AN EMPIRICAL STUDY OF MANAGERIAL ASSUMPTIONS CONCERNING HUMAN BEINGS AS WORKERS

by

Wilson Mack Torrence, III

Thesis submitted to the Graduate Faculty of the

Virginia Polytechnic Institute

in partial fulfillment for the degree of

MASTER OF SCIENCE

in

Business Administration

APPROVED:

Chairman, Dr. Irwin Weinstock

Dr. Robert J. Litschert

Dr. Norman L. Brown

June, 1966

Blacksburg, Virginia

TABLE OF CONTENTS

ACKNOWLEDGEMENT

I wish to express my gratitude to those people who helped make this study possible. To those officials in the subject plant, I express my sincere appreciation for their time and interest in allowing me to conduct the study. I am also grateful to the members of the thesis committee, Dr. Irwin Weinstock, Dr. Robert J. Litschert and Dr. Norman L. Brown, for their many valuable suggestions regarding the various mechanical and conceptual problems encountered. Finally, I wish to acknowledge my typist, Miss Amelia Walton, for her work in the typing of the thesis.

LIST OF TABLES

LIST OF FIGURES

Figure

CHAPTER I

INTRODUCTION

Introductory Remarks

There is probably no more pervasive theme in management theory today than participative management. Though it is known by such diverse names as enlightened management, democratic management, multiple management, team management, and Y management, the essence of the concept is simply active and democratic participation of individuals in the management process.

While convinced of the virtue and correctness of participative management themselves, theorists contend that practicing managers continue to cling to authoritarian practices in managing their organizations. In explaining the reason for industry's refusal to cast off authoritarian practices, theorists point to the assumptions that managers make about the nature of human beings. It is claimed that authoritarianism arises from certain negative generalizations or assumptions about human beings. Specifically, it is believed that authoritarian managers consider the average human being to be lazy, unambitious, irresponsible, and money motivated. Theorists, of course, question the validity of these assumptions. They contend that the average human being will put forth adequate effort and accept responsibility if he is given an opportunity to participate in decisions which affect him. Academicians are quick to add that these negative assumptions are predominant among practicing managers and that, consequently, these managers use authority as their prime

managerial tool.

While this criticism is widespread, it is not very clear to which managers the criticism applies or upon what body of evidence it is based. The allegation too often rests upon inferences from observed behavior or certain conversations with managers. As a result, several important questions arise. For example, does the criticism apply to top managers or all managers? Does it apply to old managers, young managers, educated managers, or uneducated managers? Or is there no discernible pattern at all regarding which managers hold what assumptions? These would seem to be serious questions which need to be answered in order to clarify the present situation in the real world. It is toward the clarification of these questions that this study is aimed.

Purpose

The basic purpose of this study is to seek objective answers to the questions posed above. Namely, to investigate the degree to which an actual group of managers display negative or positive assumptions about workers and to determine if factors such as age, education and rank have any effect on assumptions. The study involves the use of a questionnaire administered to a sample group of managers. The questionnaire is constructed within the framework of the X and Y theories of management proposed by Douglas McGregor in his book, The Human Side of Enterprise.[1] McGregor visualizes two extreme sets of managerial assumptions about human nature which he labels the X and Y Theories of management. Theory X includes the following set of negative assumptions

about the average human being:

> 1. The average human being has an inherent dislike of work and will avoid it if he can.
>
> 2. Because of this human characteristic of dislike of work, most people must be coerced, controlled, directed and threatened with punishment to get them to put forth adequate effort toward the achievement of organizational objectives.
>
> 3. The average human being prefers to be directed, wishes to avoid responsibility, has relatively little ambition, wants security above all.[2]

Theory Y, conversely, is the participative theory of management and includes the following set of positive assumptions about the average human being:

> 1. The expenditure of physical and mental effort in work is as natural as play or rest.
>
> 2. External control and the threat of punishment are not the only means for bringing about effort toward organizational objectives. Man will exercise self-direction and self-control in the service of objectives to which he is committed.
>
> 3. Commitment to objectives is a function of the rewards associated with their achievement.
>
> 4. The average human being learns, under proper conditions, not only to accept but to seek responsibility.
>
> 5. The capacity to exercise a relatively high degree of imagination, ingenuity, and creativity in the solution of organizational problems is widely, not narrowly, distributed in the population.
>
> 6. Under the conditions of modern industrial life, the intellectual potentialities of the average human being are only partially utilized.[3]

Using the above scheme as a framework, several multiple choice questions were constructed to form the questionnaire.[4] Responses to these questions are used to rate the respondents on their tendency toward.

X and Y assumptions. A complete explanation of the rating method is given in Chapter III.

The scheme provided by McGregor offers an appropriate framework for this study because it conveniently categorizes the sets of assumptions associated with the extremes of authority and participation. In addition, while other writers may deviate slightly from this set of assumptions, McGregor's categorization is quite representative.

Scope of Study

This study will be conducted with a sample group of production managers in one plant of a large company. As such, the study will be limited in scope since any conclusions can not be generalized to management as a whole. In addition, the managers are being studied only in regard to their assumptions about workers or operating employees and not their assumptions about subordinate managers. This can be justified because theorists themselves refer more frequently to the production situation and production workers than to higher managers. However, it must be emphasized that the criticism of practicing managers is not limited to their assumptions about workers. Consequently, this imposes an additional limitation on the conclusions reached in this investigation since any pattern discovered may or may not hold true in regard to managerial assumptions about subordinate managers. These limitations, however, should not seriously impair the value of the study since very little has been done in the way of research on the subject. This study should be regarded as a first step in trying to answer some of the questions posed previously. In any case, it is hoped that this

study will yield some insights upon which later research can be built.

Some Relevant Research Findings

The only study of which the author is aware that deals specifically with managerial human nature assumptions is an unpublished Master's thesis by Osborne.[5] Osborne's study was conducted in a manner similar to the present one in that it also involved production managers. The data gathered in the investigation led to the conclusion that,"... in the plant studied, age, education, and rank have little effect in determining managerial attitudes and management, as a group, cannot be classified as either Theory X or Theory Y."[6] While these conclusions seem perfectly valid based on the data gathered, there is a great deal of evidence from other relevant studies which strongly suggests that age, education and rank should exert some influence on managerial assumptions. By the same token, this evidence would tend to substantiate Osborne's conclusion that management can not be classified as either Theory X or Theory Y. The studies to be cited involve several different approaches and come from varying areas of research. For example, in regard to the question of whether or not top managers hold different assumptions than lower level managers, insight can be gleaned from several studies on the personality traits of managers.

Henry, in an early study of top executives, found that these executives shared many personality traits in common.[7] Among the common traits were strong achievement desires, strong mobility drives, decisiveness, strong self-structure, activity and aggressiveness, and strong reality orientation. In addition, the study showed that executives

tend to identify strongly with superiors and look upon subordinates as doers of work rather than as people. Coates and Pellegrin offer further evidence to support Henry's results.[8] They found that top executives perceive themselves as possessing the very same traits Henry mentioned. That is, they perceived themselves as dynamic, ambitious, decisive and confident. When asked to evaluate lower level managers, the executives believed that these managers either lacked dynamic personality traits completely or possessed them only to a slight degree. These studies, then, reveal the top executive as a dynamic personality who holds a somewhat condescending view of subordinates. It would seem logical to expect that such an individual might tend to hold negative or X assumptions about workers.

Porter and Henry expanded upon the above research in an attempt to determine whether the personality traits of managers differ from one level to another.[9] They studied managers from several hierarchial levels to discover the degree to which they displayed inner-directed or other-directed personality traits. The results indicate that managers at higher managerial levels tend to possess inner-directed traits such as forcefulness, imagination, independence, self-confidence and decisiveness. The lower level managers, on the other hand, displayed a tendency toward other-directed traits such as cooperativeness, adaptability, cautiousness, agreeableness, and tactfulness. In addition, it was found that the trend toward inner-directed traits was more prevalent among older managers than younger managers, regardless of managerial level. Porter and Henry conclude that the personality traits

possessed by managers change from one level to the next and from one age group to the next.

This study, in addition to substantiating the previous image of executive personality, provides clear evidence that managers of differing hierarchial and age levels possess different personalities. Based on this evidence, it seems likely that the human nature assumptions of these managers would be somewhat different. Further, it seems likely that the top managers and older managers, because of their strong personality traits, would tend more toward X assumptions than would the younger and lower level managers, who are less forceful, more cooperative, and more tactful.

Another question posed previously dealt with whether or not the level of education might be related to managerial assumptions. One excellent study by Lehmann provides evidence suggesting that such a relationship does in fact exist.[10] Lehmann investigated the effect of education on attitude change. The study involved the testing of college students at the beginning and end of their four years at Michigan State University. The results of this study show that student attitudes did definitely change during their four years in college. The students became more flexible, less rigid, and less authoritarian in their attitudes towards others. They became less traditional-value oriented and became more respectful of the views and opinions of others.

Additional evidence of the effect of education on attitudes is provided in a study by Schein.[11] He investigated the change in attitudes which occurred among two groups of students in a graduate business program. One group was composed of the regular M. B. A.

students, while the other group included young business executives enrolled in an intensive one year graduate program. Although Schein's study was concerned with overall attitude, one part of the study is directly applicable to the present study because it concerned faith in workers.

Schein found that there was a significant change in attitudes for both test groups, the change being in the direction of positive or Y assumptions. Thus, these studies strongly indicate that education does affect attitudes toward others and, therefore, it seems logical to infer that those managers with more formal education would hold more positive or Y assumptions about workers.

Another interesting finding emerged from their study. A group of top executives was also tested to determine their attitudes. If one compares their score with that of the young executives before the graduate program, one finds that the younger executives tend to have attitudes a little closer to the Y assumptions than the top executives. While the difference is not large and was not tested for significance, it does clearly suggest that younger managers, more than older managers, tend to hold Y assumptions. This, of course, agrees with the previous finding based on personality trait differences.

In a very relevant research study, Krishna and Hafeez investigated a group of Indian supervisors to determine their attitudes towards employees and production.[12] They found that there were more employee-oriented than production-oriented supervisors. They also found that as age advances and as the supervisors gain more experience, they tend to develop more unfavorable attitudes towards the workers and they become

more production oriented. The study also showed that supervisors drawing higher salaries and having high educational levels show more favorable attitudes towards employees. It is certainly quite reasonable to equate favorable attitudes towards employees with the Y assumptions listed by McGregor. As a result, this study adds to the evidence that the human nature assumptions of managers will vary with factors such as age, education and rank.

Hypotheses

Because of the research findings just presented, it is not necessary to simply speculate on the outcome of this study. Rather, it is now possible to state several hypotheses which are supported by the relevant empirical findings above. Based on this evidence, then, the following hypotheses will be tested:

1. Managers as a group do not hold predominantly X assumptions.
2. Managers of higher rank will tend more toward X assumptions than will managers of lower rank.
3. Older managers will tend more toward X assumptions than will younger managers.
4. Managers without college degrees will tend more toward X assumptions than will those with college degrees.

Outline of Thesis

This chapter has been aimed at providing a broad introduction to the problem to be investigated. Chapter II is devoted to a review of some of the pertinent literature concerning participative management.

Chapter III presents a complete description of the methodology to be used in analyzing the data. Chapter IV is devoted to the presentation of the results while the final chapter includes the conclusions and discussion.

REFERENCES

1. Douglas McGregor, The Human Side of Enterprise (New York: McGraw-Hill Book Company, Inc., 1960), pp. 33-57.

2. Ibid., pp. 33-34.

3. Ibid., pp. 47-48.

4. The complete questionnaire is presented in Appendix A.

5. John Eugene Osborne, Jr., "An Empirical Study of the Effect of Age, Education, and Rank on Managerial Attitudes" (Unpublished Master's Thesis, Virginia Polytechnic Institute, 1966).

6. Ibid., p. 76.

7. William E. Henry,"The Business Executive: The Psychodynamics of a Social Role," The American Journal of Sociology, LIV (January, 1949), pp. 286-291.

8. Charles H. Coates and Roland J. Pellegrin, "Executives and Supervisors: Contrasting Self-Conceptions and Conceptions of Each Other," American Sociological Review, XXII (April, 1957), pp. 217-220.

9. Lyman W. Porter and Mildred M. Henry, "Job Attitudes in Management," Journal of Applied Psychology, XLVIII (Feb., 1964), pp. 31-36.

