SELF-PERCEIVED POWER AND ORGANIZATIONAL CLIMATE AS A FUNCTION OF QUALITY CIRCLE MEMBERSHIP

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Participative management applications are growing in this country as well as in others. Many different programs by many different names are being offered as ways to increase participation. Powell and Schlacter (1971), found participation does not necessarily increase satisfaction or production. Many others do find a positive relationship (Bowers & Seashore, 1971; Morse & Reimer, 1956; Seashore & Bowers, 1970). "Participation" and "programs offering increased participation" are becoming "buzz words" in business circles. Quality Circles are such programs. Since Quality Circles are but a special case of participative management styles, this paper will present information regarding the background of Quality Circles as well as an overview of research in the area of participative management. The concepts of organizational climate and power will be dealt with more specifically as they relate to this study.

A typical Quality Circle might be made up of a group of line workers and supervisor from a related area, typically ranging in number from 5 to 10 persons (Yager, 1980). The group meets once a week either on or off company time, on a strictly voluntary basis, to discuss and solve problems associated with quality and production in their area. Many companies also have Circles operating in areas other than on the line, including clerical, staff, and managerial areas. The major

assumption of this form of participative management is that the employee, the person most familiar with the job and problems encountered therein, is the one best suited to solve job-related problems.

A basic component of the Quality Circle program is training. The first several meetings of a Circle are devoted to training the members. The Circle leader, typically the supervisor of those persons involved in the Circle, receives training in communication skills, leadership, human relations, cost analysis, and how to manage (Goodfellow, 1981). Circle members' training includes communication processes, measurement, and problem-analysis techniques, including cause and effect diagrams, pareto diagrams, histograms, and a variety of other graphing techniques. Education does not end after this first training; it is a continuing process within the Quality Circle. Later training may become more detailed, with the introduction of sampling techniques, and data collection (Yager, 1980).

Quality Circles originated in Japan in 1962 (Rieker, 1979). Credit for the formal training of the Japanese in quality control is often given to W.E. Deming and J. M. Juran, who held classes outlining statistical methods and management of quality control, respectively, in the early 1950's (Juran, 1967).

Due, in part, to the apparent success of the Japanese experience with Quality Circles, many companies in the United States and in other parts of the world have initiated such programs. Quality Circles were introduced into the United States in 1974 at Lockheed and Honeywell (IAQC, Reference Note 1). Since that time many other American companies have begun using the concept.

Different companies view the role of Quality Circles from different perspectives. To some, the Quality Circle program is a method to improve quality control; to others, a means of improving procedures in the workplace; and to still others it is a way by which "Quality of Work Life" and on-the-job satisfaction can be increased. Regardless of the intent, a well-designed program seems to do all of these.

It has been suggested that, although the Quality Circle approach appears to work well in Japan, cultural differences will not allow for a transference of the program to the Western World. Difference in culture and in industrial climate between Japan and the United States are obvious and accepted as fact. The question then becomes, "Will the differences prevent Quality Circles from becoming an effective tool of management in the United States?" The preliminary answer seems to be "no". Of course, just as procedures vary from company to company, some cultural adaptations may be necessary.

One of the questions encountered in the Western adaptation of Quality Circles is what role, if any, should be played by unions. In the Japanese system labor unions are usually consulted before implementation of Circles, after which their influence is minimal (Cole, 1980). Given the environment of American union-management affairs and the mutual distrust that seems to have become rooted in this relationship, it is necessary to consult union officials and to keep them involved in the Circle process through every stage. Due to the deep-rooted mistrust, the union and workers may see the Quality Circle as a management ploy to exploit laborers. To be successful, the Circle must be developed with a spirit of cooperation. This cooperation between union and management

must continue if the Circle project is to reach its full potential for the individual worker, for the union, and for the company.

