San Fernando Valley State College

AN EVALUATION OF EMPLOYEE PARTICIPATION IN DECISION MAKING AS AN INFLUENCE ON ATTITUDE AND PRODUCTIVITY

A thesis submitted in partial satisfaction of the requirements for the degree Master of Science in Business Administration

by

Robert Edward James

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ABSTRACT

AN EVALUATION OF EMPLOYEE PARTICIPATION IN DECISION MAKING AS AN INFLUENCE ON ATTITUDE AND PRODUCTIVITY

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A study was conducted involving seventeen Aerospace technical manuals writers to evaluate the possible effect of employee participation in the decision making process on employee attitudes and productivity. Utilizing standards of performance as a test vehicle, the subjects were asked to what extent they felt they had been allowed to participate in establishing the standards. Based on the degree of participation each employee felt he had been allowed, two groups were formed: the "participators" and the "non-participators."

Pages produced before and after standards were established, a questionnaire, and a personal interview with each employee were used to gather data about the two groups. Analysis of the data indicated that the employees who thought that they had been allowed maximum participation (the "participators") showed a greater
increase in pages produced and expressed more favorable opinions toward their working environment than did the non-participating group.
CHAPTER I

THE NATURE OF THE STUDY

This study was conceived while the writer was employed in an administrative capacity in the logistics division of a large aerospace company. A management improvement program had been instituted that included defining goals for the various groups and units in the division, describing jobs, designating responsibilities, and establishing standards of performance for the employees. As part of the program, it had been recommended to supervision that they solicit employee assistance in all phases, particularly in setting up the standard of performance. It appeared that the program, already in motion, offered a vehicle for testing a major tenet of the human relations school of management: employee participation in the decision making process will favorably influence attitudes and productivity.

One group of the division performed the task of writing and publishing technical manuals to support the company product after it had been delivered to the customer. The customer was the United States Government: the Air Force, Army, Navy, and the National Aeronautics and Space Administration (NASA). The technical-manuals
group researched and wrote the material required to operate, overhaul, and maintain the complex space hardware produced by the company.¹

The technical-manuals operation offered the opportunity of measuring productivity because records were kept of the number of pages each man produced. These records existed for some years prior to the time the study was initiated. The records were used to support the customer billing process and as a measure of overall group productivity.

The experiment, as originally designed, chronologically involved (1) making a search of the records to determine the total output of pages by each of the individual writers in the group for one year (there were sixty employees engaged in writing at the time the experiment was conceived), (2) offering each individual an opportunity to participate in establishing his own standard of performance, (3) differentiating between the high and low participators, and (4) then counting the pages each writer completed during the year following the agreement on standards. It appeared that by this series of steps an interesting assessment of the

¹The term "hardware" refers to metal objects, either in support of or as the result of the productive process, as opposed to "software" which is paper, glue, and other non-metallic goods.
effects of participation might be forthcoming.

The participating and non-participating groups were formed by asking each writer to complete a fifteen question questionnaire. The first question required of the employee an evaluation of the amount of participation he was allowed in defining his standards. The two groups were made up by placing all those individuals who selected full participation in the "participator" group and everyone else in the "non-participator" category. The remaining fourteen questions covered various aspects of the standards program, the job, and communications as well as participation.

Eventually a second questionnaire was added to the study to be answered by the writers one year after standards had been presented. An interview was also included at this point in order to evaluate the employees' opinions and ideas on the subject.

The text that follows is a description of the experimental process and the results achieved. A short chapter (Number II) is included on the subject of trends and conditions in the aerospace industry. The reader should be familiar with the general environment to understand better some of the pressures that exist. Chapter III describes the immediate company environment surrounding the writer in order to locate the individual
within the rather nebulous arena referred to as the aerospace industry as modified by the policies, procedures, and contracts of his own company. The writer's background and his conditions of work are also explored.

Chapters IV and V delve into the research that exists in the field of human relations pertaining to productivity and participation. These chapters are designed to place the human relations point of view in its proper perspective with relation to company goals and productivity. After examining the existing research, the experimental design of this study is presented in some detail in Chapter VI.

In succeeding chapters (Numbers VII, VIII, and IX), the data collected from the two questionnaires and the interview are presented and statistically analyzed. The indications are that the responses elicited from the individuals in the two groups (the participator and the non-participators) lend credence to the belief that active participation in the decision-making process does increase the possibility of improved employee productivity and favorable attitudes.

In Chapter IX a summary of the study is offered that strongly parallels a similar study conducted at
General Electric. The study at General Electric was made to assess the value of the yearly performance interview.

Characteristic of the aerospace industry today, management problems abound. The industry is suffering from a shrinking profit margin, averaging less than 2 per cent of sales after taxes, increased competition, and a continuing upward spiral of costs. Such conditions put excessive pressure on the individual companies to improve performance. Not uncommon are such pronouncements as recently made by Curtiss-Wright that sales for the calendar year 1964 were $157 million, down from $227 million in 1963, and that income was $1.01 per share, down from $1.16 for 1963. As the industry becomes more competitive, the problem of most major companies in the industry is how to improve overall performance, not as an academic exercise but as a means of staying alive.

Complicating the struggle for survival are

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current government trends toward more fixed-price and incentive-contracts and fewer cost-plus-fixed-fee contracts. It has become imperative that the technical minded management engineer understand, for instance, the importance of cost and profit and how these two elements of the business relate to producing the product.\(^5\) A typical incentive-contract decision as to whether to decrease the weight of the hardware at the cost of one per cent of fee is difficult to make. But the fact that this type of decision will be required in increasing frequency in the future helps emphasize the continuing need for better informed management who can place the various elements of the unique aerospace environment in proper relationship to each other.

As competition increases for government contracts, the need for each level of aerospace management to increase productivity becomes essential. This paper is concerned with investigating a means whereby first line supervision can participate in this efficiency movement. The lower levels of management control the largest single item of cost (labor), but are, at the same time, limited in their ability to improve operations by a relatively low level position in the organization. The managerial

tasks of planning and organizing play a minor role in their lives, and, as a matter of fact, in certain instances even the staffing activities only partially fall under their purview. They must necessarily spend most of their time working at the job as well as motivating, directing, and controlling their subordinates.

In order to show improvement, the lower level supervisor is required to increase output or decrease costs, or both, using those limited means available to him. The possibility exists that, by integrating the employee into the decision-making process, first line supervision can increase efficiency.

Current literature indicates that from two to ten times greater output is possible by treating employees like mature adults and submitting for their consideration decisions that affect them. The decision concerning the work standards would appear to fill this requirement. Employees should be able to visualize the importance of decisions relating to standards because these decisions must necessarily influence personal relations in the work environment and have an effect on salary and advancement. The very fact that a standard exists may favorably effect productivity, and the possibility that an existing standard communicated to the employee, and its final form influenced by him, may
further increase output.

Possibly of even more importance than evaluating the relationship between employees participating in decisions, higher levels of output and changed attitudes might be the stimuli to management to investigate some of the research findings of the behavioral scientists as an aid to helping themselves do a better job and helping their company to achieve new profit levels. This study may help to demonstrate what supervision in a large aerospace company can do to improve productivity without an excessive displacement of people, time or energy.

Other than the obvious rewards accruing to this writer from having been exposed to the thinking of the behavioral scientists and having attempted to apply and measure the affects of their findings in a "working" environment, the people involved in the actual study should reap certain benefits. The exposure to the statistical methods and an opportunity actually to see social-psychological research conducted within an industrial organization may stimulate interest and thought. Research is a common term and activity in the aerospace setting, but it is usually confined to hardware or company product applications. The possibility of extending the research tool to business management may
be enhanced in some small way by efforts such as this.
CHAPTER II

TRENDS AND CONDITIONS IN THE AEROSPACE INDUSTRY

In order to understand the experimental environment, it is important to be aware of some of the current trends and problems in the aerospace industry. As a technical manual writer sits down to write, his ability to respond to the requirements of his task as well as the demands of this study are influenced by industrial conditions. How he sees his job and as a consequence answers questions put to him by the writer for the purposes of this paper may vary as his environment changes.

The aerospace industry, or an individual company in the industry, might have previously been described as a large unruly mass moving generally toward some ill-defined goal, or objective, directed by a customer that could not describe what he wanted to buy. But conditions are changing. After the industry was created during World War II, the job of managing the creation was started. The urgent need to manage the defense and space effort became apparent during the 1950's and is only now, in 1966, reaching a level that would approximate textbook examples.
The aerospace industry is a captive seller to the Department of Defense and other United States Government agencies. The Government is a monopsony, the reverse of a monopoly, in that it forms a single buyer with many sellers. The Department of Defense, (DOD), as the major Governmental buying agency, has been estimated as the world's largest corporation with assets approximating $150 billion.¹ There are dangers inherent in this commercial arrangement in that the buyer has the ability to influence strongly prices and profit, determine 100 per cent of the demand, and establish quantities based on his own best guess of what the future holds.²

A monopsolistic environment naturally leads to a variety of ills and potential problems, many of which are currently facing the aerospace industry.³ The hurdles that would appear to exist include tremendous financial outlays for bidding on contracts, the ever present threat of sudden contract cancellation or stretch out, low profit margins with an increasing number


of penalty clauses in each contract; then, even if an adequate profit is made, the possibility always exists of contract renegotiation. Additional pitfalls included in doing business with a single giant buyer are slow progress payments, extensive disallowances of cost, potential loss of proprietary rights, and frequent changes in Government contracting policies. Product obsolescence occurs almost overnight and creates a serious need for extensive research and development effort. The company's ability to invest funds in this vital area becomes more difficult with time as profit margins decline.

The various Government agencies have matured in their management ideas and concepts since the second World War and the days of the much abused cost-plus-per cent-of-cost contracts, which are now illegal. This was a maturation process that had to occur as Government spending increased to a multi-billion dollar business. Pressure is being applied to manage. The public, through the Executive and Legislative branch of the Government, is increasing the pressure to reduce public spending. While equal concern is indicated for quality and schedule performance, cost management actually gets most of the attention. The Air Force, for example, was able to maintain combat and support systems worth 56 per cent
more in 1963 than in 1958 at a cost in spare parts of less than 50 per cent of the 1958 rate. 4

In order to implement their new managerial interest and capability, the amount of Government intervention in the contractor's business has necessarily increased. The tremendous complexity of the current space and weapons systems being assembled for federal procurement has placed the buyer in the unusual position of not being sure what he needs to fulfill his requirements or how much it should cost. Contracts are often negotiated on the basis of available dollars. The ability to price an advancement in the state of missile arts is very limited at best, and price must necessarily depend on a company's reputation, experience in the field, and someone's best guess. In order to assure prudent handling of resources, federal representatives reside in the seller's plant and deal with the same detail the manufacturer does.

Requirements for very expensive control systems are placed on the company, PERT (Program Evaluation Rating Technique) and PERT cost for example, which must necessarily come out of the decreasing dollars available

for contract purposes. It becomes apparent that if cost is all but impossible to assess because each item purchased differs from all others and quality is difficult to determine (the number of parts and processes required to produce a space system may number in excess of a million), then the only hope is better management. It is the aim, as stated by the Secretary of Defense and others, that with the increased use of incentive contracts directed toward fostering better management the range of profits between the most and less efficient contracts will widen considerably, even though the evidence of the last few years indicates that there is an overall decrease in the average profitability of aerospace companies.