10. Irvin J. Lehmann, "Changes in Critical Thinking, Attitudes, and Values from Freshman to Senior Years," Journal of Educational Psychology, LIV (Dec., 1963), pp. 305-315.

11. E. H. Schein, "Attitude Change During Management Education," Administrative Science Quarterly, XI (March, 1967), pp. 601-628.

12. K. M. Gopala Krishna and A. Hafeez, "A Study of Supervisor's Attitudes Towards Employees and Production in Relation to Some Personal Factors," Indian Journal of Applied Psychology, I (Feb., 1964), pp. 78-83.

CHAPTER II

REVIEW OF LITERATURE

Introduction

This review of literature is intended to provide a basic exposure to some of the more pertinent writing on the subject of participative management. The chapter should be viewed as an effort to place participative management in its proper perspective rather than a complete summary of all the available literature. At the outset, it should be stressed that participative management can not be considered a completely new concept. Rather, it is more appropriately viewed as an approach which has evolved over time, and which can not be neatly separated from the theories which preceded it. Bennis offers an excellent account of this evolution of managerial thought, and while it is perhaps oversimplified, it adequately describes the essential shifts in thought over time.[1]

Bennis visualizes three basic theoretical approaches to management over time. The first is the scientific management approach, which, according to Bennis, was prevalent from 1910 to 1935. It is from this approach that the so-called classical or X assumptions about human nature arose. The emphasis during the period was upon creating highly efficient and predictable organizational systems within which humans would operate passively. The organizational structure and all specific tasks were precisely planned and people were intended simply to fit into their predesigned roles in a mechanical manner. Or, as Bennis remarks,

"Organizations were viewed...as if they existed without people."[2] Once the tasks were designed and the people were assigned to the tasks, the problem was simply one of providing the authority to assure performance. Over the years, however, it was realized that people did not always behave the way they were supposed to. This fact led some theorists in search for a better managerial philosophy. This search resulted in a new group of theories called the human relations approach and which, according to Bennis, thrived from 1938 to 1950. Human relations theory represented a radical departure from classical theory in that it focused squarely on the importance of the human factor in organizations. Theorists began to recognize the significance of the feelings, attitudes, beliefs, perceptions and sentiments of workers in determining their behavior in the work place. In addition, it was assumed that "man could be motivated to work more productively on the basis of fulfilling certain social and psychological needs."[3] Theorists felt they now had the answer, and this belief spawned numerous fads in human relations practices which eventually proved disappointing. The problem with the human relations approach was that it proceeded on half-truths and incomplete theories. While it took cognizance of human needs, it did so very superficially. It was a naive approach which failed to consider the extremely complex nature of human needs and motivation. Consequently, theorists retreated in disappointment and began again to search for answers. What evolved from the human relations failure was participative management, or as Bennis prefers, the revisionist approach.

Formulation of Participative Management Theory

As mentioned previously, the human relations approach fostered a recognition of the importance of need satisfaction in motivating men to work. Also mentioned was the fact that theorists finally recognized the incompleteness of their understanding of the human need structure. This understanding was provided by Maslow who, at the time, was interested in human need fulfillment only from a psychological viewpoint.[4] In any event, he proposed a need structure which management theorists utilized in formulating the theory of participative management.

Maslow offers the proposition that there are distinct categories of basic needs and that they can be visualized as structured in an overlapping hierarchial fashion, from lower level needs to higher level needs. This hierarchy of needs consists of five categories as follows:

1. Physiological Needs - These are the basic needs such as the need for food, clothing and shelter.
2. Safety Needs - These are the needs involving the protection of one's self from possible dangers. That is, once an individual has acquired the basic needs, he has a need to protect what he has.
3. Belongingness and Love Needs - These needs involve the need to belong to an identifiable group, and the need to form friendships and associations.
4. Esteem Needs - This category of needs deals with the individual's desire to have self-respect as well as the respect of others. It is the need to feel a sense of personal worth

as judged by himself and others.

5. Self-Actualization Needs - This is the need level at which an individual desires to accomplish self-fulfillment or to become everything he is capable of becoming.[5]

Maslow explains that most individuals tend to ascend their hierarchy of needs in an orderly fashion. As one level of needs becomes fulfilled, the next need level is activated and the individual attempts to find ways of fulfilling the newly activated needs. For example, after a man has satisfied physiological needs, the safety needs are activated. Once he feels he is secure from potential danger, he then begins to search for belongingness, and so on up the hierarchy. However, Maslow stresses that more than one level of needs can be activated at the same time so that the pattern of ascendency is not always simple. In addition, it is highly questionable whether the higher level needs of self-actualization are ever completely satisfied. In any event, this explanation of need structure stresses the dynamic nature of need satisfaction, a fact not fully recognized during the human relations period. The human relations theorists tended to regard needs as static. Apparently they did not fully understand the fact that the satisfaction of one need level automatically activates other needs which then can cause frustration if they are not likewise satisfied.

McGregor's thesis on the X and Y Theories of management embodies the need hierarchy proposed by Maslow.[6] He says that while modern organizations do an adequate job of satisfying the lower level physiological and safety needs, they do not generally provide the means

for fulfilling the higher level needs. However, he does not necessarily seek the optimum situation of self-actualization. McGregor only asserts that out of the conflict between individual needs and organizational requirements there can emerge a more mature and healthy resolution of differences. This resolution, he believes, can be accomplished through a true integration of the individual's goals and those of the organization. This integration can come only from Theory Y management since only the Y assumptions lead to the necessary mutual trust between subordinates and superior. This trust will in turn lead to an atmosphere within which collaboration can occur and where subordinates can participate in the decisions which affect them. One of the prime requisites for participation, of course, is the assumption that subordinates can and will exercise self-control. The assumption of self-control is consistent with Theory Y and not Theory X.

McGregor emphasizes that while integration and participation imply a decrease in the use of authority, it by no means eliminates entirely the role of authority. However, authority has limitations, which McGregor states are not recognized by the majority of managers today. In explaining these limitations, McGregor points to the fact that the effectiveness of authority is largely dependent upon the ability to enforce it through punishment. In the past, management had this enforcement ability because it could fire employees quickly if they did not accept authority. It was difficult, in many cases, for workers to find other jobs, and they did not have the power of the labor unions working for them. Thus, they were very dependent upon the organization, and because of this dependence authority was effective. However, over

the years cultural changes have lessened the workers' dependence on any one organization. Workers have strong unions to protect them, and they can much more easily find comparable jobs in other organizations. As a result, McGregor claims that the use of authority as a means of influencing people has diminished in importance and that other means of influence are needed. The other means of influence, according to McGregor, are persuasion and professional help. McGregor believes persuasion is a powerful tool because it involves consultation and group discussion, both of which require subordinate participation. Persuasion, then, involves the concept of selling an idea to subordinates rather than arbitrarily imposing it upon them. Professional help, though similar to persuasion, refers to the influence an expert has with the non-expert such as the relationship between line and staff. McGregor admits that this is and has always been a problem in the modern organization, but he is convinced that professional help will become a powerful tool under Y management.

Thus, McGregor dwells on integration within the organization as a means of enabling the individual to move toward the satisfaction of higher needs while simultaneously contributing positively to the achievement of organizational goals. To accomplish this, of course, McGregor says it is essential that management must alter its present reliance upon the assumptions of Theory X.

Likert arrives at much the same conclusion as McGregor.[7] However, Likert's conclusions are in many respects more formidable than McGregor's because of the extensive amount of empirical research he cites. From the

findings of numerous research studies, Likert discovered that a particular style of supervision seemed to consistently result in better performance in productivity, absence, attitudes, etc. He also discovered that the style of leadership usually is more important in influencing results than such general factors as attitudes toward the company and interest in the job itself. From this knowledge, Likert proceeds to the formulation of a new theory of management based on the leadership patterns found to be most successful in actual practice. This "new theory" is centered around a principle he terms "the principle of supportive relationships," which he explains as follows:

> The leadership and other processes of the organization must be such as to ensure a maximum probability that in all interactions and all relationships with the organization each member will, in the light of his background, values and expectations, view the experience as supportive and one which builds and maintains his sense of personal worth and importance.[8]

Likert goes on to explain what must be done on the part of the individual manager to promote this principle. He maintains that the superior must possess empathy and be able to understand how subordinates perceive his actions and the actions of other organizational policy makers. Likert also emphasizes that the formation of effective work groups is vital in forming a healthy work atmosphere. He reasons that the work group provides a medium where participation can take place and where the supportive principle can operate. That is, through group participation the superior is much more likely to discern his subordinates' attitudes and feelings than if he uses a strictly authoritative approach. Thus, Likert arrives at the same conclusion as

McGregor in regard to participation, albeit in quite a different way. Likert is emphatic in his insistence that the worker's dignity must be protected and that the traditional authority-centered management fails to do this. Thus, like McGregor, Likert is saying that the average human being is not lazy, passive, or irresponsible, and that he will respond favorably when the organization recognizes his need to preserve his dignity and to actively become a part of the organization through participation. Although Likert does not specifically list the human nature assumptions of his new theory, there is little doubt about the similarity of his ideal manager with McGregor's Y manager. This similarity is obvious in Likert's statement that "... [the good superior] shows confidence in the integrity, ability, and motivations of subordinates rather than suspicion and distrust... [and] his confidence in subordinates leads him to have high expectations as to their level of performance."[9]

Argyris offers an argument for participative management which, is, in many respects, similar to McGregor's.[10] He talks at some length about human needs and the modern organization's tendency to stifle these needs. Argyris' basic point is that the organization, because of its authoritative nature, frustrates the individual's desire to satisfy needs and causes him to react in ways inimical to the organization. Argyris concedes that workers display behavior consistent with X assumptions, but he says this behavior is not the fault of the worker but of the organization. He further states that this behavior is not the result of a natural apathy on the part of the worker but, rather, it is the result of blocked channels of need satisfaction.

Argyris makes a strong argument which is in no small part due to his approach. He begins by talking about the nature of the human personality from a purely psychological viewpoint. He says that psychological energy is basic to the human being and that this energy is manifested in individual personality. The fact that this energy is not always translated into the behavior deemed proper by management does not alter the fact that the energy exists. His ideas on energy are summarized in the following statements:

1. All people have psychological energy.
2. Psychological energy is indestructible.
3. The amounts of energy people express vary with their states of mind.
4. If the expression of people's energies is temporarily blocked, these energies will eventually try to find expression in some other way.
5. If the expression of people's energies is channeled ...in directions not equally satisfying, the people will some day try to obtain expression elsewhere.[11]

Thus, it is clear that in his own way Argyris is confirming McGregor's belief that it is not human nature to be lazy and that work or energy is basic to human nature. Following this line of reasoning, Argyris then proposes the idea that the source of this energy is the needs people have, and that the energy is put to work in trying to satisfy these needs. Argyris believes that the psychologically healthy individual ultimately seeks some form of self-actualization and that he is capable of growing psychologically. This is precisely McGregor's point. People have the potential and willingness to grow, to

reach out and exercise self-control and responsibility because they seek to fulfill themselves. Argyris then explains that an individual's needs are related to his total self and that he will always fight to protect the self by exercising certain defense mechanisms. Argyris then makes his basic point that the authoritative organization provides a threat to the individual's struggle up the need hierarchy by not allowing him to fulfill vital needs. The individual's reaction is the defense mechanisms manifested in such ways as work slowdowns, refusal to cooperate and to accept responsibility, etc. Then, the typical manager sees this behavior and because he does not understand the human being, he is led to form X assumptions. The consequence of this line of reasoning is a kind of self-fulfilling prophecy.

Argyris frankly does not claim to have the answers to all the questions, but he is convinced that much improvement is possible through job enlargement and a realistic approach to participative or democratic management. He states that involving subordinates in the organization's problems decreases the subordinate's feeling of apathy and thereby promotes his interest in the organization.

Argyris also stresses the need for changing management's assumptions when he states,"... clearly the basic assumptions of formal organizations, directive leadership, and management controls that 'management is responsible' that 'they know best,' and that 'people are inherently lazy and must be pushed,' must be revamped."[12] Thus, Argyris is clearly in accord with McGregor in his plea for a more realistic set of assumptions about human nature.