The Japanese system consists of bonuses paid to the hourly worker, in proportion to company growth and profits. Because of this, the employee can see a direct relationship between the results of Circle activity (increases in productivity, decreases in returned or defective goods) and payments received, the bonus system. The American industrial counterparts need a comparable method to reward employees. Many companies do so through use of incentive plans of varying forms. It has been suggested (Cole, 1980) that monetary incentives must play a larger role in Western society. The case is not, however, closed. If, as is suspected, the Circle is providing intrinsic satisfaction to members, monetary incentives may destroy this. Closely related to this argument is one dealing with Maslow's hierarchy of needs (to be discussed in more detail momentarily). This argument suggests that employees may have gone beyond the needs of monetary rewards and are striving toward higher needs of self-esteem and self-actualization.

It becomes clear at this point that Quality Circles offer more than a method by which to improve product quality, or even to improve the quality of work life for the individual worker. They represent, rather, a commitment to a new form of management -- a form in which, contrary to our previous thinking, employees are seen as capable, intelligent individuals able to contribute more to the organization than their specific job duties.

Benefits

The benefits of a Quality Circle program have been proclaimed to be

many and varied. It is, of course, necessary to maintain records that will demonstrate the results of any such program, but we must also consider benefits that are perhaps less tangible, but no less important. As its name would connote, quality control is a major aim of the Quality Circle. Through improvements made by Circles, Juran (1967) estimated that each Circle averaged savings to the company of approximately $3,000. This amount would justify the cost of implementation. Irving (1978) quotes the president of a consulting firm as saying that a three to six dollar cost savings per dollar invested in a Quality Circle is not uncommon.

Juran (1967) lists the following as being other results of Quality Circles,

1. Foremen increase their ability to lead and control their departments,
2. Workers display more interest in their jobs and higher morale,
3. Improved relations develop between staff and line workers, and
4. Workers become potential managers through learning what in the past has been considered management tools.

This final point deserves further discussion. The training found in a Quality Circle is excellent managerial training. The implication is that many future managers may come from the ranks of Quality Circle members. With the training in cooperative working and participative decision-making, we may be able to look forward to a new breed of managers. Due to their experience in this type of group, these future managers may be better able to foster a cooperative working environment.

There are several elements that should be present if the Circle is to be of full benefit to all concerned. Again, training plays a key

role. It is necessary for leaders and supervisors to be trained not only in the techniques of Circle operations, but, perhaps more importantly, they must be trained to motivate their employees to do their best for the Quality Circle program (Goodfellow, 1981). Support from middle management is another necessity. Managers may see the advent of a Quality Circle within their jurisdiction as a threat to their own power. Where Circles have been most successful they have had the support of middle management. Although middle-management support may be difficult to gain, it must be emphasized that all levels of management must support the program. Permission is not sufficient; commitment must be obtained.

Ten basic elements of a successful Quality Circle program are listed by Irving (1978): 1) It is a people-building philosophy, 2) It is voluntary, 3) Everyone participates, 4) Members help each other to develop, 5) Projects are 'Circle', not individual efforts, 6) Both workers and management are trained, 7) It encourages creativity, 8) Projects are related to member's work, 9) Management is supportive, and 10) A quality and improvement consciousness develops.

Background Theory

Many eminent theorists have discussed the motivation of employees in the workplace. The philosophy of Quality Circles draws upon these ideas (IAQC, Reference Note 1). Abraham A. Maslow (1954) has set forth five general categories of needs, and therefore motivators. These five categories of needs: physiological, safety and security, social, ego, and self-actualization, range on a continuum from the most basic to the most complex. In today's industry, the income earned from employment

is generally sufficient to fulfill basic physiological needs. Safety needs are partially met through company pension plans and job security. Social needs are also met in the workplace through group membership and perhaps union membership. Employment also allows at least partial fulfillment of ego needs, through recognition, responsibility, and job advancement. The highest need-level proposed by Maslow is that of self-actualization, which has been characterized as having the general characteristics of growth and achievement.

