognition); the need to express feelings of interdependence (affiliation); and the need to obtain a degree of creative sufficiency from his job (self-actualization). On the basis of this alleged conflict, Argyris, together with Worthy and McGregor, conclude that the greater the job structure, the less will be the satisfaction of the individual's higher-level needs.

These conclusions regarding the organization member's reaction to job structure have not received the consensus of organization theorists. Sayles contends that no such conflict exists and that, further, the worker possesses the faculty of divorcing the satisfaction of his higher-level needs from the performance of his job. In this vein, emphasis is placed on the operability of transpecuniary motives, i.e., the possession of money, or, rather, what it will buy, may very well serve to satisfy higher-level needs. Still others, of whom Leavitt is the most notable, contend that
each individual brings to his job a unique personality and that there are any number of means by which each individual may satisfy his needs. Some of these methods for satisfying needs may conflict with a structuring of the job environment and others may be quite compatible.

**Hypotheses tested**

Based on the conflict between structure and need satisfaction envisioned by Argyris, McGregor, et al., it was hypothesized that need satisfaction would correlate negatively with job structure. With respect to the efficiency allegedly associated with the structuring of the work situation, it was also hypothesized that individual effectiveness would correlate positively with job structure. Finally, following from these hypotheses, hypothesis 3 stated that individual effectiveness would correlate negatively with need satisfaction.

A review of research indicates that the lack of consensus associated with the theoretical explanation of the worker's reaction to job
structure is true in the case of the findings of related studies. There are a number of studies which have found that an individual tends to be more satisfied when he is permitted the opportunity to exhibit an increasingly wider range of behavior. On the other hand, on the basis of an equal number of studies, no significant relationship was found between these variables. In several current studies, a positive relationship between job structure and certain measures of need satisfaction has been reported.

Most of the studies which have consistently displayed a positive relationship between job structure and effectiveness have been laboratory experiments utilizing communication nets. It seems clear that these results could be explained largely by the inability of group members to communicate task irrelevant information. With these exceptions, once more there is no semblance of consensus on the question of this relationship. Some point to the phenomenon of ego-involvement in explanation of a negative relationship and others argue that the certainty of the structured job will produce a
positive relationship.

The most that can be said for the relationship between need satisfaction and effectiveness is that there is much evidence to support any position that one might choose to take. There are a number of studies which report no correlation and an equal number which report both positive and negative correlations.

**Method of investigation**

In order to test these hypotheses, a Likert-type questionnaire was developed. The questionnaire measured the intensity and satisfaction of five higher-level needs: achievement, affiliation, autonomy, recognition, and self-actualization. Scores for these variables and for that of job structure were obtained by totaling the subject's responses to a set of eight items for each measure. These items were accumulated from such questionnaires used in previous studies. The items included were assessed as measures of the variables under study by ten judges. Those composing the
final questionnaire were retained on the basis of five pre-tests.

The questionnaire was sent to the homes of 175 hourly paid line workers employed in the manufacturing departments of the Columbus Works of the Western Electric Company. Participants were selected at random and equally from ten job categories which were included for the purpose of obtaining dispersion among the job structure scores. An effectiveness rating was made on each participant by his immediate and second-level supervisors. This provided his score for individual effectiveness.

Findings of the study

Ninety-two questionnaires were returned and of these eighty-three were sufficiently completed to be scored. The intercorrelations between the scores of need intensity, need satisfaction, and
the difference between scores, need satisfaction discrepancies, suggested a consistency in the measures. The need intensities and the need satisfactions appeared to be two rather homogeneous groupings which is not an unusual result.

To test hypothesis 1, Pearson product-moment correlation coefficients were calculated between the scores for job structure and those for the need satisfactions of each of the five higher-level needs. Positive correlations, significant at the .01 and .001 levels, were found. These findings were reinforced by significant negative correlations between the structure scores and the scores for the need satisfaction discrepancies. With the calculation of multiple correlation coefficients between these variables, it was found that the structure variable accounted for 19 percent of the variation in need satisfaction discrepancies and 25 percent of the variation in need satisfactions. It seems clear that hypothesis 1 must be rejected. That is, it does not appear that job structure has the satisfaction
inhibiting effect that Argyris and McGregor have suggested.