McGregor, Likert, and Argyris are undoubtedly the standard bearers of participative management; however, many other theorists join in their condemnation of authority-centered leadership and their corresponding plea for a new theory of management. For example, McMurry writes:

> The autocratic-bureaucratic philosophy is dominant in industry today, despite the protestations of many leaders to the contrary. It is the chief contributor to poor employee morale and the chronic labor trouble which plagues business.[13]

In an article dealing with change in organizations, Moore attributes the proverbial resistance to change among employees to the mistaken assumption, characteristic of Theory X, that people naturally resist change.[14] He denies this is the case. Moore says that people really do desire changes for the better and that they do not mind criticism, providing they can participate in the changes and the criticism. He concludes that the real road to improvement through change is a commitment by management to joint action and participation.

Rosenfeld and Smith echo the indictment of modern management in their statement that, "Most enterprises today are authoritarian in structure and behavior, with the employer-employee relationship being one of total domination by the manager in all phases of work activity."[15]

Rosenfeld and Smith point out that participation is ego involvement and that it allows employees to move toward the satisfaction of the higher human needs such as self-expression, accomplishment, and self-assertion. They also point to the fact that employees will surely be responsive to plans which they have helped formulate, since they have a personal stake in wanting these plans to succeed. The authors conclude

that through participative management, organizations can promote a better integration of the needs and goals of the individual with those of the organization.[16]

This by no means exhausts the list of writers who speak convincingly about participative management. However, it should be clear that the concept of changing organizations from authority-centered management to a more democratic management is widespread in management literature.

Some Doubts and Cautions

As with any theory or group of theories, there are always those theorists who have legitimate doubts and criticisms. Urwick, for example, feels that the whole idea of participative management is really nothing new.[17] He defends the classical approach by insisting that such traditional subjects as span of control and unity of command were never intended to exclude the importance of human beings. While Urwick does not necessarily disagree with letting subordinates participate in problem solving, he does deny that classical theory ignores the individual and his needs.

Newport is in basic agreement with the idea that authoritative management is oppressive and that it blocks individual satisfaction of higher needs.[18] However, he advises caution in proceeding toward the participative approach. He warns that "participative management is not a panacea ..."[19] Newport says that it is erroneous to assume that participative methods will apply in all situations and that some people will simply not respond to democratic procedures. He believes that some

people really do not desire a greater degree of freedom in their organizational lives. However, he emphasizes that these factors should not prevent a cautious and open-minded move toward the participative philosophy.

Schoenfeld voices much the same argument as Newport.[20] He maintains that many people are not particularly interested in advancement or participation. He also offers the possibility that some people might actually prefer authoritative management and that democratic management will probably not work unless people have sufficient knowledge and experience to deal with important organizational problems. He then states that the applicability of participative management is determined by the specific situation in a particular organization, and that the situation is never exactly the same in any two organizations, In addition, there are times, in an emergency for example, when the authoritative approach is better.

Schoenfeld also takes issue with the proposition that authoritative management is necessarily associated with a lack of concern for human feelings. He conducted a study in which supervisors' attitudes toward human relations were tested in two companies, one which appeared to use the authoritarian approach and one which appeared to use the democratic approach. He found that there was no difference between the supervisors in these two companies in their awareness of the importance of good human relations. From these findings, he concludes that authoritarinism does not automatically result in a lack of consideration for the individual and his feelings.

Rosenfeld and Smith issue a warning against false participation and excessive participation.[21] False participation can lead to distrust while too much participation can consume too much time and lead to a loss of true group action. Rosenfeld and Smith agree with Schoenfeld and Newport that cautions must be observed in assuming universal applicability of participative management. They state that:

> The successful implementation of participation is directly related to...the participative ability of the individuals involved... [and] the organizational environment.[22]

They futher warn that the implementation of participative procedures must be accomplished slowly and that the organization must commit itself to a fair trial of the democratic philosophy.

Albrook, in a recent article, alludes to some of the cautions already mentioned.[23] He points to the fact that research studies have not always found participative management successful in actual practice. He claims that the problem with participative theory is that it tends to ignore some of the more realistic aspects of the organizationl environment. For example, the time factor is not the same in every organization, and when time is of the essence, authoritative practices seem to work better in many cases. Another aspect usually ignored, according to Albrook, is that the structure and technology is not the same in every organization, or even within different areas of the same organization. The managerial philosophy, as a result, can seldom be uniform when such differences exist. Another aspect deals with the differences between the people themselves in different organizations. Albrook maintains that research does not confirm the notion that all people are equally receptive to

participation. Thus, Albrook believes that the universal application of the participative concept is neither desirable nor possible. Rather, he suggests that the degree to which participative management can actually be employed depends on such factors as:

1. The importance of time
2. The nature of the task
3. The differences within a large organization
4. The nature of the people
5. The cultural setting
6. The psychological preparation of management
7. The relationship to technology.[24]

Albrook feels that the tendency of participative theorists to ignore these factors is largely due to the theorists long struggle against scientific management and its mechanistic view of man. Consequently, he advocates a real collaboration between the humanists and the quantitative experts in order to arrive at a realistic and workable concept of participative management.

Finally, as if to acknowledge the management theorist's encroachment on the field of psychology, Maslow offers some comments on participative management.[25] Maslow's primary concern is that theorists have accepted as valid his work on motivation and self-actualization while he himself is not completely sure of its validity. He points out that much of his theory comes from clinical work involving neurotic people and that he is unsure about its application to the industrial situation. Further, he acknowledges the fact that no one

really knows the answers to such questions as:

1. What proportion of the population is irreversibly authoritarian?
2. What proportion of the population prefer authoritarian bosses, prefer to be told what to do, don't want to bother thinking, etc.?
3. How many people prefer honesty and how strongly do they prefer it to dishonesty?
4. How lazy are people and under what circumstances and what makes them not lazy?[26]

Thus, Maslow emphasizes great caution because of the uncertainties still surrounding the whole question of human nature.

In spite of his caution, Maslow admits that the available evidence up to now is overwhelmingly in favor of Theory Y. He summarizes his view by stating that:

> ...there is insufficient grounding for a firm and final trust in Theory Y management philosophy; but then I would hastily add that there is even less firm evidence for Theory X.[27]

One extremely important factor about Maslow's view of participative management is his sincere hope that it is a move in the right direction. He is no less critical, for example, than McGregor of the authoritarian practices in organizations. He is convinced there is a better and healthier way to manage people. He simply is unwilling, at this point, to commit himself fully to the participative philosophy as presently theorized.

From this review of literature, it should be clear that the theory of participative management is a dominant force in management thinking today. It perhaps contains the seeds not only of better management procedures, but also of a better society in which man can live within an

organized environment and still achieve some measure of personal fulfillment. It is hoped that this study will provide, in a small way, additional understanding into the complex nature of the problem.

REFERENCES

1. Warren G. Bennis, "Revisionist Theory of Leadership," Harvard Business Review, XXXIX (January-February, 1961), pp. 26-36.

2. Ibid., p. 27.

3. Ibid., p. 28.

4. A. H. Maslow, Motivation and Personality, (New York: Harper and Brothers, 1954), pp. 80-106.

5. Ibid., pp. 80-93.

6. Douglas McGregor, The Human Side of Enterprise (New York: McGraw-Hill Book Company, Inc., 1960).

7. Rensis Likert, New Patterns of Management (New York: McGraw-Hill Book Company, Inc., 1961).

8. Ibid., p. 103.

9. Ibid., p. 101.

10. Chris Argyris, Personality and Organization (New York: Harper and Row, Publishers, 1957).

11. Ibid., p. 25.

12. Ibid., p. 161.

13. Robert N. McMurry, "Man-Hunt for Top Executives," Harvard Business Review, XXXII (January-February, 1954), p. 47.

14. Leo B. Moore, "Too Much Management; Too Little Change," Harvard Business Review, XXXIV (January-February, 1956), pp. 41-48.

15. Joel M. Rosenfeld and Matthew J. Smith, "Participative Management: An Overview," Personnel Journal, XLVI (February, 1967), p. 101.

16. Ibid., p. 101-104.

17. Lyndall F. Urwick, "Have We Lost Our Way in the Jungle of Management Theory," Personnel, XLII (May, 1965), pp. 8-18.

18. M. Gene Newport, "Participative Management: Some Cautions," Personnel Journal, XLV (October, 1966), pp. 532-536.

19. Ibid., p. 534.

20. E. Schoenfeld, "Authoritarian Management: A Reviving Concept," Personnel, XXXVI (January, 1959), pp. 21-24.

21. Rosenfeld and Smith, p. 101.

22. Ibid.

23. Robert C. Albrook, "Participative Management: Time for a Second Look," Fortune, LXXV (May, 1967), pp. 166-70 and 197-200.

24. Ibid., p. 200.

25. A. H. Maslow, Eupsychian Management (Homewood, Illinois: Richard D. Irwin, Inc., and The Dorsey Press, 1965).

26. Ibid., p. 54.

27. Ibid., pp. 56-57.

CHAPTER III

METHODOLOGY

Purpose

The purpose of this chapter is to describe the methodology employed in gathering and analyzing the data used in this study. The chapter includes a description and explanation of the questionnaire used to gather the data as well as the statistical methods used in testing the hypotheses stated in Chapter I.

Collection of Data

As indicated in Chapter I, the data for this study were gathered from a single large plant of a major industrial corporation. The plant studied is located in the southeastern United States and employs approximately 3000 people, who are involved in a highly mechanized production operation.

The management staff in the plant agreed to provide a sample size of 100 managers for the study. Consequently, 100 questionnaires were prepared and distributed in the following manner. Each of the various departments in the plant was given an equal number of questionnaires to be distributed in some random fashion. While it was not possible for the author to oversee the exact distribution procedure within the various departments, it is believed that the questionnaires were distributed on a random basis. Of the 100 questionnaires actually distributed, 96 usable ones were returned and form the basis for this study.

This sample can not be considered a completely random sample in the strict sense of the term since judgement was used in selecting the departments to begin with. It is also possible that completely random selection was not followed within every department, although there is no evidence that this was the case. Thus, the sample is a combination of judgement and random sampling, which means that there is a possibility of some bias. However, it appears that the sample approaches randomness since there is no particular reason to believe that the sample managers were personally selected.

In order to protect the anonymity of the respondents, no personal identification was required on the questionnaires. The respondents were asked only to indicate their managerial rank, approximate age, and the educational level attained. While the actual number of managerial levels in the plant is five, this number was reduced to three in order to achieve adequate sample size in each level. The three managerial levels or ranks are supervisors (first-line managers), shift supervisors (second-line managers), and higher management, which includes levels three through five.

Regarding the categorization of managers by age groups, the questionnaire contained seven age groups consisting of, under 25, 25 to 30, 30 to 35, 35 to 40, 40 to 45, 45 to 50, and 50 and over. These seven groups were combined into four groups consisting of under 30, 30 to 40, 40 to 50, and 50 and over. This decrease in the number of age groups was necessary to assure adequate sample size for each age group. The educational categories similarly had to be combined so that the

only distinction is between those managers with a college degree and those without a college degree. These various categorizations, then, provide the basis for comparisons of the effect of age, education, and rank on managerial assumptions.

The Questionnaire

As previously stated in Chapter I, the questionnaire used in this study was constructed within the framework of McGregor's X and Y Theories of management. The questionnaire consists of eight questions, each of which has five possible responses. The five responses to each question are intended to represent a response scale ranging from extreme X to extreme Y. This scale of responses includes two X responses, two Y responses, and one response, designated as "undecided," which indicates neither X nor Y. Thus, the response pattern for each question may be visualized as a continuum along which lie the various responses as follows:

Symbol	X_2	X_1	N	Y_1	Y_2
Meaning	Extreme X Response	X Response	Neither X nor Y Response	Y Response	Extreme Y Response

The subscripts used above are necessary to distinguish the degree of X or Y from a general X or Y response. For example, regardless of whether a response is X_1 or X_2, it is considered an X response. This means that the total number of X responses is the total of the X_1 and X_2 responses, while the total number of Not-X responses is the total of N, Y_1, and Y_2.