The specific organizational factors involved in self-actualization may include a challenging job, creativity, and advancement in work (Szilagyi, 1981). It is this highest, most complex need-level that may be served by participation in Quality Circles or other such programs. It must be recognized that an employee possesses a number of needs. An employee is not apt to relegate the more basic needs to be fulfilled at work and seek fulfillment of higher needs somewhere else. Workers will look to their job as a source of need fulfillment (Dewar, 1980). Support for this idea may be found in the generalization hypothesis relating job satisfaction and life satisfaction (see Rambo, 1982). This hypothesis is built on the idea that dissatisfaction with work will be carried over to other areas of the employee's life. This is contrasted with the compensation hypothesis, which suggests that those dissatisfied with their jobs will seek areas outside of the workplace to provide satisfaction. Research reveals that those persons who report dissatisfaction with their jobs also report higher levels of dissatisfaction in regard to their lives. Therefore, the generalization hypothesis is supported in this instance.

Frederick Hertzberg (1966, 1968) suggests a two-factor theory of motivation. Hygiene factors are conditions whose absences act as dissatisfiers. Hygiene factors include job security, working condition, quality of interpersonal relations with others in the workplace, and fringe benefits. These factors do not motivate, but their absence may cause dissatisfaction. In relation to Maslow's hierarchy, it can be seen that hygiene factors are compatible with the three lower needs: physiological, safety, and social.

Motivators, or those characteristics of the job that serve a motivating purpose, include recognition, challenging work, responsibility and personal growth. Again, it is seen that Herzberg's motivators follow the same lines as Maslow's ego and self-actualization needs. Maslow and Herzberg agree upon the importance of needs. Their difference is that Herzberg considers that not all needs motivate and is also more concerned with satisfaction than motivation. Quality Circles address the point in Herzberg's theory that motivation must come from the work itself. This motivation can be accomplished by incorporating learning, communication and responsibility, and recognition, according to the International Association of Quality Circles.

Another theorist whose work can be applied to Quality Circles is Douglas McGregor (1960), who proposes a dichotomy of management's views of human behavior. The traditional approach, Taylor's scientific management (1911), is named Theory X. "Taylorism" has been characterized as trying to make employees more machine like, viewing workers as interested only in money for the work they perform, and as not being very intelligent (Howell, 1976). Theory Y represents a different way to manage. Concern for employees and participative decision-making are

seen as characteristic of a Theory Y manager or organization. Quality Circles are obviously based upon Theory Y assumptions that workers are capable of showing imagination and ingenuity in solving work related problems, and that the intellectual potential of most people is not being full utilized.

Participative Management

The purpose of this section is to aquaint the reader with the body of knowledge in the area of participative management. Following the overview of participative management research, the areas of power and organizational climate will be considered.

Of the many studies done in this area, one of the earliest examples is found in Lewin, Lippitt, and White's (1939) study of the effects of autocratic, democratic, and laissez-faire leadership. Evidence of the association between participation and productivity is shown in this classic study. Using eleven-year old boys, comparisons were made with the type of leadership and group productivity. Productivity in the democratic and autocratic groups were very similar. These groups differed in that the democratic group, the group experiencing the most participation, did not require constant supervision to be productive.

Another study relating production to participation is found in Coch and French (1948). New production techniques were introduced at the Harwood apparel manufacturing plant. Groups used included a control group who were given the new technique to use, an experimental group which elected delegates to work with management in the implementation of the new technique, and a second experimental group in which all participated in decision-making regarding the implementation of the new

technique. In terms of productivity, the full participation experimental group was superior, while the control group's production dropped. The "delegation" experimental group was more similar to the full participation group. From this research comes the often cited argument for increased participation; that participation in decisions dealing with a work change leads to greater individual acceptance of the change. The new procedure is also accepted as a group goal, setting norms of higher production.

As stated previously, management must be committed to the concept and practice of participation. Therefore, management should be prepared to face unforeseen consequences. An example of the importance of management's commitment is offered by Strauss (reported in W. F. Whyte, 1955). Employees were given greater control in their work area by being able to control the speed of the conveyor belt from which they worked. Although the speed of the belt varied during the course of the day, productivity increased. It increased to the point where other areas could not supply enough material to the work group, inventory backed up, and pay became inequitable. In response to these problems, management removed control of the speed of the conveyor belt from the work group. Interestingly, within a short period of time, six of the eight employees who had previously enjoyed the freedom to regulate their work flow quit.