In the case of the relationship between job structure and individual effectiveness, no significant correlation was found. The hypothesis that individual effectiveness would correlate positively with job structure was not, therefore, supported.

Hypothesis 3 stated that individual effectiveness would correlate negatively with need satisfaction. In order to test this hypothesis, Pearson product-moment correlation coefficients were calculated between the scores for individual effectiveness and the intensities, satisfactions, and satisfaction discrepancies of each of the five higher-level needs. There were no significant correlations found between individual effectiveness and need satisfaction; however, it is interesting to note that with the exception of the need for self-actualization, the direction of the correlations was negative. The relationship between this satisfaction and individual effectiveness was positive and only slightly less than significant at the .1 level.
Only one significant correlation was found between individual effectiveness and the need satisfaction discrepancies. The discrepancy scores for the autonomy need were correlated negatively at the .1 level of significance with individual effectiveness. Based on hypothesis 3, this finding is contrary to expectations. The possibility that a worker's effectiveness may vary directly with the satisfaction of his need for independence and responsibility suggests itself. This level of significance is not as great as most researchers would prefer and an explanation for its occurrence would be little more than conjecture.

As a final check of this relationship, multiple correlation coefficients were calculated between the scores of individual effectiveness and both the satisfaction and discrepancy scores for the five higher-level needs. This test showed the null hypothesis to be true. There was no significant relationship found and it is therefore concluded that the observed correlations were nothing more than sampling variation.
Recommendations

On the basis of the findings of this study, the popular notion that the imposition of procedure, methods, etc., has an inhibiting or restrictive effect on the worker's satisfaction of his higher-level needs is rejected. This conclusion is reinforced by the findings of several current studies which were performed in a variety of organizational settings. While the theories of Argyris and McGregor may commend themselves logically, they are not supported by research testing.

On the contrary, it seems the antithesis would be an appropriate hypothesis for study. That is, it could be hypothesized that the degree to which the worker satisfies his needs will vary positively with the degree of certainty surrounding his job and the degree to which his mental processes are freed by habitual activities. It does not seem inconsistent to suggest that the worker's certainty regarding that which is expected of him in his job which is occasioned by structure, may be a satisfaction producing variable.
For example, in such a job the likelihood of the worker's inability to perceive indications of achievement and recognition would be substantially lessened. In the same sense, it is likely that jobs, wherein the manual demands can be made habitual, serve to permit the worker the opportunity to realize a sense of freedom, of sociability and, possibly, self-actualization.

It is pointed out that this study was performed solely with line workers. While there is no substantiating data, their possession of certain personal characteristics which complement the structuring of their job environments seems quite possible. Such characteristics might include age, educational level, marital status, and family responsibility. In other words, the possibility that need satisfaction varies with job structure, but only in the presence of certain demographic factors cannot be overlooked. If there were any evidence found to suggest such an interaction of these variables in subsequent research, in view of the demands for efficiency of the
industrial organization, recommendations for selection of personnel would be obvious. In the same connection, these findings would seem to indicate that programs of methods improvement, procedures and systems analysis should not be inhibited by the prospect of an automatic unfavorable reaction on the part of the affected personnel.

Based on the relationships found between individual effectiveness and both job structure and need satisfactions, the conclusion that the interaction of these variables is certainly complex and, in all likelihood, not to be explained by oversimplified theses seems warranted. It is noted, however, that in this study, as is typically the case, effectiveness is measured in terms of contribution and is assessed in a fashion to provide some ranking of subjects. The criterion of success for most programs which have the effect of proceduralizing work may be cost savings rather than increased productivity. Although no relationship was found between these variables, possibly the pragmatic businessman could take solace in the
fact that these structuring devices are warranted on the basis of economy. While it does not appear that one could anticipate an increase in effectiveness solely through job structuring, neither need the contrary be expected. If these techniques are then, in some way, satisfaction producing (as is suggested here), certainly a commitment to work simplification, methods improvement, and systems design seems justified.
APPENDIX A

EXPLANATORY LETTER AND QUESTIONNAIRE
Presently, there is a large amount of research being conducted in Columbus business concerns under the direction of members of the Department of Business Organization of the Ohio State University. The purpose of the study for which you have been selected is to obtain job attitudes in the hope of gaining some insight into the problems of job makeup and job design.