Decreasing profits lead inevitably to difficulty in obtaining financing. The need for capital in the aerospace industry is increasing faster than the growth of sales. As the earning per share of stock diminishes, the required investment in facilities and equipment increases. The Government is no longer willing to support the contractor with free land, buildings, and machines. 5

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6Ibid., pp. 81-83.
It is estimated that success for the aircraft and missile manufacturer hinges on more efficient negotiations, added cost justification, and an increase in the ability of the aerospace manager to produce profit while at the same time producing the product for a fair and equitable price.\(^7\)

These trends merit concern when viewed in the long range light of rather drastic decreases in Government spending in certain areas of space and weapons systems hardware procurement. The aerospace industry is no longer a growth industry. The problem is now one of achieving stability. One forecaster predicts that while the missile procurement expenditures were $2.98 billion in Government fiscal year (GFY) 1965, they should drop to $1.23 billion by 1969.\(^8\) The 1956 investment rate per sales dollar for facilities for the industry was .062 while in 1961 it had risen to .102 for the same unit of measure. The overall aerospace industries' share of production contract monies in the defense budget should decline by 30 per cent and the research, development, test, and engineering budgets by 15 per cent by 1970. Although NASA expenditures should be up some 10 per cent

\(^7\)Ibid., p. 81.

\(^8\)Ibid., pp. 82-83.
in the next 5 years, monies available should decrease by approximately 15 per cent in 5 years.9

Government policy makers state that they recognize profit as a motivating factor in doing a good job; hence, the stress on firm-fixed-price and incentive contracts. But in order to get the most for defense dollars, while maintaining an adequate defense base and still rewarding initiative, the Government's rules and regulations are being tightened as indicated by some of the recent changes in the Armed Services Procurement Regulations (ASPR).10 ASPR sets rigid standards covering all aspects of doing business with the Government. Profits are desirable but cannot be excessive. One estimate is that from 1.25 per cent to 2.0 per cent of an aerospace company's sales dollars are lost through disallowances and cost sharing formulas. The attitude seems to be on the part of the Government Agencies that the losses belong to the contractors, but the profits are redeterminable.11

Added to the rather tight situation that already

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11Ibid., pp. 40 and 43.
exists are a variety of Government programs concerned with employee motivation. The Zero Defects, Pride, or Quality Workmanship Programs currently being pushed in the industrial community, are aimed at reducing errors and causing the workman to take pride in a job well done.\textsuperscript{12} Official estimates with reference to the effect of the Zero Defect Program indicate that in one instance, as reported by 6 major contractors, the average rate of overall defects was decreased 47 per cent with savings in the millions of dollars in scrap and rework. The very extensive cost reduction program, which is receiving a great deal of publicity through the Office of the Secretary of Defense, demands a great deal of attention and manpower on the part of the seller. The cost reduction program which covers Value Engineering, Employee Suggestions, Conservation, et cetera, is estimated to have realized savings in excess of $4.6 billion during GFY 1965. Cost reduction savings have been forecasted for as much as $6.1 billion a year by GFY 1969 and for each year thereafter.\textsuperscript{13}

In spite of contract renegotiations, a variety


\textsuperscript{13}\textit{Missile/Space Daily}, July 15, 1965, p. 75.
of cost savings programs, and the overall pressure to manage more efficiently, the industry becomes increasingly more competitive year after year.\textsuperscript{14} Government contracts are currently being negotiated on a total package procurement basis. Previously, research and development (R&D) contracts were competitively bid with the very valuable production phase of the activity being given to the R&D contractor on a non-competitive basis. The new contracting concept will award each phase only after competitive bidding. Each element of the contract (research, development, production, and life time support) must be separately proposed. Competitive procurement contracting is up from only 55 per cent of the contracts being let for bid in 1962 to 60 per cent in 1964 and 68 per cent in the first six months of 1965.\textsuperscript{15} The total effect is increased proposal expenses which further reduce already slim profits.

Additional restraints and restrictions that are felt equally by all industry are being imposed through various agencies of the Government. Decisions by the National Labor Relations Board have set the tenor of labor/management relations. Businessmen have asked the

\textsuperscript{14}Ibid., March 15, 1965, p. 83.

\textsuperscript{15}Ibid., February 2, 1965, p. 334.
NLRB to even go so far as to publish an advisory opinion service to save them the trouble of going through the motions only to be reversed at a later date. One decision, for instance, that worried businessmen involved a firm that cut costs by subcontracting its delivery service. After the company closed its department and dismissed some employees, the employees complained to the NLRB. The agency ordered the firm to reestablish its shipping department and re-hire the workers. In the Board's opinion, the company had no right to subcontract the work out without consulting the union.\(^{16}\)

As a result of declining profits and increasing difficulty in doing business with the Government, there are definite indications that the big companies are getting bigger and the small are going out of business.\(^{17}\) Due to the ever increasing complexity of space and weapons systems production and the apparent need for economies of size, the top 100 defense contractors increased their share of the total Department of Defense business from 68.4 per cent in 1956 to 72.3 per cent in 1962. Small businesses, under 500 employees, decreased

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their percentage from 19.8 per cent to 17.7 per cent during the same period and other businesses went from 11.8 per cent to 10.0 per cent.

The stiff competition in the industry takes its toll. For example, the largest producer of aircraft in World War II, weight and size, Curtiss-Wright, was only providing components in 1959 and was 53rd in the Department of Defense total contract value list. Twenty-one of the 100 top firms on the 1958 list did not make it in 1959. The question immediately arises as to what the future holds for the industry and the employees in it.

Statements by top DOD officials indicate that while the Government recognizes the problems facing the Aerospace industry, it believes that the industry must work out the solutions itself. Survival of each company lies with the company itself. Consultants predict a gradual reduction in average profit. Net after taxes profit for 51 aerospace companies has declined from 3.2 per cent in 1951 to 1.8 per cent in 1961. The

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contractor who is highly efficient in all phases of the business should not suffer; others may be forced out of the field while still others will be restricted from entering. The signs portend ruin, and, if the present trends continue, drastic action may soon be required to keep the industry as a whole healthy.  

The current trends in the aerospace business are extremely important for the purposes of this study. The demand for more product at less cost is being felt by the technical manual writer in a multitude of ways. His supervision, the customer representatives, and staff groups strain to get the message across that "business as usual" is no longer acceptable. A better product is required, produced under increasing restrictions, with fewer people.

\[\text{\textsuperscript{21} Ibid., pp. 15-16.}\]
CHAPTER III

THE EXPERIMENTAL ENVIRONMENT

The experimental group is engaged in the production of technical manuals covering all aspects of the maintenance, overhaul, operation, and handling of complex aerospace hardware. As is true with most purchased items, some instruction is required. Instructions may range from very simple directions such as how to position and install an identifying nameplate to hundreds of volumes that are required to describe the complexities of a multi-billion dollar missile.

The book production process involves keeping track of changes in the product imposed by the continued engineering, research, and development that must be carried on. As changes are incorporated into the system to solve existing problems, do the job better; or to prevent future difficulties, the technical manuals must change to assure that the customer or purchaser of the product is kept up to date. After the original or basic edition of a book is published, the process of change begins. A writer, or group of writers, under a lead writer is assigned to the project and expected to find and identify all changes that have occurred since the
last revision of the manual, seek out source documents such as blueprints and internal directives, arrange the information in a meaningful manner, and describe the new material in the best way possible by using both text and art pages.

The writer is responsible for the technical accuracy of his efforts and will, on all possible occasions, actually try to check his work by participating with a mechanic in attempting to do the job described strictly by the book, step-by-step, to verify the accuracy of the descriptive material.

After a satisfactory revision has been obtained, the material is printed and the new addition to the book delivered to the customer. Schedules are rigidly adhered to. A special supporting function assists in keeping track of the book from the original decision for making a change to the final delivery to the printer. The printer prints the pages and mails them out to a pre-determined list of manual holders.

This group of technical writers was selected as subjects of this study because their supervision was interested in the experiment and the product produced (pages) was tangible and could be related to hours worked (costs) over a period of time.

The group is basically made up of white collar
workers without college degrees. They work in a large open bay supported by a variety of typists, artists, and technical editors. They are required to have sufficient technical background to be able to understand, discuss, and communicate, both in writing and with pictures, any requirement pertaining to the maintenance, operation, overhaul, et cetera, of the space product produced by the company.

Over a period of years, the department management has established a policy of hiring mechanics and teaching them to write handbooks as opposed to hiring writers and teaching them the technical aspects of the job, or hiring engineers who are well versed technically but are disinclined to inscribe their technical knowledge on paper. As a consequence, most of the technical writers involved in this study have a shop background (with probably some college courses in technical writing). Each prospective writer is given a short English knowledge test before being offered employment. With the prospect of advancement, in excess of what they might expect in their shop environment as well as whatever prestige is associated with a white collar position, a great number of down-to-earth technically knowledgeable types capable of expressing themselves in writing have been recruited over the years.
Organizationally, the group is broken into three units headed by a group leader. Each unit has a supervisor, a coordinator who assigns work, any number of lead writers, and from 7 to 20 line technical writers. Writing teams are formed under the lead writer as the need arises. In support of the technical writers are various specialists including schedulers, technical editors, who may well have college degrees in English, and technical artists. Each of these supporting people makes available to the writer his specialty in an attempt to produce a quality product on time. The technical writer must collect, validate, and arrange the data as well as plan his whole presentation.

Customer desires are, of course, a primary consideration. The manuals must be understood by technical personnel of other companies, Government agencies, and the Armed Forces. It is a standard joke in the industry that certain of the manuals must be written so that an 18-year old Iowa farm boy, working in a missile silo in the middle of Montana can comprehend the manual and do his job correctly. The product is highly sophisticated and as a consequence requires the full use of both text and art pages to communicate adequately.

Publishing for the customer, the Government, is
a difficult and arduous task. Proposals for technical manuals always contain an estimate of the number of pages that will be published over the period of the contract. Pages are then related to hours, hours broken down into heads, and heads eventually equated to dollars for a contract price for any given period of time. The contracts under which the books are written are usually covered by a variety of government specifications. Specifications, depending on their age, may be very detailed and explicit, or, if of recent vintage, so generally written as to almost allow the contractor to do whatever he thinks is best. Depending on the customer's knowledge of what he wants, the contract statement of work is usually based on a combination of both company and customer best guesses as to what will be required during the period of performance of the contract.

Recent trends in Government contracting procedures have been away from cost-plus-fixed-fee (CPFF) type contract toward firm-fixed-price (FFP) and fixed-price-incentive (FPI) type contract. As a consequence, the pressure to improve average hours per page, or cost per page, is continually increasing. Because of the rather nebulous art of technical manual production, Government auditors and monitors are continually
assessing the practices of the technical manual group. As part of the press to operate efficiently under more restrictive contracts, the supervisors of the group were actively discussing establishing standards of performance for their people early in 1964. This program eventually formed a test bed for this study.

The gross contract business performed by this group per year amounts to something in the neighborhood of one million dollars. This figure includes a 28 per cent burden ratio as well as labor purchased from the engineering and manufacturing departments for manual review and validation.

At the time this thesis subject was first proposed, the technical manual group numbered something in excess of 80 people, 60 of whom were technical writers. This was during the period of early and mid 1964. By January 1965, the headcount had dropped to 54 people including only 40 technical writers. A very slow but steady decrease in manpower led to a total of 47 in the group by January of 1966 with only 35 writers.

The original experiment was designed to offer questionnaires to all of the technical writers and interview from one-half to two-thirds of the total of 60. But as the number declined to less than 40, and because participation in the experiment was necessarily
voluntary, a total of only 19 questionnaires were returned after standards of performance had been established in January 1965. The 19 technical writers returning questionnaires belong to all 3 units of the group and were engaged in the same general type of activity though supporting different programs or contracts. During the year after the first questionnaire was turned in, calendar year 1965, two of the original 19 terminated. As a consequence, the conclusions reached in this treatise are based on the data obtained from and concerning the remaining 17.
CHAPTER IV

HUMAN RELATIONS AND PRODUCTIVITY

The human relations school of management presents experimental evidence to support the conclusion that through the process of treating people (employees) like mature adults, industry can better achieve its productivity, efficiency, and performance goals. The demand for superior performance is not new, but it is possibly more important with each passing decade as competition becomes more intense for markets throughout the world. Certain forces are accelerating the demand for increased performance, or better management. Competition is accentuated by foreign technologies that are approaching ours in quality of product but still have lower labor and fixed costs. Cameron Hawley reports that for two plants with a comparable number of production employees, one in Europe and the other in America and both with about 1200 to 1300 direct people, the European plant had only 221 salaried employees as opposed to 912 for the American concern.¹ His conclusion is that Americans hire

ten men to make one man's decisions; as a result of public reaction to business during the depression, this pattern has grown to the place where we now try to keep every one happy in a futile attempt to avoid adverse public opinion.