Morse and Reimer (1956) manipulated the amount of decision-making available to a work group. Two comparable divisions within the company were used. The Autonomy groups exercise higher levels of control and decision-making authority than they previously had, while those in the Hierarchical groups received increased control and decision-making from

management, thereby decreasing their decision-making authority. Members of the Hierarchical groups reported a decrease in job satisfaction, while members of the Autonomy groups reported no change. In terms of productivity, both the Autonomy and Hierarchical groups showed a significant increase. The index of productivity that was used may have been a problem. Since the groups did not have control over the amount of work coming into their offices, the only way to increase productivity was to require fewer people to do the available work. However, this could only be accomplished through nonreplacement of employees who chose to leave the company or by not using part-time employees who were called in during times of heavy workload. Likert (1961) suggests that a longer time span may have shown that the improvements in productivity seen in the Hierarchical groups were unstable.

The Weldon study (Marrow, Bowers, & Seashore, 1967; Seashore & Bowers, 1970) also involved moving toward a more participative style of management. The Weldon company was acquired by the owners of the Harwood plan mentioned earlier in the Coch and French (1948) study. Although many similarities existed between the two companies in terms of product lines, the major difference was in management philosophy. Weldon had a history of authoritarian management, whereas the Harwood plant had an equal history of commitment to participation. The goal of Harwood management was to make the two companies more similar. Harwood's productivity far exceeded that of Weldon's and something was needed to make Weldon a profitable plant. During the two year period of measurement, attitudes toward jobs in the Weldon plant became more

positive. Productivity increased and Weldon came to resemble Harwood in many respects.

In summary, research reveals that desirable outcomes may be associated with participation. It may be concluded that satisfaction and productivity are increased through participation under certain circumstances. Attention will now be turned to the literature regarding self-perceived power.

Power

Self-perceived power in an organization appears to rely upon two organizational conditions. Katz and Kahn (1966) relate self-perceived power to formal organizational position and Tannenbaum (1968) suggests that perceptions of one's own power are related to the extent of participation in decision-making. It is the idea of increased power through increased participation that will be further examined here.

Leavitt (1965) speaks of increased participation as a form of power equalization. Typically, in an organization's hierarchy, those at the top of the pyramid are those that possess more formal organizational power, with the level of power decreasing lower in the hierarchy. When line workers are vested with the ability to make changes in the work place, their power should increase.

Rosabeth Moss Kanter (1979) argues that by sharing power with subordinates, leaders also increase their own power, in the event the organization performs better as a result. At this time it is difficult to discern whether there is a point of diminishing returns in terms of the sharing of power, or whether power is actually an unlimited quantity within an organization. Along with many others, Kanter would argue that

power is, in fact, an unlimited quantity (Lammers, 1967; Likert & Tannenbaum cited in Lammers, 1967).

Timothy McMahon (1976) speaks to the difference between power equalization and participation. The major distinction deals with the relative amount of influence exerted at different levels of the organizational hierarchy. Through participation, all members of an organization may increase the amount of influence they hold. All do not hold equal influence, however. Those at the top of the organizational structure start out holding more influence, and as a consequence of participation their power increases approximately the same amount as that of others who are participating. Therefore, the slope of the power or influence line is not changed, although it has been raised. This contrasts with power equalization, which emphasizes the relative amount of influence exerted by lower levels of the organizational hierarchy. In power equalization, the slope of the influence line is altered such that a more nearly horizontal line is produced, thereby tending to equalize power throughout the hierarchy. McMahon's subsequent investigation found support for the idea that increased participation leads to increased organizational effectiveness. The results did not, however, support his hypothesis that a power-equalized distribution would also lead to great organizational effectiveness. An interesting point is the interaction between participation and power equalization. Organizations using both variables were found to be superior to those using either one alone.

Rosabeth Moss Kanter (1983) brings up an intersting point when dealing with participation teams in relation to power. We often tend to believe that once participation is begun and people are meeting in teams

or Circles, that all members are "created equal". This is not the case in many instances. People come into a Circle meeting with varying degrees of influence and power. In cases where the supervisor is the Circle's leader, inequity is further accentuated. It is quite possible that these Circles can literally duplicate, in miniature, the organizational hierarchy. In this event, those of lower status may tend to drop out of the meetings, since they have little influence in the group, or feel they have nothing to contribute. Knowledge means expert power in situations such as this, so ideally everyone should enter the meetings with equal knowledge of the situation at hand. This will not occur naturally, so this gap must be filled by training, or by access to pertinent information prior to the meeting, to prevent a "knowledge gap".