This kind of scale is known as a bipolar rating scale because it represents a continuum from opposite extremes.[1] Among the psychometric methods in which human judgement is involved, rating scales are the most frequently used. While there is no particular magic in using a five-point scale, it seems to be customarily used in studies of this kind. However, the key determinant in choosing the number of responses should always be the degree of discrimination that is required or that is possible. If too few responses are provided, the degree of discrimination on the part of the respondent may not be meaningful. On the other hand, if there are too many responses the respondent may not be able to discern differences between responses, which could result in distortions. For this study a five-point scale is believed to be the best scheme.

The mid-response of "undecided" is used in order to allow the respondent a choice in those cases where he can not make a clear decision between the X and Y responses. By providing this alternative, it is assumed that distortion of results is prevented by not forcing a respondent to choose a response about which he is not completely certain. Thus, the response of "undecided" provides an outlet, so to speak, for those respondents who are not sure which answer to choose.

In order to demonstrate clearly how the questions are constructed and how they relate to McGregor's list of assumptions, one of the questions is presented below with the responses and the appropriate descriptive symbols. The question is as follows:

Which one of the following statements do you most agree with?

X_2 A. It is human nature to dislike work. Therefore, the average

worker will avoid it if he can.

X_1 B. It is human nature to dislike work. However, the average worker believes in "an honest day's work for an honest day's pay," and will give what he considers to be adequate performance.

N C. Undecided.

Y_1 D. Work is as natural as rest or play, and the average worker will avoid only very difficult or distasteful tasks when he can.

Y_2 E. Work is as natural as rest or play, and the average worker wants to do the best job he is capable of doing.

This series of responses is framed around McGregor's X and Y assumptions dealing with the question of whether the average human being has an inherent dislike of work or whether work is as natural as rest or play. Each of the other questions is, in a similar manner, framed around one or more of the X and Y assumptions listed by McGregor.

The symbols listed with the responses are those explained previously, and they indicate the designation assigned by the author to each of the responses. It should be pointed out that while the responses above follow exactly the scale from extreme X to extreme Y, the responses on the actual questionnaire were not so scaled but were presented in varying order. The symbols, of course, were not used in the questionnaire so that the respondents were not aware of the significance attached to any of the responses.

Tabulation of Data

This section is devoted to a discussion of the procedure used to compile and tabulate the raw data derived from the questionnaires. For each sample group considered, the total number of responses falling within each response category is tabulated. This tabulation results in a frequency distribution of responses whose relative frequencies indicate the percentage response for each category. That is, the relative frequencies show what percentage of the total responses are X_1 responses, X_2 responses, etc. The frequency distributions for the various sample groups are presented in tabular form as follows:

	X_2	X_1	N	Y_1	Y_2
Total Number of Responses					
Relative Frequency (Per cent)					

The frequency distributions for the various sample groups are then used as the basis for the statistical analysis which is explained later.

A second method of tabulation is also employed. This method amounts to combining the overall frequencies of each sample group into just two frequencies which are designated X and Not-X. The X category, as explained previously, is the total of the X_1 and X_2 responses, while the Not-X category is the total of the N, Y_1 and Y_2 responses. The purpose of this kind of categorization is to determine whether a particular sample group is predominantly X or not. It should be pointed out that Not-X should not be interpreted as Y since the "undecided"

category is included.

Method of Analysis

The appropriate statistical test for making inferences about frequency distributions is the chi-square test.[2] Two kinds of chi-square tests- the chi-square test of goodness of fit and the chi-square test of independence - are used in analyzing the data in this study.[3] Each of these tests will be discussed in relation to the hypotheses tested.

Hypothesis 1 - Managers as a group are not predominantly X in their assumptions.

If this hypothesis is true, then for the total sample group of managers the percentage of X responses should be no greater than 50%. If the percentage of X responses is greater than 50%, then the hypothesis is rejected and the conclusion must be that the managers are predominantly X.

The chi-square test of goodness of fit is used in testing this hypothesis.[4] The data are tabulated so that there are two response categories, X and Not-X, and, consequently, two frequencies. These two frequencies are traditionally referred to as successes and failures. The purpose of the chi-square test of goodness of fit is to compare the observed frequencies to the hypothesized frequencies to determine how closely they resemble each other. If they are too different the chi-square value will be too large and the hypothesis will be rejected. This test, as are all chi-square tests, is one-tailed since the discrepancy between the observed and hypothesized frequencies can only

be too large and never too small. Since the hypothesis in this case is that the frequency of X responses will be no greater than 50%, the two hypothetical frequencies are 50% and 50%.

Although the acceptance or rejection of the hypothesis is determined by the test just outlined, an additional analysis is made to provide further insight into the response pattern for the group of managers. The response frequencies for each question are shown and the same chi-square test is applied to indicate whether or not the managers answered all questions the same way.

Hypotheses 2, 3, and 4 - High level managers, older managers and managers without college degrees, will tend more toward X assumptions than will lower level managers, younger managers, and managers with college degrees.

In testing these hypotheses there are really two questions to be answered. First, do the percentage responses in each category vary with the particular factor being considered (i.e., age, education, rank). Secondly, if there is variation, is this variation as hypothesized. That is, do older, less educated and top managers tend more toward X assumptions than younger, better educated and lower level managers. If there is no difference in the percentage responses between groups, then the second question becomes automatically known. Or put another way, if the tested groups responded the same way to the scale of responses, then obviously one group is not more X than any other group. However, if there is some difference between groups in their response patterns, then the second question must be answered by

determining whether the variation is as hypothesized.

The first question is answered by the use of the chi-square test of independence. This test compares the frequency distributions of the several samples to determine whether or not they are the same. The principle here is the same as in the test of goodness of fit except that instead of two frequencies there are five. Thus, the chi-square test of independence is aimed toward testing the homogeneity of k sample frequencies each consisting of r categories. The theoretical distribution upon which it is based can be thought of as a multinomial, rather than a binomial, distribution.

If the test of independence indicates no difference between samples, then the hypothesis is rejected. If, on the other hand, the test indicates variation, then the test of goodness of fit is used to determine which sample groups are X and which are not.

Formulas and Computations

For the chi-square test of goodness of fit the statistic is:

$$\chi^2 = \sum \frac{(f - h)^2}{h}$$

where: χ^2 = chi-square

f = observed frequency

h = hypothetical frequency

The computation is accomplished by the following steps:

1. For the sample or sub-sample involved, the frequencies of X responses and Not-X responses are compiled.
2. For each frequency, the value of $\frac{(f - h)^2}{h}$ is computed.

3. The values for each $\frac{(f - h)^2}{h}$ are added together to arrive at χ^2.

4. The computed value of χ^2 is then compared to the 5% critical value for χ^2 to test for significance.

For the chi-square test of independence the statistic is:

$$\chi^2 = \sum^{kr} \frac{(f - h)^2}{h}$$

where: χ^2 = chi-square

f = observed frequency

h = hypothetical frequency

k = number of samples

r = number of categories

The short-cut method of computation is used instead of the above statistic in order to simplify the process. The statistic for the short-cut method is:

$$\chi^2 = (\Sigma n)\left[\frac{R_1}{n_1} + \frac{R_2}{n_2} + \ldots + \frac{R_4}{n_4} - 1\right]$$

where: χ^2 = chi-square

Σn = total number of responses

n = number of responses in each sample

R = a statistic computed for each sample and described by the following equation:

$$R = \frac{f_1^2}{f_{r_1}} + \frac{f_2^2}{f_{r_2}} + \ldots + \frac{f_5^2}{f_{r_5}}$$

where: f^2 = the square of the observed frequencies for the five categories

f_r = the total frequencies of the corresponding categories

The computation is accomplished by the following steps:

1. A contingency table is constructed to show the frequency distribution of the k samples.
2. For each sample, R is computed.
3. The computed R's are then fitted into the short-cut formula to derive χ^2 for the total sample.
4. The computed value of χ^2 is then compared to the 5% critical value for χ^2 to test for significance.

REFERENCES

1. For an extensive discussion of rating scales, see J. P. Guilford, Psychometric Methods (New York: McGraw-Hill Book Company, Inc., 1959), pp. 263-299.

2. For an extensive discussion and explanation of chi-square tests, see Jerome C. R. Li, Statistical Inference I (Ann Arbor; Michigan: Edwards Brothers, Inc., 1964), pp. 443-501.

3. Statistical computations for the various analyses are presented in Appendixes B through E.

4. The u-test for testing proportions could just as easily be used since $u^2 = \chi^2$. For example, see William A. Spurr and Charles P. Bonini, Statistical Analysis for Business Decisions (Homewood, Illinois: Richard D. Irwin, Inc., 1967), pp. 303-311.

CHAPTER IV

PRESENTATION OF DATA

Introduction

This chapter is devoted to a presentation of the findings in regard to the four hypotheses stated in Chapter I. The chapter is divided into sections so that the findings relating to each hypothesis are treated separately. For each hypothesis the data are tabulated in the manner discussed in Chapter III, and, where appropriate, graphical presentation is provided in order to further clarify the meaning of the data. In most cases the sample sizes are not equal and, consequently, the various frequency distributions of responses can be compared only on a relative basis. The curves graphed, then, represent the relative frequencies rather than the absolute frequencies. Each section also includes a brief discussion which is aimed toward explaining the data, the results of the statistical analysis, and the conclusions reached in regard to the hypothesis being tested.

To avoid confusion, it should be pointed out that the sample size in a particular case is not the number of managers but, rather, the number of responses given by the managers. Thus, while the total number of managers tested is 96, the total number of respondents is 768 since there are 96 respondents each making eight responses. For any particular group of managers being tested the sample size is equal to the number of managers (respondents) in that group multiplied by eight.

Finally, the 5% critical chi-square value is used throughout this study in determining statistical significance.

Data Pertaining to the Total Management Group

The data presented in this section deals with the hypothesis that managers as a group do not hold predominantly X assumptions. Table I on the following page is intended to provide an overall view of the questionnaire results. It indicates that the respondents gave large numbers of both X and Not-X responses but very few "undecided" responses. On a total basis, there were more X responses than Not-X responses, which tends to refute the hypothesis about the total management group. The right side of Table I provides a breakdown of X and Not-X responses in terms of percentage. It can be seen that 55.9 per cent of the total of 768 responses fell in the X category as opposed to 44.1 per cent in the Not-X category. The chi-square test of goodness of fit shows that 55.9 per cent is significantly greater than 50 per cent. Therefore, the hypothesis that managers as a group do not hold predominantly X assumptions must be rejected.

While the total number of X responses significantly exceeds the number of Not-X responses, it is quite apparent that this is not true for every question. Table II provides a breakdown of the total X and Not-X responses into the separate questions included in the questionnaire. From this table it can be seen that predominantly X responses were given only on questions 2, 5, 6, 7, and 8. In other words, the

TABLE I

RESPONSES BY QUESTION FOR TOTAL MANAGEMENT GROUP

Question	Number Responding to Each Response					Per cent	
	X_2	X_1	N	Y_1	Y_2	X Response	Not-X Response
1	6	36	2	30	22	43.8	56.2
2	29	30	0	22	15	61.5	38.5
3	3	39	0	54	0	43.8	56.2
4	13	6	3	52	22	19.8	80.2
5	17	51	1	14	13	70.8	29.2
6	0	50	8	38	0	52.1	47.9
7	27	30	1	37	1	59.4	40.6
8	73	19	0	2	2	95.8	4.2
Total	168	261	15	249	75	--	--
Overall per cent	--	--	--	--	--	55.9	44.1

TABLE II

X AND NOT-X RESPONSES BY QUESTION

Question	X Responses		Not-X Responses		Total Number of Responses
	Number	%	Number	%	
1	42	43.8	54	56.2	96
2	59	61.5	37	38.5	96
3	42	43.8	54	56.2	96
4	19	19.8	77	80.2	96
5	68	70.8	28	29.2	96
6	50	52.1	46	47.9	96
7	57	59.4	39	40.6	96
8	92	95.8	4	4.2	96

managers agree, more than they disagree, that the average worker will not exercise self-control, that he is primarily interested in wages and benefits, that he is not capable of exercising a high degree of imagination, ingenuity, and creativity in solving problems, and that he does not like to accept individual responsibility or make decisions. The managers gave predominantly Not-X responses to questions 1, 3, and 4. Thus, they agree, more than they disagree, that the average worker is not by nature lazy, that he is fairly ambitious, and that he can, if given freedom, trust, and a voice in management decisions, offer original and practical solutions to some problems.