The intent of the newer management philosophies is not to keep people happy but to take cognizance of the changes that have taken place in American society and recommend appropriate adjustments in managerial practices. The trend toward giving the individual greater freedom and initiative in school, home, community, and even his job must be taken into consideration. The employees have definite expectations of how they should be treated. It has been demonstrated experimentally that if experience falls short of expectations, unfavorable attitudes will result. Research also indicates that supervisors with the best performance records focus attention primarily on the human aspects of the job and on attempting to build effective work groups with high performance goals. As Likert refers to them, these high producing supervisors are "employee centered" as opposed to "job centered." The interest.


3Ibid., pp. 6-7.
of the employee is directed toward making his work important, not only to himself but to his peers and his organizational superiors. Workers will strive to attain these ends.

There is a staggering amount of evidence that output is influenced by the worker even when inhibited by machine paced production, low skill levels, differences in temperament, ability, and attitude.\(^4\) Employees will participate either with or against the company, whether management plans it that way or not. In one case a group of foremen who could not sell the use of a new tool to their boss bootlegged it into the shop, tried it on the night shift, found it worked well, and eventually had to falsify production records to hide their use of it.\(^5\) In this case, the employee chose to participate in increasing production in spite of higher management's lack of cooperation.

In other instances the choice of the employees is just the reverse. One report tells of a company with a long assembly line of 1100 employees turning out exactly


1500 units on the day shift. In spite of higher scheduled production the volume remained stable. The hourly production might vary, but by the end of the shift there were always exactly 1500 units. In another company the employees cut production in half for two weeks and restored it to normal at the end of the two weeks all with little or no fanfare.\(^6\) The aim of management must be to maximize the utility of the available resources and that resource with the greatest potential and least utilization would seem to be the employee.

Time magazine quotes Dostoevsky as saying that "if it were desired to reduce a man to nothing, it would be necessary only to give his work a character of uselessness."\(^7\) The magazine goes on to explain that this character of uselessness is the result of a long historical process in American industry that started at the time of the Industrial Revolution. Men were swallowed by a vast and impersonal machine which rubbed away their self-respect and in a way their identities. But by contrast, through the work of Mayo and others during the 1920's and 1930's and the need for speed and

\(^6\)Likert, pp. 211-12.

\(^7\)"Human Relations," Time, April 14, 1952, p. 96.
increased production brought on by World War II, management began to learn that the impersonal approach was not necessarily the best way to increased output.

The tendency of management theorists throughout the first half of the 20th century has been to try to establish universal generalizations such as no man should have two bosses and no more than eight people should report to one superior. Most of the authors of this type of literature were active businessmen such as Taylor, Fayol, and Urwick, anxious to share their experiences with the rest of the world. After dominating the field of management theory for half a century, this group is currently being challenged by the recent appearance of the "ivory tower" expert schooled in the social sciences. As opposed to Taylor's emphasis on the mechanical and physiological, the newer theorists have stressed research aimed at exploring motivation.

The early work (the Hawthorne studies) of Mayo and Roethlisberger lead the new growing investigation into human relations. After experimenting with various physical features of the job, they discovered that no

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9Ibid.
matter what they did production went up. The conclusions were that the people responded with increased productivity as a result of being welded into a functioning unit because of being treated like human beings. The human relations movement has been characterized by a considerable emphasis on participation, or the deliberate attempt on the part of management to integrate subordinates into taking an active role in the decision-making process.  

Astounding instances of the power of the work force came to light and were recognized. In one example of work force potential, the United Steel Workers boosted the production in the company's most efficient department to 210 per cent of its previous output in one month. In another organization, the union and the company cooperated in reducing the payroll from 693 to 512 people and the wage bill by 17 per cent while achieving greater output in 40 hours than had previously been experienced in a 48-hour week. The knowledge of such examples of labor-management cooperation led great numbers of people to doubt the

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11 Haynes, p. 7.

basic assumption of the school of Scientific Management that the best organization of human work must counterbalance man's poorly designed ability to perform. The mistake is that the closer work comes to confining itself to the individual motion or operation, the better the human being will perform it. 13

Research done shortly after World War II by Lewin in the area of group dynamics, stressing participation with his studies of democratic and authoritarian groups, laid the groundwork for certain theories that were directly applicable to business. 14 Coch and French discovered, in an attempt to determine how to overcome employee resistance to job changes in a pajama factory, that production increases, turn-over, and employee aggressiveness were directly proportionate to the amount of participation or involvement the employees were allowed in the decision to make the changes. Even participation through representatives improved conditions. 15

Additional information was contributed by the

13 Drucker, pp. 283-85.
14 Haynes, p. 8.
Michigan studies in researching supervisory styles and ideas about the job and people. Likert and Katz found that "employee-centered" supervision, as opposed to "work-centered," more consistently produced greater output and that employee feelings of personal responsibility for getting the job done were greater under the employee-centered supervision. Likert developed his "modified theory" of management aimed at elevating management's opinion of employees as assets deserving at least as much concern as material assets and stressing that any damage to morale or motivation is a serious loss.

A new idea was proposed as a result of the Michigan studies: responsibility for production is inherently the province of the worker, not supervision. The key to productivity then stems from a supervisory style that enhances the worker's proprietorship of their jobs. By inference the concept of control is questioned. Management's goal then becomes the profitable use of assets, or productivity. Control is only one way, and not a very good one, of achieving it.

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16 Gellerman, pp. 32-40.
17 Ibid., p. 44.
18 Ibid., pp. 44-45.
Argyris contributed experimental evidence and theoretical considerations leading to the conclusion that both the company and the employee would prosper by, (1) treating employees like adults instead of attempting to force immature attitudes on them, and (2) broadening their job scope to give them as much latitude as possible in the planning, controlling, and implementation of their work.19

McGregor soon followed with his Theory "X" and "Y" considerations. Theory "X" stands for the old or classical assumptions of management. It states that the traditional managerial view of the employee is one of mistrust based on the assumption that the worker is lazy, difficult, and dedicated to frustrating progress toward company goals.20 Theory "Y," on the other hand, assumes that the employee is a willing and worthwhile participant in the production process and need only be recognized as such in order to best achieve the objectives of the organization. Participation is based on the regular flow of information to the individual who needs


it to make decisions and the acceptance of these
decisions by supervision out of respect for the experience
and knowledge on which they are based. The key word is
"respect." In order to get effective participation,
management must realize that, without the voluntary aid
of the people and the surrender of enough power to make
that aid attractive, the job will not be accomplished.21

The Pittsburgh studies give additional refine­
ments to the current theory of what motivates people.
Through extended interaction with engineers and account­
ants, so-called hygienic factors, e.g., pay, job security,
and working conditions, served to prevent loss of morale
and efficiency but did not stimulate increased produc­
tivity.22 The things that raised employee output are
listed by these studies as (1) freedom to handle problems
of the job in their own way and (2) freedom to experiment
and exercise initiative. Control of their own work
rather than tangible rewards is the best motivation. The
key to sustained high level motivation is the assignment
of work that pushes the men to the limits of their
capabilities and which matches growth and abilities with
newer and more serious challenges.23

21Gellerman, p. 47.
22Ibid., pp. 48-49.
23Ibid., p. 50.
The Pittsburgh studies suggest that after satisfying hygienic needs, management must establish broad goals, carefully select people who can decide for themselves how best to reach the goals, attempt to assess the needs of the employees, and plan an active program to harness the power generated by these needs.24 Parkinson's law (work expands to fill the time available for its completion and that there need be no relationship between the work to be done and the size of the staff to which it is assigned) gives testimony to the fact that people will show initiative and creativity. People will either work toward company goals, or toward some other end such as building a large staff or filling time.25

Well defined goals and objectives are the difference between well directed or misdirected employee energy. In order to sustain forward momentum toward company goals, the goals must be thought out, defined, and communicated to the people in the organization. Psychologists tell us that all action is preceded by a mental image and that action that follows the mental image can be neither better nor more exact than the

24Ibid., pp. 54-55.
25Haynes, p. 29.
image that previously guides it. While it is not necessarily true that a clear mental image insures action which will measure up to the image, it is probably true that the clarity of the object of an action, the objective, is related to the clarity of the mental image and the efficiency of the resulting action. The responsibility of management must be, therefore, to see that clear understandable company goals are established in order to get efficient action directed toward the goals.

One method of soliciting maximum goal-directed behavior from members of an organization in concert with their leaders is to submit goal definition to the group. When the goals are set by group members, the individuals involved are more likely to become self-directing with the leader instead of against him. Which goals, is the question, not goals or no goals. Employees will establish goals for themselves in the absence of managerial efforts along this line. Management must attempt to establish goals that are in harmony with those of the employees' in order to motivate the individuals to


achieve their goals and thus lead the organization to its goals. The best approach to harmonious goals involves participation and cooperation in the goal-setting process.  

McGregor bases his Theory "Y" on the degree of acceptance of responsibility as a direct correlation with employee commitment to objectives. He goes on to state that genuine commitment is seldom achieved when objectives are externally imposed; passive acceptance is the most that can be expected. Mutual involvement in the determination of goals or objectives is a necessary aspect of managerial planning based on Theory "Y."

Edgar Kaiser, President of Kaiser Industries, reported that a long range savings and sharing plan worked out with the union has so motivated workers that they are even picking up and saving nails. Wages increased 46 cents per hour for production and maintenance men. A completely different attitude and an overall remarkable performance resulted. The article does not

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say to what extent the employees cooperated in the establishment of the incentive plan, but it does indicate that the goals were well defined and understood. The human beings in this instance had been given an opportunity to work toward a mutually agreed upon goal judging from their performance. For a moment, let us consider this human being.

Man is a wanting animal. As soon as one need is satisfied another appears in its place. Human needs are organized in a series of steps. To satisfy certain basic needs employees must feel secure and be approved of to develop their own potentials; they must know what is expected of them, how they are to be measured, and have an opportunity to participate in matters affecting them. People must be able to establish some kind of internal balance before being able to devote much energy to assisting the organization to achieve its goals.

The most productive leadership depends on understanding these basic human tendencies.

A friendly supportive relationship, day in and day out, with one's colleagues has been found to be more


important to most people than minor financial rewards.\textsuperscript{33} In order to weld groups of people together into units that produce more than the individual parts might, supervision must treat people like human beings. Likert's "interaction-influence" system is evaluated as "good" when there exists full participation in the decision-making process, good communication, and high motivation.\textsuperscript{34} No such environment can exist without adequate need satisfaction for the individuals that comprise the group.

One factor influencing employee feelings of need fulfillment is the level of communication. Evidence exists that, when communication is limited between the members of a group, satisfaction and performance are lessened.\textsuperscript{35} Certain benefits are derived when people are allowed to get in on the flow of information and, especially, when they can use such information as a part of the decision-making process. Group decision-making heightens member identification with the decision and increases the motivation to execute it fully.\textsuperscript{36} Because

\textsuperscript{33}Likert, New Patterns of Management, p. 15.

\textsuperscript{34} Ibid., p. 170.


\textsuperscript{36}Likert, New Patterns of Management, p. 170.
of the importance of a feeling of mature self-determination for the employees, it is recommended that no group be allowed to make a decision which directly affects another unit without their having a voice.  

On the other hand, if competition, hostility, and conflict are what is desired, then let the president of the company make all of the decisions.  