Observational research with Dutch work councils (Van der Velden, in Mulder, 1971) reports that managers contribute up to 75% of the total communication of the council meetings, and among the other members two or three were responsible for two-thirds of the remaining 25% of the communication offered. Much the same results have been found by other researchers in European countries (again, see Mark Mulder, 1971). In laboratory research done by Mulder (1971), expert power and participation were manipulated. Expert power is defined as power derived from knowledge, skills, or special abilities of an individual. Expert power is gained through experience and training. Results of the experiment suggest that less powerful persons do not necessarily increase their power through participation. Under conditions where differences in expert power of individuals were large, the less powerful were more influenced in the situations of greater participation. When differences

in expert power were small, amount of participation had no effect on changing the viewpoints of those with less expert power. In other words, when group members are approximately equal in expert power, greater participation will not lead to simply changing the view of those of less power. In situations of greater differences in expert power, greater participation may lead to the more powerful changing the viewpoint of the less powerful toward their own. These findings support Kanter's work, discussed previously, in which she speaks of closing the "knowledge gap" to make participation effective.

French and Raven (1959) have listed five bases of power which are used as components in Dieterly and Schneider's (1974) self-perceived power and organizational climate scale used in this study. These bases of power will be discussed in detail later in this paper.

The concepts of perceived power and participation seem to be interrelated to a great extent. Discussion has centered on the outcomes of participative management styles in terms of productivity and employee satisfaction. Participation has also been considered in terms of a method of both increasing power and equalizing that power across an organization or a group, and suggestions offered toward that end. Attention will now be turned to the concept of organizational climate.

Organizational Climate

One of the more vague and confused concepts in social psychology today is that of organization climate. It is not the purpose of this paper to try to resolve the practical and conceptual problems of the concept, but to describe the approach taken in the present study. James and Jones (1974), in their review of organizational climate research,

listed three categories or approaches to organizational climate based upon measurement techniques and definitions. The multiple-measurement, organizational-attribute approach views organizational climate as attributes of the organization, measurable through a variety of techniques. The perceptual-measurement, organizational-attribute approach sees organizational climate as attributes of the organization, but measures these attributes through the individual's perception of the organization. Finally, the perceptual-measurement, individual-attribute approach views organizational climate as being measured perceptually and as an individual, rather than an organizational, attribute.

The approach to organizational climate taken in the present study is the perceptual-measurement, organizational-attribute approach, using the four dimensions of organizational climate as described by Campbell, Dunnette,Lawler, and Weick (1970). The four dimensions are: individual autonomy; position structure; reware orientation; and consideration, warmth, and support. These dimensions will be discussed in detail in a section to follow. James and Jones (1974), when speaking of this approach, state,

> Organizational climate was viewed as a situationally-determined, psychological process in which organizational climate variables were considered to be either causative or moderator variables for performance and attitudes (p.1100).

Of major concern when dealing with measures of perceived organizational climate is the difference between the actual and the perceived situation, as well as the accuracy of perceived perceptions. While these are important areas that certainly need to be addressed, this researcher feels it more important to look at the individual group members' perceptions than the actual situation or the difference between the two. Perceptions do not always mirror the actual situation, but it

is individuals' perceptions of the situation that will moderate their attitudes and behavior.

Many researchers have argued that measures of organizational climate actually measure satisfaction, and that no distinction between the two can be made (Johannesson, 1973; Guion, 1973; James & Jones, 1974). Payne, Fineman, and Wall (1976) make the following distinction between the two concepts.

> Firstly, satisfaction is focused upon a particular job, while organizational climate refers to the organization as a whole; secondly, job satisfaction concerns a persons' affective response to his job, while organizational climate is derived from a person's description of what the organization is like (p. 46).