Of the five questions to which the managers gave predominantly X responses, the chi-square test of goodness of fit indicates that the X response is significantly greater than 50 per cent only on questions 2, 5, and 8. The interpretation of this is that the managers display strong X tendencies only on the questions dealing with self-control of the worker, the importance of wages and benefits to the worker, and the desire of the worker to avoid making constant decisions on his own.

An apparent contradiction arises with regard to questions 4 and 6, both of which relate to the ability of the worker to offer solutions to problems. To question 4, the managers gave a large majority of Not-X responses, while to question 6, they gave a slight majority of X responses. Thus, on the overall question of whether or not workers possess the ability to contribute to the solution of organizational problems, the managers' assumptions are not clear.

Data Pertaining to Age

The data presented in this section deals with the hypothesis that older managers will tend more toward X assumptions than will younger managers. Table III presents the response patterns of the four age groups in both absolute and relative terms. A comparison of the four frequencies reveals relatively large differences in some of the response categories. The under 30 group displays a rather curious pattern in that these young managers gave relatively few X_2 responses, but quite a large number of X_1 responses. The 30 to 40 group, on the other hand, gave relatively few responses in either X category. The two older groups appear to have responded quite similarly to the scale of

responses as their relative frequencies fit each other closely. The relationship of the four frequency distributions can be seen clearly in Figure 1.

TABLE III

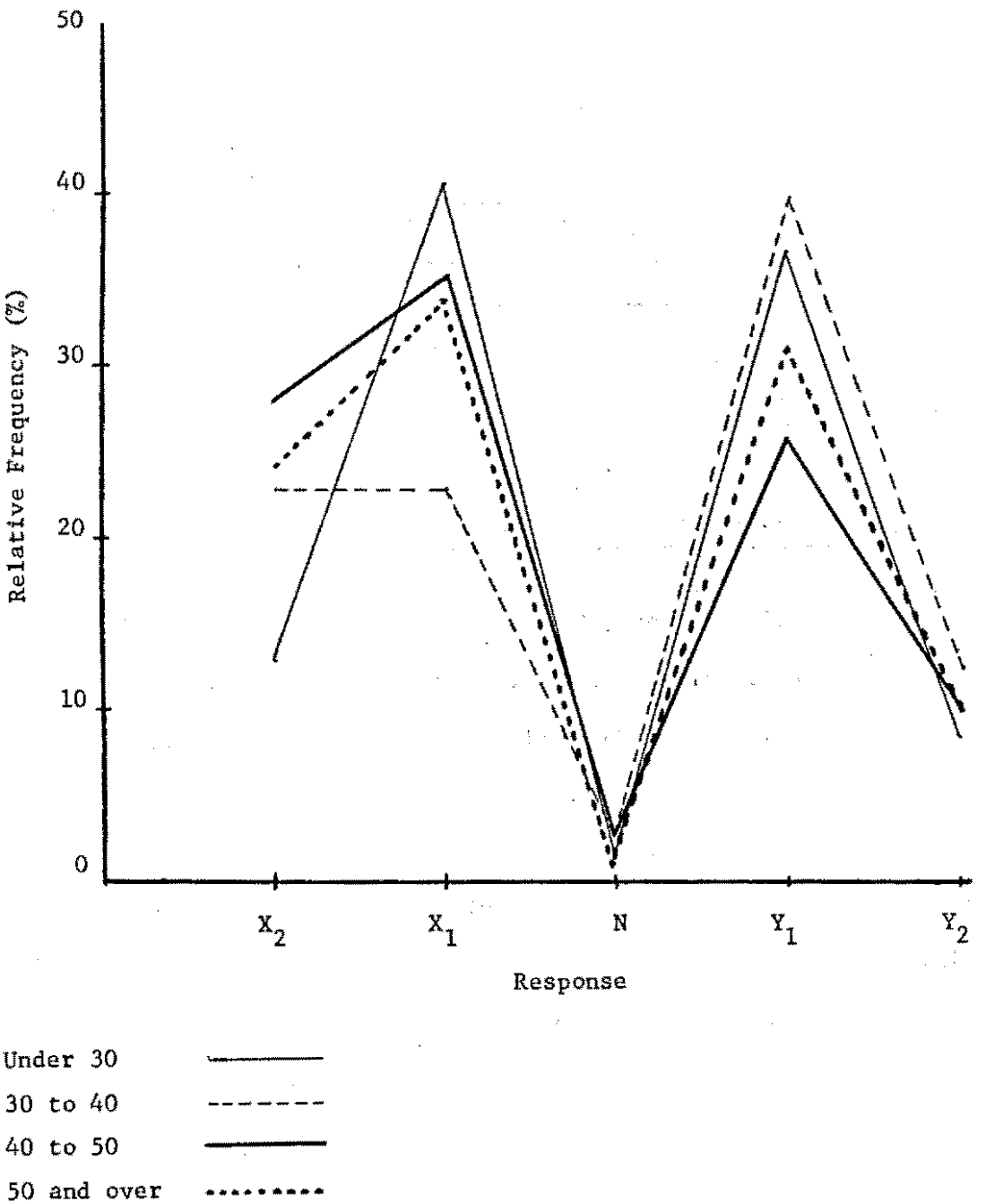
ABSOLUTE AND RELATIVE FREQUENCIES OF RESPONSES BY AGE GROUPS
(Relative Frequencies Expressed as Percentages)

Age Group	Responses				
	X_2	X_1	N	Y_1	Y_2
Under 30					
Number	27	84	4	76	17
Per cent	13.0	40.4	1.9	36.5	8.2
30 to 40					
Number	29	29	3	51	16
Per cent	22.7	22.7	2.3	39.8	12.5
40 to 50					
Number	60	75	5	55	21
Per cent	27.8	34.7	2.3	25.5	9.7
50 and over					
Number	52	73	3	67	21
Per cent	24.1	33.8	1.4	31.0	9.7

The chi-square test of independence shows a significant difference between the frequency distribution of the four age groups. This indicates that the scale of responses for the groups are not all the

FIGURE 1

RELATIVE FREQUENCIES OF RESPONSES BY AGE GROUP



same and that the responses vary with age. In order to determine whether or not the variation is as hypothesized, the test of goodness of fit is applied to each group. The data for this analysis are presented in Table IV. The chi-square test shows that while the

TABLE IV

X AND NOT-X RESPONSES BY AGE GROUP

Age Group	X Responses		Not-X Responses		Total Number of Responses
	Number	%	Number	%	
Under 30	111	53.4	97	46.6	208
30 to 40	58	45.3	70	54.7	128
40 to 50	135	62.5	81	37.5	216
50 and over	125	57.9	91	42.1	216

percentage of X responses for the under 30 group is 53.4 per cent, it is not significantly greater than 50 per cent. Thus, the under 30 group can not be considered X. The 30 to 40 group, of course, is assumed to be Not-X since the percentage of X responses is less than 50 per cent to begin with. The X responses of the two older groups, however, prove to be significantly above 50 per cent. Thus, the data substantiates the hypothesis that age has some effect on managerial assumptions and that older managers will tend more toward X assumptions than will younger managers.

Data Pertaining to Education

The hypothesis relating to education is that managers without college degrees will tend more toward X assumptions than will those with college degrees. Table V shows the absolute and relative frequency distributions of responses for the two educational groups. It is

TABLE V

ABSOLUTE AND RELATIVE FREQUENCIES OF RESPONSES BY EDUCATIONAL GROUPS
(Relative Frequencies Expressed as Percentages)

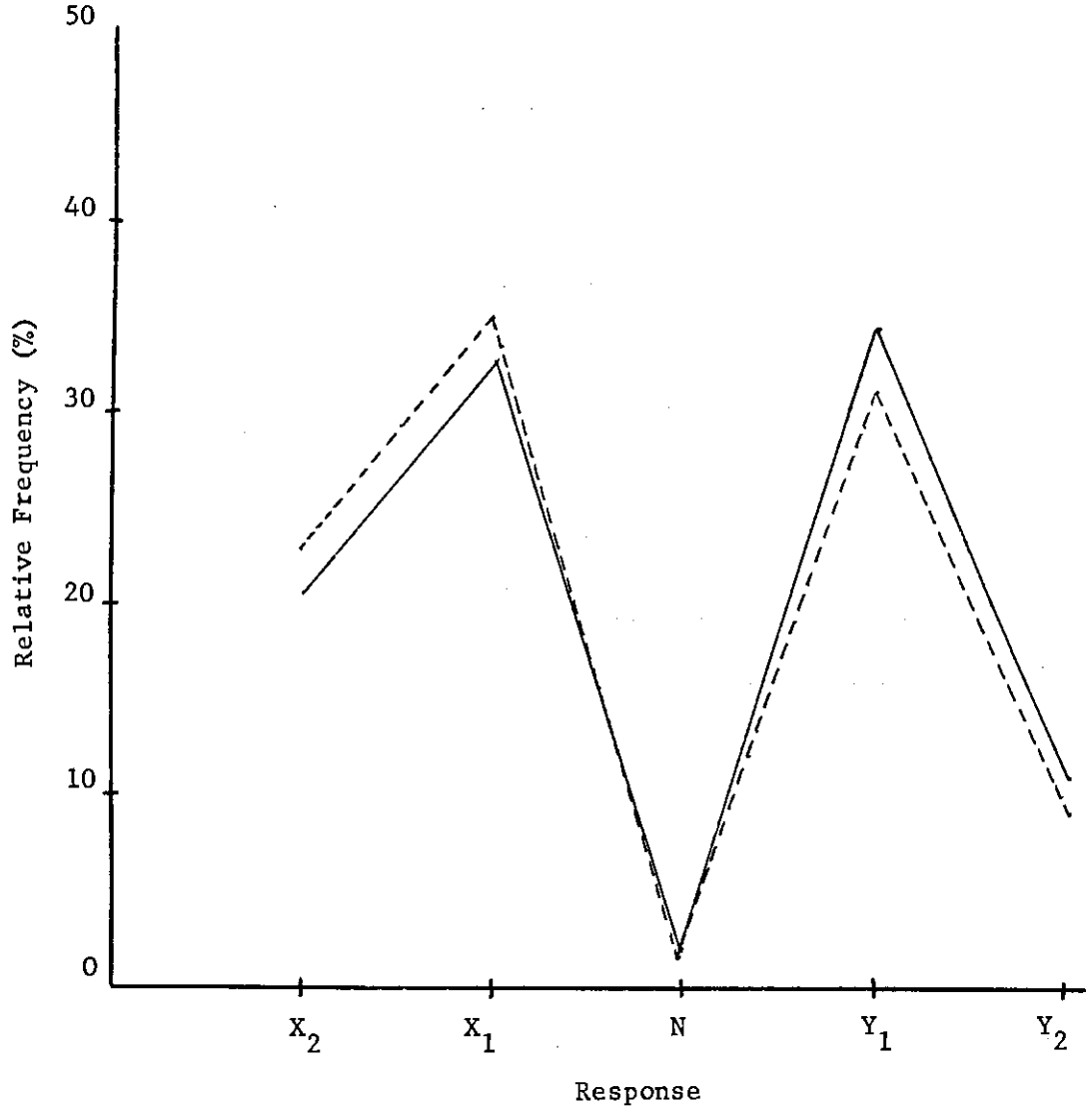
Education Group	Responses				
	X_2	X_1	N	Y_1	Y_2
With Bachelors					
Number	62	99	6	104	33
Per cent	20.4	32.6	2.0	34.2	10.9
Without Bachelors					
Number	106	162	9	145	42
Per cent	22.8	34.9	1.9	31.2	9.1

obvious from this table that the relative frequency distributions of the two groups are quite similar. Figure 2 offers a clear picture of this similarity since the two curves fit closely.

The chi-square test of independence confirms the apparent similarity of the two frequency distributions. The test indicates that there is no significant difference between the response patterns of the two groups. The hypothesis is rejected, and the conclusion is that since there is no variation with education, managers without college degrees

FIGURE 2

RELATIVE FREQUENCIES OF RESPONSES BY EDUCATIONAL GROUP



With Bachelors ————

Without Bachelors - - - - - - -

do not tend more toward X assumptions than those with degrees. It should be pointed out that of the three factors tested in this study (i.e., age, education, and rank), education proves to be the least significant.

Data Pertaining to Rank

With respect to rank, it is hypothesized that managers of higher rank will tend more toward X assumptions than will managers of lower rank. Following the same procedure as before, the absolute and relative frequency distributions of responses are presented in Table VI.