Clarence Francis, Chairman of General Foods, said, "you can buy a man's time, a man's physical presence in a given place, and even buy a measured number of skilled muscle motions per hour; but you cannot buy ingenuity, initiative, loyalty, devotion of hearts, minds, and souls. You have to earn these things."  

Participation is not a panacea, a manipulative device, a gimmick, or a threat; it is a natural concomitant of management by integration and self-control. Participation appears to be a necessary managerial tool, attitude, and way of life required to get high productivity. The difference between high and low producing managers is the motives behind their use of participative

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38Ibid., p. 196.
management. The high producing manager seeks favorable and cooperative attitudes while the low producing manager, using the same tools, believes that motivation is achieved by control through authority. The employee participates so long as he agrees and adheres.

The process of treating people like people in order to increase managerial capability and productive output (called management by integration by McGregor) may be time consuming. Roles cannot be clarified easily, mutual agreement concerning the responsibilities of a subordinate’s job cannot be reached in a few minutes, nor can appropriate targets be established without a good deal of discussion. But if integrated management is finally achieved, the rewards include less policing of subordinates and a growth of managerial competence and output.

There are three ways to get results through people: telling them, selling them, or consulting them. The first method usually breeds resentment. The second method is better than the first because it recognizes human feelings. The third, consulting them, is the best because it recognizes the potential abilities of the people involved and appeals to them for ideas and

42 Ibid., p. 170.
If the idea is to maximize productivity, then the emphasis should be on soliciting as much help and utilizing as much potential as is available. High performing supervisors are employee centered with lofty performance goals and a contagious enthusiasm as to the importance of achieving their goals. Employees respond well to this type of supervision as demonstrated by favorable attitudes expressed toward supervision, working conditions, compensation, and the work itself.

High producing managers use more participation than do the low producing managers. The "highs" create a sense of freedom by setting general goals and by providing less specific direction; they reap greater employee involvement in the work, greater interest, and more personal responsibility for goal attainment. It would appear that the less management concentrates on production and the more it stresses concern for the people the greater will be the productive output.

In one study it was discovered that by switching

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44 Likert, New Patterns of Management, p. 8.

45 Ibid., p. 16.

46 Gellerman, p. 222.
the assignments of high and low producing managers (the high producing managers took over the jobs previously managed by the low producing managers and vice versa), the high producing managers tended to raise the output faster than the low producing managers allowed production to slip in the previously high output divisions. The high producing managers were characterized as employee centered and giving only general direction. The "lows" concentrated on the job with close supervision. Supervision, in order to be most effective, must let subordinates figure out the best way they can help. Plans must be mutually and collectively determined. As Likert states it, an effective "interaction-influence" system represents an ideal. The nearer a company approximates this ideal, the better are its chances for improving productivity and decreasing costs.

No coverage of the contributions of the Human Relations experts would be complete without some mention of the Scanlon Plan. The Scanlon Plan was proposed by Joseph Scanlon of the Massachusetts Institute of Technology some years ago as not only an employee

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47 Likert, New Patterns of Management, p. 12.


incentive or sharing proposal, but also as an industrial way of life or a philosophy of management. The Plan, consistent with McGregor's Theory "Y," embodies two central features. The first is a means of sharing the economic gains from improvement in organizational performance. It is not profit-sharing but more like cost reduction sharing. Participants of the plan are able to see the results or effects of their efforts on the company's performance and share in the savings created by receiving, usually, a monthly check.

The second feature of the Plan is the effective participation by all levels of employees in increasing output and decreasing cost. Every member of the organization is encouraged to contribute his brains and ingenuity as well as his physical effort toward organizational goals. A series of committees is established to receive, discuss, and evaluate ideas for improvement and put those into effect it considers workable. Committees at all levels work on ideas that effect their sphere of influence. This is active participation with astounding results.

Under this Plan, shop people and engineers are known to cooperate in working out the best solution to

50 Ibid.
manufacturing problems. In one instance, a self-appointed committee worked out a plan for replacing fork-lift trucks that, according to estimates, could have cost the company a couple of thousand dollars. In another case, a company that was so efficient by the President's own estimate that no more than a 2 or 3 per cent improvement would be possible at a maximum as a result of installing the plan found that a 20 per cent improvement occurred.

The Scanlon Plan operates on a base of employee interest generated by a willingness to participate on the employee's part and a general acceptance of the participation on management's part—all directed toward a goal that is mutually beneficial to both the company and the employees. All of the elements of the human relations approach to management are present.
CHAPTER V

HUMAN RELATIONS AND PARTICIPATION

The human relations movement in management has gained momentum over the past four decades in proportion to increased research in the field. Some knowledge of the research findings is essential to an understanding of the intent of this paper.

As opposed to the human relations approach to management, classical management theory has developed slowly over the last one hundred years to a point today that one member of the human relations school characterizes it as best suited to direct children rather than adults.¹ In contrast to the more formal theories of managerial direction and control, the rising school of human relations promises with the aid of organized research to rewrite the texts. Starting and ending with a view of the business enterprise that is firmly rooted in the people oriented sciences, the human relations experts project pictures of a business environment that is populated with productive individuals who like to work.

This utopian business world is seen as one where people are working together without strong individual leadership, formal organization charts, or a demand for specialization. The employees work together for their own as well as the company's good, communicate freely, and concern themselves with quality, cost, and schedule at all levels of the organization.

The traditional or classical approach to managing an enterprise is described by McGregor in his Theory "X" which is based on the assumption that people inherently dislike work. They must be coerced, controlled, directed, and threatened with punishment to get them moving toward organizational objectives. The presumption is that the average human being prefers to be directed, wishes to avoid responsibility, has little ambition, and wants security above all.\(^2\) McGregor goes on to explain that conventional organizational theory is grounded on the rock of authority. Authority is seen as central and indispensable for managerial control. It is absolute and unrelated to the degree of dependence in organizational relationships.\(^3\)

The transition from physical coercion to reliance

\(^2\)Ibid., pp. 33-34.

\(^3\)Ibid., pp. 18-21.
on formal authority has taken centuries to achieve, and as a basis of control it would seem to be an inappropriate tool to influence behavior toward organizational goals. Historically it has proven to be a weak tool, at best, for promoting collaboration. The question that arises, the question the new researchers are attempting to answer, is not more or less authority, but what other means are available to maximize productivity. The indication is that the power to influence others is not a function of strength or authority but more an appropriate selection of the best means as determined by the situation.4

Theory "X" implies the carrot and stick approach to motivation (with a stress on the stick as a possible club), and is dependent upon the individual employee's struggle for existence.5 The basic assumption is that man tends to live by bread alone. The fallacy, of course, is that when bread becomes more plentiful and man reaches an adequate subsistence level, he is motivated by higher needs which makes the carrot and stick approach less effective. The philosophy of management by direction and control fails because it does not reach the individual

4Ibid., pp. 30-41.

5Ibid., pp. 40-41.
whose needs are basically social and egoistic as opposed to physiological. People who cannot satisfy their needs at work will certainly react in a way assumed by the Theory "X" proponents. They will behave in an indolent, passive, unwilling manner and be inclined to make excessive and unreasonable demands for economic benefits.

Classical management theory sets as goals, task specialization and unity of command, to pick two. These goals, if reached, will foster psychological dependence, submissiveness, and leader dependence, all of which engender conflict, hostility, frustration, and tension. The only salvation, as one author put it, in the case of the chain of command, another classical goal, is that no one ever made it work.

Classical management theorists like to organize their operation into a coherent, efficient system with sufficient controls to assure progress. The truth would seem to be that most people operate least efficiently under this type of organization. The well controlled group of specialists is certainly fitting for some tasks, a temporary committee or road gang for instance, but does

6 Argyris, Executive Leadership, p. 100.
7 Gellerman, p. 96.
8 Ibid., pp. 96-97.
not fit as the tool for achieving maximum productivity for most situations. 9

A human relations perspective might give better results, but first let us consider what human relations is not. The human relations approach to increased output is not aimed at making people happy or simply improving employee morale. Morale, defined as the zeal displayed for the accomplishment of a group goal, can be high while aimed at low productivity. Group interaction, or interpersonal relations, creates the enthusiasm to accomplish what the group wants. 10 But peace in the industrial organization is not synonymous with organizational health, and responsible management is not the same as permissive management. 11 Employees can have high morale while striking or holding down production. 12 The lack of relationship between high morale and high productivity is the difference in goals.

The goals of the people in an industrial

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environment must approximate those of the organization, or conflict will result. In order to achieve some degree of agreement between company and employee goals, the employee should participate in the goal-setting process. He should be consulted. The question arises as to what participative management does for the organization. Does it mean turning managerial perogatives over to the employees? Does it mean that supervision makes no decisions?

One writer suggests that the human relations movement (which includes participative management) is a second industrial revolution. Its purpose is to return to the American worker a sense of usefulness and importance and as a consequence improve his work. Its goal is to "make life more fun by making work more meaningful."¹³ The emphasis is on usefulness, usefulness in the sense of banding together with fellow workers and management to do the best possible job.

A classic case of usefulness might well be the much publicized experiment at Non-Linear Systems, Inc., at Del Mar, California. By adopting the ideas of the management school of human relations, Non-Linear Systems achieved a production increase of 50 per cent and reduced

its turn-over rate to one-fourth of similar industries in the area.\textsuperscript{14} Using the theories of Maslow\textsuperscript{15} and his five levels of need satisfaction the Non-Linear Systems management began the study. The belief, a man must be what he can be, led to rather astounding results.

The company set up small independent groups of seven people to manufacture their product, electronic instruments. The time clock, inspectors, testers, and conventional assembly line techniques were eliminated. They gave the individual groups the freedom to assemble the product anyway they wanted. The team tested the instruments, repaired them, signed their name to the shipping tags, and assumed the full responsibility.

For the initial three years, 1961 to 1964, production increased to an average of 50 per cent more for each of the 350 employees. The rejection rate fell until it was practically non-existent. The employee morale improved, and many unusual skills became apparent for the first time. The people became individuals or human beings, not just hired hands.

The group method is used in each department at

\textsuperscript{14}"Non-Conformity at Non-Linear," \textit{Quality Assurance,} August 1964, p. 27.

Non-Linear Systems. In the engineering group, for instance, a project team includes all the skills required to develop a new instrument in any way the team thinks it will work. The project leader can buy any component or material required up to $2,500 without a counter signature. Each project team has its own quarters and operates much like an independent business. This action has led to "sky-high" morale that parallels company profits.\textsuperscript{16}

The management process that elicits the maximum productive effort over the greatest period of time would appear to be the ideal. At Non-Linear Systems the employees were treated like human beings and allowed to participate. Likert indicates that in order to get maximum utilization of potential capabilities of every member of the organization, an effective interaction-influence system must be developed.\textsuperscript{17} An interaction-influence system is defined as that managerial approach that combines the interdependent motivations and processes which coordinate, integrate, and guide the activities of the organization and all of its members.

Management systems vary. An organization relying

\begin{flushleft}
16"Non-Conformity at Non-Linear," p. 28. \\
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on punitive measures must be prepared to build decision making processes and communications that will cope with hostility, suspicion, and resentment. On the other hand, an organizational theory directed toward favorable attitudes and a cooperative orientation on the part of its members through the communication, decision-making, and control process is quite different. The motivations tapped and the management processes used are highly interdependent and must be consistent and compatible if the system is to function even reasonably well.\footnote{Ibid., pp. 178-179.} The productive cooperation of the individuals involved in attaining agreed upon goals would seem the ultimate in effective management.

The literature states that people must be involved in work that allows them to make a complete unit out of parts. They must be allowed to judge, to plan, and to change.\footnote{Drucker, \textit{The Practice of Management}, pp. 293-296.} Each job should have something new or better and something that demands thought reasonably often. Estimates have been made that each individual in the organization has enough unused potential to make him two or three times more productive or valuable to
the job. The person with a burning desire to do more and better will exceed the individual who is only driven by fear or drawn by reward. The trick would seem to be for management to get people to work as hard at their jobs as they do at their hobbies. How much would it cost an employer to get his people to put in the hours and energy required to trek the many miles under uncomfortable conditions as does the hunter? Or to take the physical abuse that an amateur boxer or surfer takes? The cost for this type of effort and dedication might be astronomical. It might be assumed that the difference between high and low productivity is in men's minds. How do you unleash this great potential?