You have been selected as a participant purely by chance from your company's personnel roll. We are not interested in your identity in this study. Our concern is solely with your responses to the items on the enclosed questionnaire. Therefore, your participation in this study will be totally anonymous.

In the past several months, this questionnaire has been completed by employees of a number of companies in the Columbus area. On the average, it takes approximately 6 to 8 minutes to complete. Please read the instructions thoroughly before beginning. Do not sign your name. Please return the completed questionnaire in the stamped self-addressed envelope as soon as possible.

Your cooperation and that of the Western Electric Company is greatly appreciated. Thank you.

Very truly yours,

William P. Sexton
Department of Business Organization
The Ohio State University
This study is being conducted in connection with research at The Ohio State University. This questionnaire is being administered for the purpose of determining the attitudes of an individual toward his job. It is hoped that the information obtained will provide some insight into the problems of job makeup and job design.

Each of the descriptive words to the left of the following pages represents a quality of 1) a job itself, 2) performance of a job, 3) conditions surrounding a job.

In the first section, you are asked to rate some of these qualities so far as their importance to you with respect to any job. For example:

<table>
<thead>
<tr>
<th>responsible</th>
<th>No Importance Little Undecided Important Extreme Importance</th>
</tr>
</thead>
</table>

If it were quite important to you that you be given responsibility for the performance of any job that you might undertake, you would probably check a point to the right of the scale where importance is high.

<table>
<thead>
<tr>
<th>compatible</th>
<th>No Importance Little Undecided Important Extreme Importance</th>
</tr>
</thead>
</table>

If it were not of great importance to you that the conditions surrounding a job be compatible, you would probably check a point to the left of the scale where it is of virtually no importance.

In the second section, you are asked to judge the extent to which some of these qualities actually describe your job, your performance of your job, or the conditions surrounding your job. For example:

<table>
<thead>
<tr>
<th>extraordinary</th>
<th>Not at All Somewhat Undecided Quite Very Much</th>
</tr>
</thead>
</table>

If your present job, in your opinion, should not be described by the term, extraordinary, you would probably check a point to the left of the scale where the quality is not present to any great degree in your job.

<table>
<thead>
<tr>
<th>friendly</th>
<th>Not at All Somewhat Undecided Quite Very Much</th>
</tr>
</thead>
</table>

If the conditions surrounding your job were friendly, i.e., the people with whom and for whom you work, you would probably check a point to the right on the scale where the quality is highly descriptive of your job situation. Rate your job on this final quality.

Please do not hesitate to place your check (✓) at any place on the scales. (Even between the tick marks)

Thank you for your cooperation.
SECTION I

A) Indicate with a check (/) on the following scales how important it is to you that any job that you might perform possess the following qualities.

1. challenging | _______,______,________,___ . 1_______
2. outstanding | _______,______t________,______1  . ______|_______|_______|
3. inspiring | _______,______,________,______|______,______j______,_______|
4. impressive | ________|_ _ _ _ _ _ _,_ _ _ _ _ _ _,_______|_ _ _ _ _ _ _,_ _ _ _ _ _|
5. interesting | _______.  I  i  1  _  x I _______|_______
6. meaningful | _______L_ I  i  I  i _____________|______L_ J
7. exciting | _______|______|________,______|______|______|______,_______
8. substantial | _______t _ .  . .  1  i  | ______i  I ______I_______I
9. gratifying | ________1______j________|______|______
10. important | ______I  i  1 ______|______I  j _______I
11. exceptional | ________|______|________i  I ______
12. stimulating | ________|______|________)  1 ______|______|______i  1
13. extraordinary | ________|______|________i  I ______(_______|
14. self-directive | ,  j _ _ _ _ _ _ _ | ________i  _ | ________|_______|
15. commendable | i  | i _ ______
16. constructive

B) Indicate with a check (/) on the following scales how important it is to you that your performance of any job you might undertake possess the following qualities.