TABLE VI

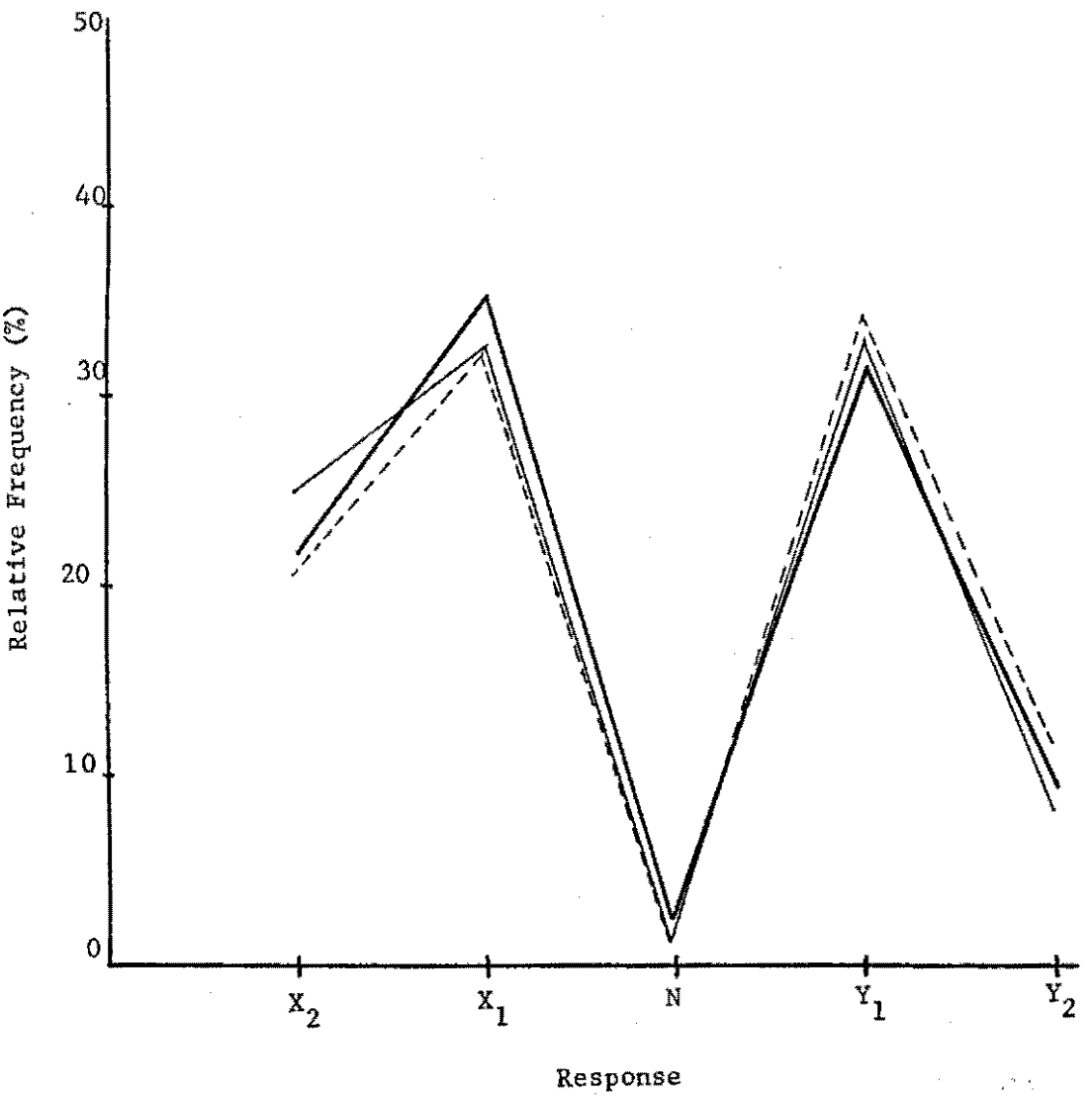
ABSOLUTE AND RELATIVE FREQUENCIES OF RESPONSES BY RANK
(Relative Frequencies Expressed as Percentages)

Rank	Responses				
	X_2	X_1	N	Y_1	Y_2
Higher management					
Number	34	44	2	45	11
Per cent	25.0	32.4	1.5	33.0.	8.1
Shift supervisor					
Number	31	49	2	52	18
Per cent	20.4	32.2	1.4	34.2	11.8
Supervisor					
Number	103	168	11	152	46
Per cent	21.5	35.0	2.3	31.6	9.6

While the three distributions appear quite similar in Figure 3, the higher management group displays a tendency to give more X_2 responses than the two lower ranks. However, the chi-square test of independence does not show significant differences between the responses of the three managerial groups. The hypothesis in this case is rejected. The conclusion, therefore, is that managerial assumptions do not vary with rank and managers of higher rank do not tend more toward X assumptions than managers of lower rank.

FIGURE 3

RELATIVE FREQUENCIES OF RESPONSES BY RANK



CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction

The first part of this chapter includes a summary of the findings presented in Chapter IV. In those cases where the hypothesis was not confirmed, the findings are related to the literature cited previously, and an attempt is made to explain some possible reasons for the rejection of the hypothesis. The remainder of the chapter is devoted to a presentation of conclusions, some additional observations, and some suggestions for further research.

Summary of Findings with Regard to the Total Management Group

With respect to the total management group sampled, it was hypothesized that they would not hold predominantly X assumptions. Consequently, it was expected that no more than 50 per cent of their responses would be X responses. The actual per cent of X responses was 55.9 per cent, which the chi-square test showed to be significantly greater than 50 per cent. The hypothesis, therefore, was not confirmed by the data gathered from the questionnaires. However, it was also discovered that the managers did not give predominantly X responses to every question. There was a majority of X responses only on five of the eight questions included in the questionnaire. The interpretation of these responses in terms of question content is indicated below along with the percentage majority in each case. A majority of X responses to

these questions, then, indicates a tendency for the total managerial group tested to believe that the average worker:

Question 2 - must be directed and controlled because he will not exercise self-control (61.5%)

Question 5 - is primarily interested in economic security (70.8%)

Question 6 - is not capable of exercising a high degree of imagination, ingenuity, and creativity in solving important problems (52.1%)

Question 7 - does not like to accept too much individual responsibility (59.4%)

Question 8 - does not like to be required to make too many decisions himself (95.8%)

The managers gave a majority of Not-X responses to the remaining three questions. Interpreting the responses to these questions in the same manner as above, it appears that the total management group tested displays a tendency to believe that the average worker:

Question 1 - is not by nature lazy (56.2%)

Question 3 - is fairly ambitious (56.2%)

Question 4 - can offer original and practical solutions to some problems (80.2%)

Of the five questions to which the managers gave a majority of X responses, only questions 2, 5, and 8, with 61.5, 70.8, and 95.8 per cent X response, respectively, proved significant. Thus, the group of managers in this study demonstrate a strong tendency toward X assumptions only in regard to the ability of the worker to exercise self-control, the primary

interest of the worker in economic security, and the desire of the worker to avoid making too many decisions.

As pointed out in Chapter IV, there is an apparent contradiction with respect to questions 4 and 6 in that the managers gave a majority of Not-X responses to question 4 and a majority of X responses to question 6.even though both of these questions deal with the ability of the worker to solve problems. However, there is a crucial difference in the phraseology of the two questions. Question 4 stresses original and practical solutions to problems, while question 6 stresses a high degree of imagination, ingenuity, and creativity in solving problems. It is quite conceivable that the managers believe the worker can contribute original and practical ideas, but that this kind of problem solving does not require a high degree of originality, ingenuity and creativity. That is, the managers perhaps believe that a high degree of originality, ingenuity and creativity is not necessary in solving many important problems. The point is that the difference in the responses to these two questions may be a result of the phraseology rather than a contradiction of beliefs.

Another point in regard to these two questions is that while there were more X responses (52.1%) than Not-X responses to question 6, this small majority did not prove to be significant. Thus, from a statistical standpoint the response is Not-X to both questions and there is no contradiction at all. Considering this, then, it seems proper to conclude that the managers do not hold the traditional X assumption in regard to the worker's ability to solve problems.

To recapitulate the findings in regard to the total management group, the question-by-question analysis indicated that the managers gave significant majorities of X responses to only three questions. However, on the basis of total number of responses, the hypothesis that the managers would not hold predominantly X assumptions was rejected.

This hypothesis was based primarily on the findings of Osborne, and Krishna and Hafeez.[1] Osborne, it will be recalled, found that management could not be classified as either X or Y, while Krishna and Hafeez found that there were more employee-oriented than production-oriented supervisors in their study. Why, then, did the findings here indicate that the study group was predominantly X in their assumptions? Part of the answer lies in the criteria used in the different studies. Osborne, for example, based his conclusion on a question-by-question analysis, and he found that the managers in his study did not generally agree that people are basically lazy. On the other hand, they generally agreed that the primary goal of the worker is security, and they neither agreed nor disagreed that workers prefer to avoid individual responsibility. As has been shown, if the same criterion were used in the present study, some of the same findings emerge. For example, in both studies the managers did not agree that the worker is basically lazy. Likewise, they did believe that economic security is the primary goal of the worker. The one difference between the findings of the two studies is the fact that Osborne's managers neither agreed nor disagreed with the proposition that the worker desires to avoid individual responsibility while the managers in the present study tended to agree with the proposition. But

even with this difference, if the criterion here were a question-by-question analysis, the conclusion would have to be much the same as Osborne's.

The study by Krishna and Hafeez can not be explained away on the basis of criteria since their study was conducted in a manner similar to the present study. One possible explanation, however, is the fact that their sample was taken from five plants rather than one. This, of course, suggests that perhaps the plant studied here just happens to contain more X managers than other plants. This, of course, is an acknowledged weakness of any study conducted within a single plant. In addition, it must be pointed out that Krishna and Hafeez conducted their study in India where different cultural factors undoubtedly prevail. These cultural differences may be partially responsible for the lack of agreement between their study and the present findings.

Thus, the essential factor in explaining differences in results probably lies in the criterion used to measure the tendency toward X or Y assumptions. This is a crucial issue which can not be resolved here. What is important to emphasize is that the results of the present study are similar in some respects to Osborne's study even though the criterion used would call for different conclusions.

Summary of Findings with Regard to Age

The hypothesis regarding age was that older managers would tend more toward X assumptions than would younger managers. The frequency distributions of the several age groups were, therefore, expected to be

different. The chi-square test of independence confirmed this hypothesis since it showed that there were significant differences between the response patterns of the managers based on age. Further, the chi-square test of goodness of fit applied to each age group confirmed that the older managers tended more toward X assumptions than the younger managers. Thus, the hypothesis regarding age was confirmed by the data in the study.

Summary of Findings with Regard to Education

With respect to education, the hypothesis was that managers without college degrees would tend more toward X assumptions than those managers with college degrees. Thus, it was expected that the frequency distributions of the two groups would differ from each other. The chi-square test of independence, did not confirm this hypothesis, and the findings show that education is the least significant of the factors tested. The lack of any difference in responses based on education is especially surprising, both from the evidence cited and from a common sense standpoint. This hypothesis was based primarily on the evidence in studies by Schein and Lehmann. Both studies strongly suggested that education would have some effect on managerial assumptions. However, if these studies are reexamined some possible explanations for the present findings can be found.

For example, in Schein's study the subjects were all enrolled in a graduate program in Business Administration where, undoubtedly, they were exposed to courses dealing with participative management theory. This,

of course, is not true of the managers tested in this study. It is highly conceivable that Schein's results are not entirely applicable since the educational content was of a particular kind, dealing probably with some of the very things tested. That is, while Schein's study may be valid for the typical M.B.A. curriculum, it may not be valid in regard to other curricula, such as engineering. In fact, this very idea of differences in managerial philosophy resulting from differing educational backgrounds is presented by McMurry.[3] He believes that engineers and accountants, for example, are thing-minded people and that authoritative leadership is especially appealing to them because it emphasizes exactness and well-defined procedures. If McMurry is correct, it would certainly help explain why education was not a significant factor in this study. Interviews with personnel officials in the subject plant revealed that the majority of the managers with college degrees possess technical educational backgrounds.