One company unleashed hidden potential by allowing the employees to participate. American Radiotronics Corporation had one section that had the reputation of being a problem department. It showed evidence of intense frustration, personal differences, rumor mongering, unconcern for operations, and discouragement. It had a history of unmet delivery dates, or production quotas, with a high rate of rejection. Two years later, under a new general foreman, the department was making


almost 50 per cent of the company's total profit with about 2 per cent of the work force. The workers had begun to participate and to solve production and design problems which university professors and members of the company's engineering department could not cope with. Productivity increased to 300 per cent in two years, although the workers were not on the incentive plan. The employees designed and operated their own test equipment, their department maintenance man made and supervised their expenses and supplies budget, which showed a continuous decline in relation to volume. The workers moved around a lot and traded jobs. In short, the workers of this section were allowed to take part in an effort to pursue company goals.

Why people do not cooperate and participate voluntarily under any kind of supervision is not such a mystery when industrial surveys indicate that employees do not really believe the company to be interested in their ideas. As a result, many companies, in order to get the employees to use their minds as well as their hands, encourage self government for their workers through broadening their corporate responsibilities. Parker Pen replaced the time clocks with an honor system and found that tardiness nearly vanished.\(^{22}\)

\(^{22}\)"Human Relations," p. 97.
In order to get real participation, changes must be effected in the behavior and activities of people. This involves changes on the part of both management and non-management. Power over the environment is the motivation. The power to regulate work, goals, and standards and have a role in determining rewards would seem, more than money, to be the key to increased productivity.\textsuperscript{23} The common assumption of management that the needs of the employees and the company are opposed (McGregor’s Theory "X") must be reversed. Theory "X" reasoning leads naturally to the thought that in order to achieve lofty goals human nature must be compensated for.\textsuperscript{24} Nothing could be further from the truth. In order to realize the full potential of all aspects of the productive process each part—the man, the machine, and the management—must be placed in a favorable environment with each contributing to the utmost.

The employee must be recognized for what abilities he has. Consulting him does not mean manipulating him in order to let him think that he had a part in developing preconceived ideas. Man must be allowed to contribute, to participate in influencing his

\textsuperscript{23}Gellerman, p. 71.

\textsuperscript{24}Schaffer, p. 258.
McGregor's Theory "Y" attempts to present an alternative view to the management of people. The theory attempts to link improvement in managerial competence with the satisfaction of higher level ego and self-actualization needs of the individual.  

Theory "Y" states:

1. The expenditure of physical and mental energy in work is as natural as in play.

2. External controls and the threat of punishment are not the only means of achieving 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 achievement of objectives.

4. Imagination, ingenuity, and creativity in the solution of organizational problems is widely, not narrowly, distributed in the population.

5. Under conditions of modern industrial life, the intelligent potentialities of the average human being are only partially utilized.

The limiting factor, according to Theory "Y," is not the human being, but the inability of management to figure out how to realize the potential represented by human resources. Some place along the line managers must

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27 Ibid., pp. 47-48.
identify the real life goals they are working for. Are their daily endeavors aimed at increasing their own power, stabilizing their own position or maximizing progress toward corporate goals? The question must be answered by each manager and steps taken when the insight and wisdom materialize that will allow them to move outside the realm of their own egos and into the sphere of real cooperation designed to further the aims of the enterprise.

The central principle of Theory "Y" is that of integration, or the creation of conditions such that the members of the organization can achieve their own goals best by directing their efforts toward the success of the enterprise.\textsuperscript{28} The implication is that people allowed to identify and work towards a goal meaningful in their own personal terms can unconditionally out-achieve people placed in other environments. As an example, a group of Chesapeake and Ohio (C&O) Railroad employees demonstrated, with pride and joy, a big scale model of how they thought the Huntington, West Virginia shop should be remodeled. The demonstration was presented to the management of the railroad. The model was a labor of love built during 6 weeks of intensive work by

\textsuperscript{28} Ibid., p. 49.
blacksmiths, electricians, carpenters, material people, and others. C&O management had figured that a similar planning job would take from 30 months to 3 years. The idea sprouted when C&O realized it would have to redo a 60-acre facility at Huntington to take care of diesel locomotives. The men began talking of the project at their lunch hour. The existing setup built in 1928 was poorly laid out initially. The noon hour talks soon tumbled down to cases. Everyone told how he would cure the ills in his own setup. The boss listened and took notes, and a draftsman got the ideas down on paper and then invited all hands to get in on the mass planning. The product was the scale model that was shown to the rectors. One of the persuasive arguments in favor of the plan was the estimated cost for the whole conversion of around $2.5 million as opposed to the $10-15 million that management had expected to spend.29

The men in this shop were interested in improving their own jobs and allowed to participate in planning the improvements by the company. Through participation, at least in this example, it would appear that the company stood to gain from $7.5 million to $12.5 million through the voluntary and interested efforts of their

29 Drucker, The Human Side of Enterprise, p. 308.
High producing leadership reveals some interesting facts.

Experimental evidence indicates that the difference between high producing and low producing leaders lies mainly in their approach to employees. Both arrange and assign work and supply materials and tools; but the high producers more often recommend promotions, transfers, and pay increases. They keep their people informed, tell them how they are doing, hear complaints, and grievances, and generally create an atmosphere whereby the people in their organization feel free to discuss problems and solicit ideas. The high producing manager then attempts to react to what his people tell him. He, in short, treats people like human beings.30

What would seem to be the problem? Why do all commercial enterprises not operate at maximum efficiency? One can only assume that the personal differences existing between individuals block adequate communication and adult interaction. It would appear that despite astronomical sums poured into the search for productiveness, the greatest single resource is the individual's

increasing urge to make the work he does meaningful, creative, and challenging. Most people who work in our large organizations find themselves trapped in situations where the only real challenge to their ingenuity and human spirit lies in out-witting the system. \(^{31}\)

The opportunity for people to know themselves and act and react in an environment where they can feel justified and rewarded would appear to be the goal. Given an opportunity, people enjoy the opportunity to control their own destiny and participate in the decision-making processes that effect them.

\(^{31}\)Schaffer, pp. 260-261.
CHAPTER VI

THE EXPERIMENTAL DESIGN

In order to set the stage for this experiment, the reader has been offered some indication of where the technical publications writer fits into company and overall aerospace environment. A brief look at the historical as well as the current thinking of the human relations experts has been covered to orient the experimental approach and eventual conclusions. The details of the experimental design are included in this chapter to give meaning to the data analysis and conclusions that follow in succeeding sections.

The study was instituted to test the possibility that improved productivity might be forthcoming by allowing employees to participate in the decision making process. Included are employee opinions on the subject of participation and the measurement of any changes in attitude or output accompanying the opportunity to participate. Realizing that participation is most meaningful when applied to decisions that actually concern the individual, standards of performance were selected as a convenient test vehicle.

Standards of performance bear directly on how a
supervisor evaluates his employees and would appear to be of major importance to the employee. From the company side of the picture, standards of performance present an opportunity to improve effectiveness because people perform better when their duties are defined in specific terms and their accomplishments realistically evaluated against established standards.¹

People react most favorably when they are evaluated against results. And the results people obtain must be related to the results the enterprise expects in order to prevent a serious waste of resources. The people in an organization must be aware of what the company is trying to achieve and their part in the overall scheme of things. The goals and objectives of the company and the sub-goals and objectives of the components of the organization must be clearly stated and understood.

In order to take steps toward setting clearly defined and communicated goals, the supervision of the technical publications group, previously selected to take part in this experiment, established the goals of their group and related to each employee his specific part in the operation through job descriptions and

responsibility lists. Following the process of establishing goals and job descriptions, the difficult process of defining standards for each individual was begun.

With four, and later three, first line supervisors involved in the process of setting standards individually with each employee, the question arose as to the effect of employee participation on output, as evaluated by the employee's own productivity, or pages produced. A decision was made that standards would be formalized with employee participation encouraged. Working with approximately 40 technical writers, the first step was to measure the average hours per page each writer had spent for one year prior to discussing standards of performance with their supervision. During the year after receiving their standards their productivity was to be again evaluated in the same terms and the two figures related to determine whether or not any significant changes in output had occurred.

As standards were settled, the agreements were documented and copies given to the employees to be reviewed whenever necessary or at least once a year during the annual performance interview, which is customary with the company. After the final discussion on standards, each employee was given a questionnaire
designed to assess his feelings about both standards of performance and how much participation he was allowed. (See Appendix for a copy of the questionnaire.) Each individual was informed that his cooperation was strictly voluntary and that all answers would be held in strict confidence. Names were required to be placed on the forms in order to relate the answers eventually to pages produced before and after standards and a second, duplicate, set of questions. Regrettably, and to the detriment of the eventual statistical analysis, only nineteen of the individuals involved chose to take part in the experiment by answering the questionnaire.

One year after the various writers received their standards, seventeen of the participating nineteen people still on the payroll were asked to complete the duplicate questionnaire and were interviewed. The hope was to gain additional insight in excess of that supplied by the original questionnaire and the statistical analysis.

At the time this experiment was started it was intended that a variety of measures of workmanship would be checked in the same manner hours-per-page produced were eventually scrutinized. Such items as meeting both internal and external delivery schedules, budget performance of the group against externally imposed budgets,
and quality were reviewed. Problems arose in each of these areas. Schedules were met with such consistency that an exception was difficult to find. Budgetary records were analyzed and proved to have no relationship to performance. The final hope was a check of quality. As text pages were reviewed by an editor, a sheet was returned to the writer with the number and type of errors found. Even this source of information fell into disuse as the result of cost savings efforts undertaken shortly after the time the writers received their standards of performance precluding any "before and after" comparison.

The weight of statistical proof then fell upon probably the most meaningful indicators of individual performance: the hours spent per page of work produced, and the two questionnaires. The hours-per-page produced is a simple measure of performance determined by dividing the total output of pages for each writer into the total hours charged to writing and research by the same individual. By totaling time card entries recorded against a given book, a weekly tab run lists the cumulative totals for the group planners who make summary reports for the supervision. After totaling the hours charged against the active books, running totals are provided and compared with the budget and work to be
accomplished to assure monetary and schedule control. These statistics are filed for historical purposes along with the name, or names of the writers involved and the total new pages produced. The pages produced vary according to the number of technical and other changes that have occurred since the previous revision or change to the book. By recapping the new pages and hours spent by each writer, an average hours-per-page statistic is available.

The questionnaires were intended to solicit any personal feelings the employees might have toward participating in decisions, in general, and cooperating in establishing their own standards of performance, in particular. The questionnaire was set up to distinguish between those people who felt that they had been allowed to participate fully and those that felt otherwise. The two groups were delineated based on the answers they gave to the first question on the amount of participation they were allowed. The subjects were required to select one of four answers which ranged from "allowed to fully cooperate" to "did not participate at all." By this method two groups were formed, the first made up of those people that felt that they had fully participated and the second comprised of those that had experienced something less than full participation, or checked
anything other than the first answer to the question. The statistical data for the two groups was compared and the results analyzed. The data and the analysis is presented in Chapter VII.

The remainder of the questionnaire was composed of fourteen additional questions and multiple choice answers to investigate any differences that might exist between the responses given by the two groups. Both questionnaires, the first one completed at the time the employees first received their standards and the other one a year later and immediately preceding the interview, were compared. The interrelationship of the various responses is discussed in Chapter VII.