11. self-directive | No Importance Little Undecided Important Extreme
14. extraordinary | No Importance Little Undecided Important Extreme
16. constructive

SECTION I
<table>
<thead>
<tr>
<th></th>
<th>No Importance</th>
<th>Little</th>
<th>Undecided</th>
<th>Important</th>
<th>Extreme Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. skillful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. unsupervised</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. fulfilling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. effective</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. responsible</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. praiseworthy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. independent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. imaginative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. free</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. accomplishing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. initiative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. creative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. individualistic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. self-reliant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C) Indicate with a check (✓) on the following scales how IMPORTANT it is to you that the conditions surrounding any job that you might perform possess the following qualities.

<table>
<thead>
<tr>
<th></th>
<th>No Importance</th>
<th>Little</th>
<th>Undecided</th>
<th>Important</th>
<th>Extreme Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>31. friendly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. appreciative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. companionable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION II

A) Indicate with a check (✓) on the following scales the EXTENT to which the qualities to the left describe your present job.

1. extraordinary
   - Not at All
   - Somewhat
   - Undecided
   - Quite
   - Very Much

2. stimulating
   -

3. exceptional
   -

4. procedural
   -

5. important
   -

6. gratifying
   -

7. substantial
   -

8. exciting
   -

9. meaningful
   -

10. interesting
    -
8) Indicate with a check (√) on the following scales the EXTENT to which qualities to the left describe your performance of your present job.

11. impressive
12. inspiring
13. outstanding
14. repetitious
15. challenging
16. systematic

17. self-reliant

18. individualistic

19. creative

20. initiative

21. accomplishing

22. methodical

23. free

24. imaginative

25. independent

26. praiseworthy

27. responsible

28. effective
29. fulfilling

30. unsupervised

31. skillful

32. constructive

33. specified

34. commendable

35. self-directive

C) Indicate with a check (✓) on the following Scales the EXTENT to which the conditions surrounding your present job are described by the following qualities.

36. harmonious

37. compatible

38. sociable

39. orderly

40. amiable

41. approving

42. uniform

43. congenial

44. familiar

45. companionable
<table>
<thead>
<tr>
<th>46. formal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
</tr>
<tr>
<td>Somewhat</td>
</tr>
<tr>
<td>Undecided</td>
</tr>
<tr>
<td>Quite</td>
</tr>
<tr>
<td>Very Much</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>47. appreciative</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>48. friendly</th>
</tr>
</thead>
</table>

Your cooperation is greatly appreciated; thank you.
APPENDIX B

EMPLOYEE EFFECTIVENESS RATING
TO THE SUPERVISOR:

The Department of Business Organization of the Ohio State University has been granted permission to conduct research involving a random sampling of our employees. The purpose of the study is to obtain information on job attitudes and individual employee effectiveness.

One hundred and fifty employees have been selected on a random basis from several job classifications. Each of these employees will receive a questionnaire at a later date from the University. These are strictly confidential and anonymous. In order to insure anonymity the Company will provide the University special performance ratings without names for each of these employees.

Please evaluate the quality of the job performance of ________________.

Check (✓) a point on the scale below which best describes the extent to which he meets performance standards, i.e., his effectiveness. (Do not hesitate to check any point on the scale, i.e., between the tick marks).

[Scale: Poor | Fair | Average | Good | Excellent]

It may be that after the employee receives the questionnaire he will ask you about it. In that case we suggest that you tell him only that you understand the Company has agreed to permit Ohio State University to conduct the study provided the employees' responses are anonymous. In order to avoid misunderstanding please do not make any further reference to the study.

Please return this sheet under private cover to R. G. Klaas by March 21, 1966.

RGK:BAW

R. G. KLAAS - 130
BIBLIOGRAPHY

BOOKS


**PERIODICALS**


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