Lehmann's study might also be questioned. He found that the attitudes of college students did change from their Freshman to Senior years. However, he did not use a control group to determine if attitudes of non-college people of the same age changed also. In view of this, it could well be that the attitudes of people change during these college-age years regardless of whether or not they happen to be in college. If this were the case, then it might provide an explanation of why no significant difference was found between the two educational groups tested in this study.

Summary of Findings with Regard to Rank

With respect to rank, it was hypothesized that higher level managers would tend more toward X assumptions than lower level managers. The data did not support this hypothesis. The chi-square test of independence showed that the frequency distributions of the three managerial levels tested were not significantly different to justify acceptance of the hypothesis.

This hypothesis was based on the findings of Porter and Henry in regard to the personality traits of managers.[4] It will be recalled that they found that the personality traits of managers differed from level to level in the managerial hierarchy. The top level managers seemed to possess certain inner-directed traits, while the lower level managers possessed other-directed traits. It was inferred in Chapter I that these other-directed traits, such as cooperativeness, adaptability, cautiousness, and agreeableness, would indicate Y assumptions. Or phrased differently, it was assumed that "other" in other-directed included subordinates. However, another interpretation might be given. That is, the lower level managers might be agreeable and cooperative with superiors rather than with subordinates, and they may be adaptable to the organizational needs rather than the needs of their subordinates. Also, the trait of cautiousness may result in the acquiescence of the lower level managers to the authoritative philosophy of top management. If this interpretation is valid, it could mean that lower level managers seek to conform and that they will actually reflect the assumptions held by their superiors. Whatever the reason, the findings in this study

indicate that rank is not a significant factor in determining managerial assumptions about human nature.

Conclusions

The stated purpose of this study was to determine the degree to which an actual group of managers displayed negative or positive assumptions about workers and to determine if factors such as age, education, and rank have any effect on managerial assumptions. It can be concluded that, in the plant studied, age has a significant effect on managerial assumptions about workers, but that education and rank do not. In regard to management as a group, it can be concluded that the managers in the plant studied do hold predominantly X assumptions. This last conclusion must be qualified somewhat. The managers are predominantly X only in the sense that as a group they responded more frequently to the X responses than they did the Not-X responses. The conclusion is based only on this criterion and, as such, it is certainly open to controversy. In stating this conclusion the author does not mean to imply that the managers studied are predominantly X in the way that McGregor visualizes it. The findings simply indicate a discernible and significant tendency on the part of the managers to give more X than Not-X responses on a total basis.

Some Observations

The conclusions reached in this study lead to some rather perplexing observations. The first of these observations relates to the whole matter of measuring managerial assumptions. McGregor's scheme of X and Y

assumptions, for instance, appears to be inadequate and oversimplified since managers seem to agree with some of the assumptions and disagree with others. As was previously mentioned, in both Osborne's study and the present one managers did not agree with the proposition that it is human nature to dislike work but did agree that economic security is all important to the worker. It could be that the X assumptions listed by McGregor do not quite fit the actual pattern of assumptions in the real world. In fact, McGregor himself acknowledges this possibility in a later work.[5] He says that the X and Y Theories are not the only sets of human nature beliefs. Rather, he says that these two sets of assumptions are only examples of many possible patterns and that the question of how many different kinds of theories exist is a matter for empirical investigation. The findings here certainly indicate that this scheme is more in line with reality. Thus, perhaps one of the most important conclusions to be drawn from this study is that the original McGregor model is much too simple and that in reality the assumptions can not be so neatly packaged.

Another observation is that it is a difficult task to design a completely accurate method of testing managerial assumptions. Certainly the questionnaire used in this study is not without fault. One can never be sure, for example, that rating scales are sufficiently balanced or that the questions are completely understood by the respondents. Thus, in any study employing questionnaires there is always some error built in, and this points to the extreme complexity of measuring the assumptions of managers in the real world.

A final observation deals with the matter of the interaction of factors in influencing the assumptions managers hold about workers. In this study, age, education, and rank were treated separately. However, is it not possible that age and education together, or rank and age together could affect managerial assumptions? This interaction could very well help explain why rank and education proved insignificant factors in this study. For example, if managers of higher rank do tend to hold X assumptions, this tendency may be offset by the fact that most high level managers have college degrees. Thus, the interaction of factors, if it in fact exists, could very well serve to hide the effect of any one factor. Unfortunately, the amount of data available for this study was not adequate for such a complete analysis of factors.

Some Suggested Areas for Further Work

While it is hoped that the findings in this study do provide some insight into the question of the managerial assumptions about workers, it is obvious that there remain many unanswered questions. Some of these questions have already been alluded to, but will be reiterated here along with other suggestions for further work.

One of the most acute problems emerging out of this study is that dealing with the method of measuring the overall pattern of assumptions of managers. It was pointed out that the criterion used in this study for determining the degree to which managers are X or Not-X in their assumptions seemed to be questionable. It seems very desireable to investigate further the efficacy of using questionnaires in determining

the assumptions of an individual. In addition, it appears necessary to derive some criterion which could be used to determine whether a particular group of managers could be considered X or Y. For example, is it accurate to infer, as was done here, that a majority of X responses indicates a tendency toward X assumptions? Or is it more reasonable to employ a question-by-question analysis as was done by Osborne? Or is the X and Y scheme provided by McGregor just too oversimplified to arrive at any firm conclusion? Whatever the answer, it is clear from the remarks made previously that the analysis used in this study does not appear to be completely satisfactory in arriving at a definitive conclusion. It is suggested, therefore, that this area provides a fertile ground for further research.

Another question which was also mentioned previously is that dealing with the interaction of factors in determining managerial assumptions. It seems quite possible that factors such as age, education, and rank do not work independently of each other. In addition,there are undoubtedly many other factors which enter into the process of influencing people in their human nature assumptions. Thus, this area of research should be exploited in the hope of further understanding the effect of age, education, and rank on management thinking.

While education proved to be an insignificant factor in this study, the possible importance of differences in the various kinds of educational backgrounds was mentioned. In order to better understand the effect of education, it seems imperative to answer the question of whether or not managerial assumptions vary with the particular kind of educational

background. This certainly is a vital question in view of the present trend toward highly technical organizations where top management is characteristically composed of people with engineering and scientific backgrounds.

Finally, although age was shown to be a significant factor in this study, there remain unanswered questions about age. For example, did the assumptions of managers change as they advanced in age, or did today's older managers always hold these assumptions? It is quite possible that managers enter the organization today with different assumptions than they did twenty years ago. In fact, many of the older managers in the subject plant spoke about how the organization had changed since they began and that it was not possible to treat workers the same today as it was possible to do in past years. This point needs clarification. Even if age is the cause of a change in assumptions, the question of why must be answered. In other words, if the assumptions of managers do change with age, it should be determined why this is so.

The answers to all of these questions are very important in gaining a better understanding of the factors at work both within society and the organization which cause people to believe as they do. It is hoped that further research in this area will provide answers to these questions.

REFERENCES

1. John Eugene Osborne, Jr., "An Empirical Study of the Effect of Age, Education, and Rank on Managerial Attitudes," (Unpublished Master's Thesis, Virginia Polytechnic Institute, 1966), and K. M. Gopala Krishna and A. Hafeez, "A Study of Supervisor's Attitudes Towards Employees and Production in Relation to Some Personal Factors," Indian Journal of Applied Psychology, I (February, 1964), pp. 78-83.

2. E. H. Schein, "Attitude Change During Management Education," Administrative Science Quarterly, XI (March, 1967), pp. 601-628, and Irvin J. Lehmann, "Changes in Critical Thinking, Attitudes, and Values from Freshman to Senior Years," Journal of Educational Psychology, LIV (December, 1963), pp. 305-315.

3. Robert N. McMurry, "Man-Hunt for Top Executives," Harvard Business Review, XXXII (January-February, 1954), pp. 46-62.

4. Lyman W. Porter and Mildred M. Henry, "Job Attitudes in Management," Journal of Applied Psychology, XLVIII (February, 1964), pp. 31-36.

5. Douglas McGregor, The Professional Manager (New York: McGraw Hill Book Company, 1967), pp. 79-80.

SOURCES CONSULTED

Books

Argyris, Chris. Personality and Organization. New York: Harper and Row, Publishers, 1957.

Guilford, J. P. Psychometric Methods. New York: McGraw-Hill Book Company, Inc., 1954.

Li, Jerome C. R. Statistical Inference I. Ann Arbor, Michigan: Edwards Brothers, Inc., 1964.

Likert, Rensis. New Patterns of Management. New York: McGraw-Hill Book Company, Inc., 1961.

McGregor, Douglas. The Human Side of Enterprise. New York: McGraw-Hill Book Company, Inc., 1960.

_____. The Professional Manager. New York: McGraw-Hill Book Company, Inc., 1967.

Maslow, A. H. Motivation and Personality. New York: Harper and Brothers, 1954.

_____. Eupsychian Management. Homewood, Illinois: Richard D. Irwin, Inc. and The Dorsey Press, 1965.

Periodicals

Albrook, Robert C. "Participative Management: Time for a Second Look." Fortune, LXXV (May, 1967), 166-170.

Bennis, Warren G. "Revisionist Theory of Leadership." Harvard Business Review, XXXIX (January-February, 1961), 26-36.

Coates, Charles H., and Pellegrin, Roland J. "Executives and Supervisors: Contrasting Self-Conceptions and Conceptions of Each Other." American Sociological Review, XXII (April, 1957), 217-220.

Henry, William E. "The Business Executive: The Psychodynamics of a Social Role." The American Journal of Sociology, LIV (January, 1949), 286-291.

Krishna, K. M. Gopala, and Hafeez, A. "A Study of Supervisors' Attitude Towards Employees and Production in Relation to Some Personal Factors." Indian Journal of Applied Psychology, I (February, 1964), 78-83.

Lehmann, Irvin J. "Changes in Critical Thinking, Attitudes, and Values from Freshman to Senior Years." Journal of Educational Psychology, LIV (December, 1963), 305-315.

McMurry, Robert, N. "Man-Hunt for Top Executives." Harvard Business Review, XXXII (January-February, 1954), 46-62.

Moore, Leo B. "Too Much Management: Too Little Change." Harvard Business Review, XXXIV (January-February, 1956), 41-48.

Newport, M. Gene. "Participative Management: Some Cautions." Personnel Journal, XLV (October, 1966), 532-536.

Porter, Lyman W., and Henry, Mildred M. "Job Attitudes in Management." Journal of Applied Psychology, XLVIII (February, 1964), 31-36.

Rosenfeld, Joel M., and Smith, Matthew J. "Participative Management: An Overview." Personnel Journal, XLVI (February, 1967), 101-104.

Schein, E. H. "Attitude Change During Management Education." Administrative Science Quarterly, XI (March, 1967), 601-628.

Schoenfeld, E. "Authoritarian Management: A Reviving Concept." Personnel, XXXVI (January, 1959), 21-24.

Urwick, Lyndall F. "Have We Lost Our Way in the Jungle of Management Theory." Personnel, XLII (May, 1965), 8-18.

Unpublished Sources

Osborne, John Eugene, Jr. "An Empirical Study of the Effect of Age, Education, and Rank on Managerial Attitudes." Unpublished Master's Thesis, Virginia Polytechnic Institute, 1966.

APPENDIX A

QUESTIONS USED IN THE QUESTIONNAIRE

For each question below, circle the answer (A B C D or E) which comes closest to reflecting your opinion. Please keep in mind that the questions pertain to the average worker and not the unusually good or to the unusually poor operator.

1. Which one of the following statements do you most agree with?

   (A) It is human nature to dislike work. Therefore, the average worker will avoid it if he can.

   (B) It is human nature to dislike work. However, the average worker believes in "an honest day's work for an honest day's pay," and will give what he considers to be adequate performance.

   (C) Work is as natural as rest or play and the average worker will avoid only very difficult or distasteful tasks when he can.

   (D) Work is as natural as rest or play and the average worker wants to do the best job he is capable of doing.

   (E) Undecided.

2. The average worker must be directed and closely controlled by management because he simply will not exercise self-control and self-direction in achieving a good level of performance.