The interview was included to give the employees full opportunity to express themselves about standards and participation in the decision making process. Each employee who volunteered to complete a questionnaire was interviewed by the writer. Each was asked to answer a number of oral questions. The subjects all took part in the interviews with little hesitation and seemed genuinely interested in the subject. The varied responses and apparent openness of the individuals convinced the writer of the sincerity of everyone involved. The interview results are covered in Chapter VIII.
While the justification for this study was to evaluate any relationship that might exist between employee participation in establishing standards of performance and productivity, the pros and cons of standards (not necessarily related to participation) were the subject of much that transpired. Standards were discussed in an obvious attempt to approach the meaning of participation in the subject's own thinking. It became apparent early that "participation" was not simply being used by the people involved in the experiment as it is defined in the dictionary, i.e., to partake of or share in, but was being used in a highly subjective manner by both supervision and employees. The variety of value judgments used in interpreting how much participation had been experienced seemed to cover the entire spectrum: the degree of emotional content that existed in the various conferences, a criterion of how much involvement was experienced, as well as estimates of influence or effect on the final product.

In summary, the study has three parts: (1) A "before" and "after" comparison of employee productivity as measured by hours spent per page one year prior and one year after standards were established for the two groups - the "participators" as opposed to the "non-participators"; (2) a comparison of the responses for
the two groups given to two identical questionnaires filled out by the subjects at the time they received their standards and one year later; and (3) an interview conducted one year after the standards were first agreed on. The search was for any differences in performance or opinion between the participating and non-participating groups.
CHAPTER VII

PRESENTATION OF DATA AND ANALYSIS OF RESULTS

A search of the literature in the Human Relations area, as indicated in the two previous chapters, strongly suggests that production levels and employee attitudes are influenced by the amount of participative decision making that exists in a firm. The information gathered from a questionnaire and a personal interview with the subjects of this study and data pertaining to the number of technical manual pages they produced tend to confirm this belief. The data from the questionnaire and the page production statistics will be presented in this chapter with an analysis of the results included. The interview results will appear in the next chapter.

The Questionnaire - Data and Analysis

The questionnaire (See Appendix) was designed to ascertain the degree or amount of participation an employee was allowed, in the employee's opinion, in a series of standards of performance interviews. The questionnaire was designed to separate high and low-participators and determine any effects of this type of
involvement.

By asking the question directly, "When your supervisor discussed your standard of performance with you, how much opportunity did you get to participate?," and offering four possible answers ranging from full participation to little participation, it was possible to form two groups of subjects. The first group was made up of those individuals who checked the "a" answer (full participation) to question number one. The second group was composed of everyone else, or those that checked the "b," "c," or "d" box. These two groups will be referred to as the "participators" and the "non-participators," respectively. The remaining fourteen questions on the questionnaire were analyzed with reference to this division of the seventeen people involved.

Nineteen questionnaires were received immediately after the employees finished their standards interviews. Two of this number terminated during the following year. Of the seventeen remaining, twelve indicated that they had been allowed to participate fully and consequently formed the participators group. The remaining five individuals formed the non-participators group. For the purpose of analysis the responses of the seventeen people to the first question on the first questionnaire
were allowed to establish their group regardless of how they responded to the first question on the second questionnaire. The same questionnaire was given to the employees twice approximately one year apart.

Prior to completing the first questionnaire the employees were asked to answer the questions without extensive discussion amongst themselves. (The tendency was to start at the top of the form and inquire as to what was meant by "participation.") As their supervisor handed them the questionnaire they were informed that the purpose of the study was to evaluate the meaningfulness of the standard of performance program and that there would be a followup interview at a later date. Each employee was also told that his participation in the study was voluntary and that all answers would be kept secret. Secrecy was guaranteed by forwarding the completed form directly to the writer of this report through the company mail.

In order to quantify the answers, a weight of one was assigned for each "a" answer for questions 2 through 15, two for each "b" answer, et cetera. These weighted scores were totaled for the members of the two groups and then averaged. The average weights for the various questions on both questionnaires are given in Table I.
<table>
<thead>
<tr>
<th>Questions</th>
<th>Participators N = 12</th>
<th>Non-Participators N = 4 and 5*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - Know what is expected</td>
<td>1.50 1.41 1.40</td>
<td>1.40 1.40</td>
</tr>
<tr>
<td>3 - Understand results expected</td>
<td>1.41 1.50 1.40</td>
<td>1.60 2.00</td>
</tr>
<tr>
<td>4 - Know authority</td>
<td>1.50 1.41 2.20</td>
<td>2.00 2.00</td>
</tr>
<tr>
<td>5 - Standards give good measuring stick</td>
<td>2.00 1.58 2.20</td>
<td>2.40 2.40</td>
</tr>
<tr>
<td>6 - Standards help better communication with supervisor</td>
<td>1.50 1.08 3.00</td>
<td>2.40 2.40</td>
</tr>
<tr>
<td>7 - Have better idea of place in big picture</td>
<td>2.00 1.75 3.00</td>
<td>2.80 2.80</td>
</tr>
<tr>
<td>8 - Resolved questions</td>
<td>1.58 1.67 1.50</td>
<td>2.20 2.20</td>
</tr>
<tr>
<td>9 - Standards good idea</td>
<td>1.33 1.08 2.00</td>
<td>1.60 2.20</td>
</tr>
<tr>
<td>10 - Standards plus discussion good idea</td>
<td>1.33 1.08 1.80</td>
<td>1.60 1.60</td>
</tr>
<tr>
<td>11 - Discussed standards help communication with supervision</td>
<td>1.50 1.41 2.50</td>
<td>2.00 2.00</td>
</tr>
<tr>
<td>12 - Discussed standards help communication with peers</td>
<td>1.91 1.83 2.76</td>
<td>3.20 3.20</td>
</tr>
<tr>
<td>13 - Get recognition and encouragement deserve</td>
<td>1.67 1.83 1.40</td>
<td>1.60 1.60</td>
</tr>
<tr>
<td>14 - Written standards discussed help motivate to do better</td>
<td>1.50 1.33 2.80</td>
<td>2.20 2.20</td>
</tr>
<tr>
<td>15 - See program continued</td>
<td>1.41 1.08 1.50</td>
<td>1.60 1.60</td>
</tr>
</tbody>
</table>

*One of the non-participators did not answer 5 of the questions on the first questionnaire - questions #7, #8, #11, #12, and #15.
An analysis of Table I shows that participation in the standards of performance interviews improved the employee's knowledge of the authority he had, helped the employee and the supervisor communicate about the job, and improved the employee's knowledge of his place in the "big picture." Participating employees thought standards of performance and standards coupled with discussion were a good idea. When the answers to questions 6 and 11 are compared it is significant to note that the participants felt much more positive about standards helping their communication with their supervisor (6) on the second questionnaire than they did about discussed standards helping communications with their superior. The participants expressed a more positive opinion or feeling than did the non-participants as indicated by a lower weighted average answer.

The non-participants, on the other hand, felt more sure than the participants that they knew what was expected of them even though the difference between the answers given by the two groups was small. The non-participants showed .09 points lower than the other group on the first questionnaire and .01 on the second. A knowledge of results expected was also .01 points lower for the non-participants on the first questionnaire, a
slightly more positive feeling, but while both groups indicated less assurance on the second questionnaire concerning expected results, the non-participators exceeded the participants, going in a negative direction or toward a higher point total by .10.

Very strangely, the non-participators indicated greater assurance that they were getting the recognition and encouragement they deserved. The reverse would appear to be the guessed conclusion. One might speculate that whatever the attention and encouragement level was that the non-participators thought was adequate, this level was being approximated. Both groups slipped back, the participants .16 points and the non-participators .20 points, from the first to second questionnaire, but the fact remains that the non-participators were better satisfied with the attention they were receiving. Another possibility might be that the participants were more susceptible to participation because of a greater need for encouragement and recognition.

Further analysis shows that both groups became much more positive in their thinking over the year between the questionnaires with regards to question 6, standards improving communication with their supervision, question 7, knowing their place in the big picture, and questions 9 and 10, both having to do with standards and standards
plus discussion being a good idea. Whatever happened
during the year (and standards of performance were not
prominent in the daily lives of most of the individuals
as discussed during the interview covered in the next
chapter), both groups were more sure of the benefit of
standards and the accompanying discussion in January 1966
than they were in January of 1965.

Other trends of interest might be noted in the
weighted average answers that showed an opposite direction
of shift from the first to the second questionnaire for
the two groups. In question 5, concerning the ability
of standards to give supervision a better measuring
stick with which to measure the employee's performance,
the participators decreased their answers from 2.00 to
1.58 while the non-participators became less assured that
such was the case and increased their answers from 2.20
to 2.40. Again, while standards were mentioned very
infrequently during the year, the participators somehow
felt that standards did help in the evaluation of their
work and the non-participators came to just the opposite
conclusion.

The answer to question 12 also showed an
interesting difference in direction. The participators
decreased their average answer from the first to the
second questionnaire by .08 points in response to how
they felt about discussed standards helping communication with their peers. The non-participators increased their average answer by .44 points to the same question. It might be noted here that neither group thought standards helped much in this area as the average weighted answers to this question were among the highest for both groups on both questionnaires.

Probably one of the more significant shifts on opinion occurred in responses to question 15. The participators showed one of their largest drops in weighted average going from 1.41 to 1.08 in answer to the question, "Would you like to see this program continued?" The 1.08 average represents almost unanimous agreement that the standards of performance program coupled with discussion with the employee should be very definitely continued. Only one individual of the participating group of twelve selected the "b" answer of, "It may be of some help." Conversely, the non-participators' average answer fell halfway between the "a" and "b" answer on the second questionnaire. The program would seem to have had less value over a period of time for those who did not participate.

Question 8 showed a provocative difference in the answers given. The participators thought that they had been able to resolve fewer of their questions one year
after the original series of interviews with their supervisor than they had immediately following the event. Their average answer slipped by .09 points. The non-participants seemed to agree. The non-participants were much more firm in their feelings that their questions had not been resolved and increased their answers by .70 points; the largest single shift recorded by either group. This difference might be attributed to a fading memory of what took place in the interview. Another possibility might be that those people who felt that they had participated, to whatever depth, would most naturally have had more of their questions answered or have been unjustified in their conclusion.

Upon subjecting the agreeing and disagreeing responses of the two groups on the two questionnaires to the \( \chi^2 \) level of significance test, it was discovered that while none were significant to the .001 level, as might be desired, three of the questions on the first questionnaire qualified at the .05 or better level (See Table II). Tending to confirm previous indications, a significant difference of .05 was found between the two groups on the first questionnaire on questions 6 and 9. The participants were much more firm in their conviction than were the non-participants that standards helped their communication with their supervision about the
Table 2

Level of Significance of Responses Given To
The Two Questionnaires

<table>
<thead>
<tr>
<th>Questions</th>
<th>1st Questionnaire</th>
<th>2nd Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\chi^2$</td>
<td>Level of Significance</td>
</tr>
<tr>
<td>2 - Know what is expected</td>
<td>.14</td>
<td>.80</td>
</tr>
<tr>
<td>3 - Understand results expected</td>
<td>.004</td>
<td>.99</td>
</tr>
<tr>
<td>4 - Know authority</td>
<td>.14</td>
<td>.80</td>
</tr>
<tr>
<td>5 - Written standards will give a better measuring stick to supervisor</td>
<td>.97</td>
<td>.50</td>
</tr>
<tr>
<td>6 - Standards help communicate with supervisor about job</td>
<td>4.04</td>
<td>.05</td>
</tr>
<tr>
<td>7 - Knowledge of place in big picture improved</td>
<td>2.42</td>
<td>.20</td>
</tr>
<tr>
<td>8 - Resolved questions</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9 - Standards a good idea</td>
<td>4.14</td>
<td>.05</td>
</tr>
<tr>
<td>10 - Discussed standards a good idea</td>
<td>.78</td>
<td>.50</td>
</tr>
<tr>
<td>11 - Standards and individual discussion help communicate with supervisor</td>
<td>1.55</td>
<td>.30</td>
</tr>
<tr>
<td>12 - Discussed standards help communicate with peers</td>
<td>1.23</td>
<td>.30</td>
</tr>
<tr>
<td>13 - Get recognition and encouragement deserve</td>
<td>1.04</td>
<td>.50</td>
</tr>
<tr>
<td>14 - Standards discussed will help motivate to do a better job</td>
<td>6.53</td>
<td>.02</td>
</tr>
<tr>
<td>15 - See program continued</td>
<td>.355</td>
<td>.70</td>
</tr>
</tbody>
</table>
job (6) and seemed to think that this improved communication was desirable by expressing the opinion that standards of performance were a good idea in question 9. The significant difference between the responses of the two groups was retained in answering question 6 on the second questionnaire.

Question 6, concerning standards helping in the communication process with supervision, was significant at the .01 level on the second questionnaire, tending to lend credence to the .05 level of significance indicated on the first set of questions. As the participating group evidently grew more certain of improvement in this area, approaching almost unanimous agreement that it was "very much" help, the non-participators also indicated a positive growth of confidence that communications had been improved. The non-participators increased their average weighted answer from 3.00 on the first questionnaire to 2.40 on the second, but the probability of the difference between the two groups being significant still increased from .05 to .01. It might be assumed that participation and good communication are synonymous.

On question 9 the level of significance was .05 on the first questionnaire and slipped to .20 on the second. The more significant level of difference between the two groups in response to the question of whether or
not standards were a good idea in the first questionnaire was offset by a more positive approach by the non-participators on the second questionnaire that found both groups agreeing.

Question 10 turned out to be significant at the .05 level on the second questionnaire as both groups improved their opinion of the benefit of standards discussed with the individual, but the participators, as they did in question 9, approximated the most approving position of "very definitely" while the non-participators, moving in the direction of more agreement, were not quite so positive.

Questions 5 and 15 fall in a slightly different category. Both of these questions found the two groups moving in opposite directions of certainty from the first to the second questionnaire. Both were significant at the .05 level on the second questionnaire after attaining the relatively insignificant levels of .50 and .70, respectively, in the first attempt at answering the questions. The participators could evidently envision the possibility of a better measuring stick being established by standards and desired to see the program continued. The non-participators were disinclined to see this aspect of the program as readily as the other group and were less sure that the program should be
maintained.

It is interesting to note the level of significance of question 14 on the first questionnaire, .02. The participators believed that standards and the related discussion motivated them to do a better job while the non-participators did not. This would not seem unusual since the non-participators were not in strong agreement that the program furnished a good measuring stick or helped communication. But even here, the non-participators sharply changed the level of agreement in the second questionnaire to more closely approximate the thinking of the participators that standards would help motivate them; as a consequence the difference between the groups diminished to .10 in the second questionnaire.

Productivity Measured

Effective human relations activities, to be of value, must not only give direction and better job conditions to the employees but serve to further the interests of the company as well. The intent of this paper is to evaluate the relationship that exists between that element of the Human Relations movement that states that productivity can be improved by allowing the producers, the employees, to participate in the decision
The experimental evidence presented so far would seem to substantiate the conclusion that participation pleases the people, at least those that choose to participate. The question that remains to be answered is whether or not the process answers a need for the company. The company demands increasing profit. Increasing profit is derived through a continuing process of more production and quality for fewer and fewer dollars. Now that we have an indication that employees may be motivated to do a better job by the application of human relations principles which are closely allied to the Golden Rule, i.e., treating them as you would like to be treated, how can this be related to actual productivity? The answer is only determinable by measuring actual output to assess any changes that might occur as the result of various programs or activities such as a standards of performance program, as in this case.

The technical publications group under scrutiny in this study is in the business of turning out pages of written and graphic technical material covering a myriad of difficult subjects. For the purposes of this experiment the writer's time spent in researching and actually writing the material is considered as the time
spent in producing the final book. While he may spend

time in meetings, traveling, and editing, the time of

prime concern is that time most closely related to

producing the final product. The individuals concerned

keep track of their time by type of activity which allows

a compilation of the production time spent by each. As

indicated above, tabular listings compile the hours

worked by each writer on each book that he is assigned to.

This information has been extracted from historical

files for each of the employees in the experiment to

test the possibility that employee participation in

decision making might increase the number of pages

produced per hour spent, or conversely, reduce the hours

spent per page produced.

The seventeen employees who chose to take part

in this study by responding to the original questionnaire

at the first of 1965 and who were still in the department

at the end of the year produced a total of 5732 pages

during 1964 and 6178 pages in 1965. The total publica-
tions department, about 40 writers, during these two

years produced 14,080 pages and 15,325 pages in 1964 and

1965, respectively.

The department as a whole started in 1964 at a

page rate of approximately five hours per page. This

rate had risen by the end of the year to a seven hour
per page average. In 1965 the rate fell from the 7 hours per page to 4.3 average hours per page. Like the departmental performance, the experimental group spent fewer hours in 1965 producing a larger number of pages and as a consequence had a lower average hour per page rate over the second year of 4.64 as compared to 5.00 for 1964.

In attempting to correlate employee participation, as established by their answers to the first question on the first questionnaire, and productivity, an average hours per page statistic was calculated for each of the individuals in the experimental group. A coefficient of correlation was then determined comparing degree of improvement to the participant or non-participant status of the subjects. There was a .40 relationship between the two variables. While this statistic does not represent a high degree of relationship it does suggest at least a minimal positive correlation.

Investigating the possible influence of increased experience or the relative difficulty of the job during the second year as opposed to the first, it was discovered that the group as a whole averaged seven years and three months experience as technical writers. The participating sub-group averaged seven years and two months in the field as opposed to seven years and four months for the
transfers, the final number of subjects eventually worked out to be seventeen. Even with this relatively small population, it would appear that some relationship does exist between giving the employee an opportunity to input to those decisions that effect him and favorable attitudes and eventual increased or improved productivity.
CHAPTER VIII

INTERVIEW SUMMARY AND ANALYSIS

This study was designed to evaluate the influence of participation in the decision making process on employee attitudes and productivity. A statistical analysis, presented previously, tends to confirm the possibility that favorable attitudes toward the job situation and (possibly as a consequence of changed attitudes) production increases as participation increases. But, being fully aware that employees represent much more than cold statistics, an interview was included to add to the study something in excess of conclusions based on a printed questionnaire or a $\chi^2$ calculation of level of significance.

An attempt was made to cover certain specific questions in the interview as well as give the subject free rein to express reasons, sentiments, or whatever, in answering the queries. A recounting of the interview questions and answers will be presented first in this section, to be followed by some of the individual employee responses volunteered during the various sessions. An analysis of the interview data will conclude the chapter.
The interviews were conducted 12 months after the 17 employees involved had received their standards of performance. Each interview was handled on an individual basis and included both yes/no and discussion questions.

In answer to the first question concerning how much standards had been used during the previous year, only six of the individuals indicated that some reference or discussion had taken place. Ten indicated that no mention of standards had occurred and one subject gave a qualified yes to the question indicating that the standard had arisen once with reference to a technical point in his job.

Pressing this same point further, each individual was asked if he had had a performance interview since receiving his standards. Thirteen indicated that they had and four responded negatively. With reference to the performance interview, the thirteen that had such a meeting were asked whether or not there was any difference since standards had been established and previous interviews. Ten of the individuals responded here saying that the performance interviews were about the same and three said they were different. Speaking to differences, three indicated that standards were used in the assessment of their performance.
The next inquiry dealt with how much influence each of them felt they had had in establishing their standards, whether the standards had actually been used during the year or not. Five indicated no influence at all, which is approximately the figure obtained on the questionnaire. Three indicated they had a small influence and were, by in large, unsure of how much of their commentary got in. Seven people indicated they had some influence and felt that the standards were actually different because of their input. Two individuals were undecided or could not remember.

The next point of interest involved any differences in the standards now (at the time of the interview), as opposed to when they were originally established and further, any differences the employee would like to see included. The main response, thirteen in number, indicated that there was no difference. Two indicated changes had been made and two said they did not know. With regards to their desire to see changes made, the suggestions were that they should be shorter, more specific, kept up to date better, include more discussion with the individual, and, as opposed to more specific, as above, one individual thought they should be more general. Although not necessarily agreeing as to what changes should be made, ten of the people involved thought
changes were necessary.

The next question, "Do you or your supervisor have a better feel for what a good job is since standards were established?," elicited a surprising response in that the majority had previously indicated that the standards had not been mentioned during the previous year. Twelve of the interviewees indicated that either one or both (themselves and/or their supervisor) had a better idea as to what a good job was. The most mentioned comment had to do with a better understanding of details, either of procedure or details of work flow. Better communications was mentioned in a number of cases. In one case, the individual specifically declined to agree that he had a better feel for the job but thought that standards had done wonders for his supervisor. Whatever level of rapport that was established seems to have helped in this area.

The next question dealt with any differences in the way the job was being done over the last year. Eight individuals indicated they felt there was no difference, one had no opinion. Some of the comments of those that thought there was a difference had to do, again, with better communications, a better understanding of what the job involved, simply a better feel for what it is all about, and additional comments ranging from better
technical knowledge to simply more efficiency in operations. One might assume that even though twelve people felt that a better "feel" for a good job existed, only eight chose to do anything about it.

A pair of questions were then put to the subjects regarding whether or not they would establish standards of performance if they were transferred to a new supervisor or they themselves became supervisors of a unit where standards had not been established. On the question of trying to work out standards with a new boss, the response was almost unanimous, sixteen to one in favor of trying to establish this type of understanding. On the other count of working out standards from a supervisory point of view, nine indicated that they would, five indicated they would not, and three were undecided. It is interesting to note in this area that the need for written standards was mentioned in most cases.

The last two questions had to do with the way the standards were communicated to the employees. The first question solicited an opinion from the subjects as to what they thought about the employee participating in establishing standards of performance. Again, unanimity all but existed. Fifteen indicated that soliciting aid or participation from the employee was either the best or only way to do it. One indicated he felt the
supervisor should simply hand the employee the standards without asking for comment and another did not think standards were worthwhile in any form. Three of the individuals who thought employees should participate indicated that they preferred a group discussion as opposed to individual conferences.

Some of the comments made, not as a direct response to a question but more as a volunteered thought or opinion, involved the whole range of standards of performance and employee participation. The most often mentioned comment had to do with the main benefit of standards being their ability to improve or better the employees' communication with their supervision. This comment was mentioned at least five times on a voluntary basis during the course of the interviews with the seventeen handbook writers. Opposed to this position, one individual insisted that standards did nothing for his ability to communicate with his supervision. But, by in large, the opinion was that standards did better this facet of the employees' environment.

A second voluntary opinion was that standards offered both the supervisor and the employee a better ability to keep track of how he, the employee, was doing. Coupled with this was the idea expressed that the expectations of the supervisor could better be met
if they were formally agreed upon through the use of standards of performance and discussion. A converse opinion, expressed by two of the non-participators, was that standards did not help them much but they did assist the supervisor in getting to know the job the employee does better. Two individuals, one a non-participator, suggested that supervision should be able to rate their employees on a fairer basis with well worked out standards. As one of the non-participators put it, the standards should be very much like the "articles of war" and tell what must be done in order to do the job.

Another opinion by a non-participator was that standards are best used if they are the basis for employee competition. It might be noted here that they are not used in this manner in the technical publications group but, if competitive levels of performance could be established, this employee thought that additional dollars should be given to those individuals that achieved or bettered the standards.

A positive note concerning this subject indicated that the communication that existed in the process of establishing standards helped decrease misunderstandings and established something more definite upon which to base job requirements. This process involved improving the employee job knowledge and furnishing better
direction. Both general and specific directions were mentioned. Standards were listed as contributing to the why's of the job, and giving an indication to the employee of areas of improvement and education requirements that might be lacking. Of a more personal nature, one employee thought it did him some good simply to sit down and chat with the supervisor on this subject or any other. All in all, the prevailing opinion seemed to be in favor of continuing the program, and nothing but benefit could be seen by most of the employees.