   (A) Agree

   (B) Slightly agree

   (C) Undecided

   (D) Slightly disagree

   (E) Disagree

3. In relation to his job with the company, the average worker is:

   (A) Very ambitious

   (B) Moderately ambitious

(C) Slightly ambitious

(D) Not ambitious at all

(E) Undecided

4. If given freedom, trust, and a voice in management decisions, the average worker can be expected to:

(A) Offer original and practical solutions to important problems.

(B) Offer original but impractical solutions to important problems.

(C) Offer very little in the way of solutions to real problems.

(D) Offer original and practical solutions to minor problems.

(E) Undecided.

5. The average worker:

(A) Will sacrifice some economic security, such as wages and benefits, in order to hold an interesting job which allows self-esteem, commands respect from fellow-workers and management, and offers a chance for growth.

(B) Wants an interesting job, self-esteem, respect from others and growth possibilities, but will not sacrifice wages and benefits to get it.

(C) Is primarily interested in wages and benefits and does not worry too much about the nature of the job or of the relationship with fellow-workers and management.

(D) Expects a reasonable level of economic security, but beyond that he is more interested in the nature of the job, self-esteem, respect from fellow-workers and management than he is in money.

(E) Undecided.

6. To what degree is the average worker capable of exercising imagination, ingenuity, and creativity in the solution of important problems?

(A) High degree

(B) Fairly high degree

(C) Undecided

(D) Fairly low degree

(E) Low degree

7. The average worker:

(A) Wants a challenge and is willing to accept individual responsibility for his performance.

(B) Wants an important job but does not want to accept individual responsibility for his performance.

(C) Does not particularly care about having a challenging job and wishes to avoid as much individual responsibility as possible.

(D) Will actively seek responsibility and a challenging job.

(E) Undecided

8. Although workers frequently gripe about standards and procedures, the average worker would much rather have the standards and procedures well-defined than to be required to make constant decisions and judgments for which he would be held responsible.

(A) Agree

(B) Slightly agree

(C) Undecided

(D) Slightly disagree

(E) Disagree

APPENDIX B

COMPUTATIONS FOR TOTAL MANAGEMENT GROUP

Chi-square test of goodness of fit for total management group (Total number of responses = 768).

Hypothesis: Number of X responses is not greater than 50%.

h (hypothetical frequencies):

X responses = 384

Not-X responses = 384

f (observed frequencies):

X responses = 429

Not-X responses = 339

$$\chi^2 = \sum \frac{(f - h)^2}{h} = \frac{(429 - 384)^2}{384} + \frac{(339 - 384)^2}{384} = 10.54688$$

5% critical value with 1 degree of freedom = 3.84146

1% critical value with 1 degree of freedom = 6.63490

Chi-square test of goodness of fit by question for total management group (Total number of responses for each question=96).

The hypothesis for each question is that the number of X responses is not greater than 50%.

Therefore: h (hypothetical frequencies) = 48 in every case.

In those cases where the X response is less than 50% (i.e., 48), the hypothesis is immediately accepted without testing.

Question 1

f (observed frequencies):

X responses = 42

Not X responses = 54

Not Tested

Question 2

f (observed frequencies):

X responses = 59

Not-X responses = 37

$$\chi^2 = \sum \frac{(f - h)^2}{h} = \frac{(59 - 48)^2}{48} + \frac{(37 - 48)^2}{48} = 5.04166$$

5% critical value with 1 degree of freedom = 3.84146

1% critical value with 1 degree of freedom = 6.63490

Question 3

f (observed frequencies):

X responses = 42

Not-X responses = 54

Not Tested

Question 4

f (observed frequencies):

X responses = 19

Not-X responses = 77

Not Tested

Question 5

f (observed frequencies):

X responses = 68

Not-X responses = 28

$$\chi^2 = \sum \frac{(f - h)^2}{h} = \frac{(68 - 48)^2}{48} + \frac{(28 - 48)^2}{48} = 16.66667$$

5% critical value with 1 degree of freedom = 3.84146

1% critical value with 1 degree of freedom = 6.63490

Question 6

f (observed frequencies):

X responses = 50

Not-X responses = 46

$$\chi^2 = \sum \frac{(f - h)^2}{h} = \frac{(50 - 48)^2}{48} + \frac{(46 - 48)^2}{48} = .16667$$

5% critical value with 1 degree of freedom = 3.84146

1% critical value with 1 degree of freedom = 6.63490

Question 7

f (observed frequencies):

X responses = 57

Not-X responses = 39

$$\chi^2 = \sum \frac{(f - h)^2}{h} = \frac{(57 - 48)^2}{48} + \frac{(39 - 48)^2}{48} = 3.37500$$

5% critical value with 1 degree of freedom = 3.84146

1% critical value with 1 degree of freedom = 6.63490

Question 8

f (observed frequencies):

X responses = 92

Not-X responses = 48

$$\chi^2 = \sum \frac{(f - h)^2}{h} = \frac{(92 - 48)^2}{48} + \frac{(4 - 48)^2}{48} = 80.66667$$

5% critical value with 1 degree of freedom = 3.84146

1% critical value with 1 degree of freedom = 6.63490

APPENDIX C

COMPUTATIONS FOR AGE

Chi-square test of independence for age

$$R = \frac{f_1^2}{f_{r_1}} + \frac{f_2^2}{f_{r_2}} + \frac{f_3^2}{f_{r_3}} + \frac{f_4^2}{f_{r_4}} + \frac{f_5^2}{f_{r_5}}$$

$$R_1 = \frac{27^2}{168} + \frac{84^2}{261} + \frac{4^2}{15} + \frac{76^2}{249} + \frac{17^2}{75} = 59.49$$

$$R_2 = \frac{29^2}{168} + \frac{29^2}{261} + \frac{3^2}{15} + \frac{51^2}{249} + \frac{16^2}{75} = 22.69$$

$$R_3 = \frac{60^2}{168} + \frac{75^2}{261} + \frac{5^2}{15} + \frac{55^2}{249} + \frac{21^2}{75} = 62.68$$

$$R_4 = \frac{52^2}{168} + \frac{73^2}{261} + \frac{3^2}{15} + \frac{67^2}{249} + \frac{21^2}{75} = 61.03$$

Degrees of freedom = $(k - 1)(r - 1) = (4 - 1)(5 - 1) = 12$

$$\chi^2 = (\Sigma n)\left[\frac{R_1}{n_1} + \frac{R_2}{n_2} + \frac{R_3}{n_3} + \frac{R_4}{n_4} - 1\right]$$

$$2 = (768)\left[\frac{59.49}{208} + \frac{22.69}{128} + \frac{62.68}{216} + \frac{61.03}{216} - 1\right] = 27.66336$$

5% critical value with 12 degrees of freedom = 21.0261

1% critical value with 12 degrees of freedom = 26.2170

Chi-square test of goodness of fit for age

The hypothesis for each age group is that the number of X responses is not greater than 50%.

In those cases where the X response is less than 50% the hypothesis is immediately accepted without testing.

Under 30 age group (Total number of responses = 208)

h (hypothetical frequencies):

X responses = 104

Not-X responses = 104

f (observed frequencies):

X responses = 111

Not-X responses = 97

$$\chi^2 = \sum \frac{(f - h)^2}{h} = \frac{(111 - 104)^2}{104} + \frac{(97 - 104)^2}{104} = .94231$$

5% critical value with 1 degree of freedom = 3.84146

1% critical value with 1 degree of freedom = 6.63490

30 to 40 age group (Total number of responses=128)

h (hypothetical frequencies):

X responses = 64

Not-X responses = 64

f (observed frequencies):

X responses = 58

Not-X responses = 70

Not Tested

40 to 50 age group (Total number of responses=216)

h (hypothetical frequencies):

X responses = 108

Not-X responses = 108

f (observed frequencies):

X responses = 135

Not-X responses = 81

$$\chi^2 = \sum \frac{(f - h)^2}{h} = \frac{(135 - 108)^2}{108} + \frac{(81 - 108)^2}{108} = 13.50000$$

5% critical value with 1 degree of freedom = 3.84146

1% critical value with 1 degree of freedom = 6.63490

50 and over age group (Total number of responses=216)

h (hypothetical frequencies):

X responses = 108

Not-X responses = 108

f (observed frequencies):

X responses = 125

Not-X responses = 91

$$\chi^2 = \sum \frac{(f - h)^2}{h} = \frac{(125 - 108)^2}{108} + \frac{(91 - 108)^2}{108} = 5.35185$$

5% critical value with 1 degree of freedom = 3.84146

1% critical value with 1 degree of freedom = 6.63490

APPENDIX D

COMPUTATIONS FOR EDUCATION

Chi-square test of independence for education

$$R = \frac{f_1^2}{f_{r_1}} + \frac{f_2^2}{f_{r_2}} + \frac{f_3^2}{f_{r_3}} + \frac{f_4^2}{f_{r_4}} + \frac{f_5^2}{f_{r_5}}$$

$$R_1 = \frac{62^2}{168} + \frac{99^2}{261} + \frac{6^2}{15} + \frac{104^2}{249} + \frac{33^2}{75} = 120.79$$

$$R_2 = \frac{106^2}{168} + \frac{162^2}{261} + \frac{9^2}{15} + \frac{145^2}{249} + \frac{42^2}{75} = 280.79$$

Degrees of freedom = $(k - 1)(r - 1) = (2 - 1)(5 - 1) = 4$

$$\chi^2 = (\Sigma n)\left[\frac{R_1}{n_1} + \frac{R_2}{n_2} - 1\right]$$

$$\chi^2 = (768)\left[\frac{120.79}{304} + \frac{280.79}{464} - 1\right] = 1.91232$$

5% critical value with 4 degrees of freedom = 9.48773

1% critical value with 4 degrees of freedom = 13.2767

APPENDIX E

COMPUTATIONS FOR RANK

Chi-square test of independence for rank

$$R = \frac{f_1^2}{f_{r_1}} + \frac{f_2^2}{f_{r_2}} + \frac{f_3^2}{f_{r_3}} + \frac{f_4^2}{f_{r_4}} + \frac{f_5^2}{f_{r_5}}$$

$$R_1 = \frac{34^2}{168} + \frac{44^2}{261} + \frac{2^2}{15} + \frac{45^2}{249} + \frac{11^2}{75} = 22.31$$

$$R_2 = \frac{31^2}{168} + \frac{49^2}{261} + \frac{2^2}{15} + \frac{52^2}{249} + \frac{18^2}{75} = 30.37$$

$$R_3 = \frac{103^2}{168} + \frac{168^2}{261} + \frac{11^2}{15} + \frac{152^2}{249} + \frac{46^2}{75} = 300.36$$

Degrees of freedom = $(k - 1)(r - 1) = (3 - 1)(5 - 1) = 8$

$$\chi^2 = (\Sigma n)\left[\frac{R_1}{n_1} + \frac{R_2}{n_2} + \frac{R_3}{n_3} - 1\right]$$

$$\chi^2 = 768\left[\frac{24.31}{136} + \frac{30.37}{152} + \frac{300.36}{480} - 1\right] = 3.30240$$

5% critical value with 8 degrees of freedom = 15.5073

1% critical value with 8 degrees of freedom = 20.0902

Attention Patron:

The one-page vita has been removed

from the scanned document

AN EMPIRICAL STUDY OF MANAGERIAL ASSUMPTIONS CONCERNING HUMAN BEINGS AS WORKERS

Wilson Mack Torrence, III

Abstract

The concept of participative management is a dominant theme in management theory today. Theorists claim that authoritative management frustrates the individual's attempt to satisfy his higher needs and fails to allow the average worker to utilize his full potential. Theorists further contend that most managers today are authoritarian because they hold negative assumptions about the nature of the worker. However, these theorists do not make clear which managers are authoritarian and which are not. The present study was undertaken in order to help clarify the situation in the real world by determining the degree to which an actual group of managers display negative or positive assumptions about workers and whether assumptions vary with age, education, and rank.

The data for the study were gathered by means of a questionnaire administered in one plant of a large industrial corporation. The questions were constructed within the framework of the assumptions of Douglas McGregor's X and Y Theories of management. Thus, the possible responses to each question reflected both X (negative) and Y (positive) assumptions about the worker.

A statistical analysis of the data indicated that, in the plant studied, the managers gave a significant majority of X responses.

However, the managers did not give a majority of X responses to every question. The findings also indicated that age did have a significant effect on managerial assumptions and that older managers tended more toward X assumptions than younger managers. Education and rank did not prove significant in determining managerial assumptions.