When questioned on their willingness to participate in the decision making process in other areas of the job environment, an almost universal "yes" was received. The employee indicated that they felt they could be of assistance and would feel flattered if allowed to input to departmental decisions whether directly or indirectly effecting them and their job. The employees expressed verbally, as they had previously in the questionnaire, that they thought the more input supervision allowed the employees to make into departmental decisions the better the decisions would probably be. This expression parallels the previously indicated feeling that a better overall job could be achieved with standards coordinated with the people actually involved in doing the job.
In commenting on improvements in the program, suggestions varied: comments were that standards should be kept up to date, or standards should be reviewed more often, or standards should be changed as the job changed in order to make them more meaningful. Each change, it was felt, should be coordinated with the individuals involved. Sentiments were also strongly in favor of documenting the agreements in order to reduce the possibility of misunderstanding at a future time.

As previously indicated, both general and concrete standards were listed as preferable by different individuals. The concrete standards were mentioned as giving a better target or goal to aim at, as opposed to general standards which give the employee greater leeway in order to accomplish his job. One employee indicated that the standards program had cut the page rate by two-thirds. This is a sizeable reduction and departmental statistics verify that almost a 40 per cent reduction did occur during the period of time that standards have been in effect. An adverse comment expressed by one of the non-participating employees was that standards did not help, and that he felt supervision should know what the employee is doing without this type of crutch.

Another interesting comment, again made by one
of the non-participators, had to do with the fact that the discussion that was held on standards between the supervisor and this particular employee had created a much better attitude between the two in that it had been carried out with an absence of any "I am the boss and you are the employee" feelings. One subject waxed enthusiastically on the idea of standards discussed with employees and even recommended some kind of an unscheduled note being sent around telling people to refresh their knowledge of their standards and live up to what they contained. This same employee indicated that while the technical publications group was growing smaller he enjoyed the opportunity of switching jobs more often to broaden his experience as well as giving him an opportunity to participate more extensively. It also gave him more interesting responsibilities with regards to the functioning of the overall unit.

Another employee told a rather interesting story of a previous job he had had where the company, a commercial tractor sales operation, delved rather extensively into the area of soliciting employee participation and opinion. In one instance the company in attempting to determine how many of a foreign made tractor could be sold in the United States market, surveyed the employees and gave each of them an opportunity
to make an estimate. In this case, as it worked out, the tractors were so popular that the entire first shipment was sold prior to the time that it reached the United States, but inspite of the fact that no one came close to predicting the market for the tractors, the subject was a popular topic of conversation at lunch and at the local pub. The people enthusiastically embraced the project of trying to predict sales. They all seemed to be working for the same cause, he indicated.

In addition, the company asked for employee opinions on advertisements, brochures, labels, et cetera, and as a result gave the employees a feeling of importance. They were able to elicit extra individual effort from the employees aimed at increasing sales and decreasing costs. The company was in an extremely competitive field. The subject indicated that a savings of as much or as little as a few cents on a spare part was important. He related stories of how people in the organization would voluntarily work on their own time to save small amounts of money in order to increase the company's profit margin or sales.

The non-participators were not the only ones that expressed negative sentiments during the course of the interviews. But for purposes of comparisons, some of their comments have been listed in greater detail due
to the extreme position usually implied or the color attached. It is the opinion of the experimenter that the non-participators generally expressed the great majority of the negative opinions and were far more adamant in their position than were the participating members of the group. The participating members seemed more inclined to accept any deficiencies that they saw in the standards of performance program and either hoped or were willing to work for an improved system in the future. The whole idea of better communication with supervision and better definition of goals seemed to have greater general appeal for the participators than was true with the non-participating group.

It would appear that the fact that wider decision-making participation was mentioned at least four times voluntarily implies an interest and a desire in aligning personal goals with those of the company. The almost universal interest in a better overall relationship or, to put it in the words of the human relationists, being treated like human beings, would seem to give further evidence of the validity of McGregor's Theory "Y," previously discussed. People are desirous of doing a good job, accepting responsibility, and enjoy contributing meaningfully to company goals and objectives.
CHAPTER IX

SUMMARY

A brief review of what has been covered by this paper would include an experimental situation set up to evaluate employee opinion as well as any changes in productivity that might be the result of being allowed to participate in the decision-making process. The experimental situation involved employee/supervisory interaction in establishing standards of performance. The supervision decided upon the ground rules for standards among themselves. These basics were then discussed, reviewed, and agreed upon with the employees. In each of these instances the employee was encouraged to participate. Upon the completion of the final standards of performance interview, the employee was then asked to complete a questionnaire covering his ideas and opinions with reference to standards and the degree to which he had been allowed to participate with his supervisor in establishing the standards. After a lapse of one year the employee was again asked to complete the same questionnaire and interviewed on the same subject. Statistical data concerning the average-hours-per-page for each of the employees for the year prior and
the year after standards were received was analyzed to ascertain any differences in the level of performance. The implications of these data are presented in previous chapters. Possibly the best summation of the work involved in this experiment is expressed by Meyer, Kay, and French as a result of their research done at General Electric.¹

This study dealt with performance appraisal interviews and drew the conclusion that most managers think that performance appraisals are good but that few will employ the program on their own initiative. In an attempt to evaluate this tool, the researchers came up with what they considered to be a superior approach to improved supervisory and employee relations; an approach that seems to closely resemble the standards of performance interviews discussed in this paper.

Performance appraisals by definitions are aimed at motivating men to do a better job. But based on the evidence available it was found that the criticism involved in this type of a conference had a negative effect on goal achievement. Praise was neutral and performance improved the most when specific goals were

established. The greatest progress was made when coaching was done on a day-to-day basis directed toward mutually established goals rather than criticism or praise levied on a once a year basis. And significantly, participation in goal setting helped produce favorable results.\(^2\)

The high participators in the GE study, a group that closely resembles the participators in this study, were found to have achieved a greater percentage of their improvement goals than did the low participators. The "highs" had a greater mutual understanding with their supervision, a greater acceptance of job goals, a favorable attitude toward the appraisal system, and a feeling of greater self realization on the job. The key to improving job performance seemed to be the process of establishing specific plans and goals to insure the necessary attention to that aspect of job performance. As a result of these findings, the researchers at GE concluded that employees react better if criticism is offered in a less concentrated form than in an annual interview. That feedback to the employee of how his performance is evaluated by supervision is essential to employee learning and should not be delayed any longer

\(^{2}\textit{Ibid.}, p. 124.\)
than is necessary and certainly not saved up for a year. Probably the most significant finding was that far superior results were achieved when the man with the manager set specific goals to be achieved rather than discussing needed improvement.

It was found that frequent reviews of progress provided a natural opportunity for discussing means of improving performance. This type of interview was far less threatening than the annual appraisal type interview. The resolution, as worked out at GE, was to substitute a work-planning-and-review program which stressed frequent discussions between the supervisor and his subordinates with an emphasis on mutual goal planning and problem solving.

As a follow up of this research effort, it was discovered that people under the new system more often changed their attitude in a favorable direction concerning such things as the amount of help the manager was giving them to improve performance, the extent to which the manager made use of their abilities and experience, and the degree to which they felt the goals they were shooting for were what they should be. The conclusions reached closely parallel the conclusions of this writer after analysis of the evidence available; employee attitudes do move in a favorable direction when involved
in a work-planning-and-review program. The evidence presented in the GE study would seem to indicate that there is a relationship between employee participation and favorable employee attitude and improved job performance. This is a significant point.

The price tag for the exploration of the moon in this decade is 20 billion dollars. The Aerospace industry is dependent on its people to help achieve this goal. One way, without increasing this already staggering sum of dollars, might be to try to make the employees feel grateful, or, another, reward good performance and punish poor performance. There is nothing wrong with these approaches except that the former does not necessarily increase output and the latter requires such perfect application few managers can do it within their limited authority. The one obvious alternative would seem to try to cause employees to want to produce more as in the case of the hobbiest where the work itself is often the end. The one method the supervisor can use is found in the exercise of democratic leadership and a mature treatment of the employees.


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Books


**Articles and Periodicals**


Myers, Paul J., "How to Double the Output of Your People," Manage (April, 1965).


Reports


Newspapers


THE QUESTIONNAIRE

This questionnaire was used twice during the study. The employees were asked to complete the form the first time immediately after they received their standards of performance. The same employees were asked to answer the same questions the second time approximately one year later and at the same time interviewed as to their feelings with regards to standards and participation.

The form and format of the questionnaire were suggested by an article appearing in the Personnel Journal\(^1\) concerned with evaluating appraisee participation in performance interviews.

**SUBJECT**  Your Standard of Performance

In an attempt to evaluate the possible benefit of establishing standards of performance for your job and the value of your participation, please answer the following questions to the best of your ability and return to the sender. ALL REPLIES WILL BE HELD IN THE STRICTEST CONFIDENCE. The final analysis will be of a statistical nature with no reference to individuals.

Please check one answer for each of the following questions:

1. When your supervisor discussed your standard of performance with you, how much opportunity did you get to participate?
   a. Full opportunity, I was encouraged to express myself.
   b. I was given a lot of opportunity to express myself.
   c. I was given some opportunity to express myself.
   d. I was given little opportunity to express myself. He did all the talking himself.

2. Do you know what is expected of you in your job?
   a. Know exactly.
   b. Pretty good idea.
   c. Somewhat vague.
   d. Very vague.

3. How clear an understanding do you have of the results you are expected to achieve?
   a. Very clear.
   b. Clear.
   c. Fairly clear.
   e. Vague.

4. Do you know just what your authority is in carrying out your assigned responsibilities?
   a. Definite idea.
   b. Pretty good idea.
   c. Not too sure.
d. Very little idea.

5. Do you think that written standards of performance will give your supervisor a better measuring stick against which to evaluate your work?
   a. Should be much better.
   b. Should be of considerable assistance.
   c. Some assistance.
   d. Little assistance.

6. Will the standard of performance help you and your supervisor to better communicate with each other about your job?
   a. Very much.
   b. Quite a bit.
   c. Some.
   d. Very little.

7. Do you feel as a result of the discussion of standards with your supervisor that your knowledge of your place in the big picture was increased?
   a. Very definitely.
   b. Quite a bit.
   c. Some.
   d. Little or none at all.

8. Were you able to resolve the questions that may have come to mind during the discussions?
   a. All of them.
   b. Most of them.
   c. Some of them.
   d. Very few.
9. Do you think that standards of performance are a good idea?
   a. Very definitely.
   b. Pretty good idea.
   c. Of little assistance.
   d. Dislike them.

10. Do you think that the standards coupled with the discussion of them between you and your supervisor are a good idea?
    a. Very definitely.
    b. Pretty good idea.
    c. Of little assistance.
    d. Dislike them.

11. Do you feel that standards of performance discussed with you individually has helped you to establish better lines of communication with your supervisor?
    a. Very definitely.
    b. Some improvement.
    c. Very little help.
    d. No help at all.

12. Do you feel that discussed standards have helped you in communicating with the non-supervisory people in the department?
    a. Very definitely.
    b. Some improvement.
    c. Very little help.
    d. No help at all.
13. Do you feel that you get the recognition and encouragement that you deserve?
   a. Very definitely.
   b. Sometimes get it.
   c. Usually do not get it.
   d. Never get it.

14. Do you feel that written standards discussed with you personally will help motivate you to do a better job?
   a. Very definitely.
   b. May help some.
   c. Will be of little help.
   d. Practically no help at all.

15. Would you like to see this program continued?
   a. Very definitely.
   b. It may be of some help.
   c. Can see little use.
   d. Of no use at all.

Comments: ________________________________________________________________
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