Johannesson (1973) administered a measure of organizational climate and two measures of job satisfaction to approximately 500 manufacturing employees. Job satisfaction scales used were the JDI (Smith, Kendall, & Hulin, 1969) and the SRA questionnaire (Science Research Associates, Note 2). Through use of cluster analysis, Johannesson produced five clusters in which three were found to be first-order clusters from both organizational climate and satisfaction measures. From these results he concluded that there was too much overlap between the two concepts to warrant distinguishing between them.

Payne et al. (1976) disagree with Johannesson's conclusion and point out that although there were some high correlations between all measures, the median correlations were not large enough to conclude that organizational climate and job satisfaction were actually dual names for the same concept. The relationship of climate and satisfaction is most likely interactive. At this time it would be impossible to state for certain whether one causes the other. Several studies have shown that

manipulating climate leads to changes in job satisfaction (Litwin & Stringer, 1968; Dieterly & Schneider, 1974).

Litwin and Stringer (1968) varied climate in three simulated companies. The climates created were authoritarian-structured, democratic-friendly, and achieving. These climates were created by the orientation of the president of each company. Results of this study point to the marked differences in productivity and satisfaction that may be obtained by altering climate. Under authoritarian-structured climate, individuals were less capable of innovation than under the other climates. Under the authoritarian climate, organizational performance was generally low, as was job satisfaction. The friendly, democratic climate produced the highest level of job satisfaction, but overall organizational productivity was low. Those in the achieving climate enjoyed the highest performance in terms of number of contracts completed, number of contracts worked on, number of new products, and profit, while producing high job satisfaction in its members. This study shows the importance of presidential orientation on climate, as well as the effect of climate on the participants of the study.

Pritchard and Karasick (1973) found perceptions of organizational climate to be correlated with both individual satisfaction and subunit performance. Individual performance was not found to be correlated with perceived organizational climate.

It must be recognized that, at present, the status of the concept of organizational climate is ambiguous. With this knowledge, I will not attempt to provide insight into the inner mechanisms of organizational climate nor its association with job satisfaction. The purpose of measuring organizational climate is seen as important in that

the interest of this aspect of the present project is to ascertain whether perceptions of the workplace change as a function of Quality Circle membership. Therefore, this scale should be viewed as a descriptive tool from which inferences may be drawn as to how different segments of the company perceive their workplace.

CHAPTER II

STATEMENT OF THE PROBLEM

The climate of American industry seems to be one of change. The Japanese are producing very high quality goods. Japanese quality is putting tremendous pressure on Americans to be competitive. Quality Circles are part of the response of American industry to world market problems. It is therefore necessary to examine in more detail their processes and implications.

Although Quality Circles and other such programs are being used widely throughout the United States, little empirical research has been conducted concerning changes which occur as a function of membership. Of particular importance to this paper, few studies exist which deal with the psychological changes taking place when an individual joins a Quality Circle or other such group.

If Quality Circles are a program to which management will turn in search of a remedy for a myriad of organizational ills, we must be aware of the psychological processes that are being affected through such participation. The material brought together in this paper does not come from a single discipline, such as social psychology. It is important to understand that the situation being dealt with is not the bailiwick of any one discipline, but of many which must be combined to understand fully the many complex variables that affect the psychological factors under study.

The purpose of this study is twofold. I will report on the inherent difficulties of working in an industrial setting to study a phenomena such as Quality Circles (see Appendix B) and I will describe Quality Circle members' feelings toward their power and perceived organizational climate.

The overall objective of this research is to increase the body of knowledge associated with Quality Circle participation. The widespread use of the Quality Circle concept in industry and service organizations demands that the underlying process being affected within employees be examined. It is hoped that the project will lead to further investigation of perceived power and organizational climate in Quality Circles, along with an examination of productivity.

The researcher of the present project chose the methods described herein for a variety of reasons. It was felt that although field research does not offer the rigor of laboratory study, the benefits of dealing with an actual organziation far outweighed the costs. While it is true that a certain amount of experimental control is forsaken, the researcher spoke to several companies and conducted the study at the site where the largest amount of control was retained.

In terms of selection of measures, both organizational climate and perceived power seemed obvious choices in regard to the intuitive sense about the operations of Quality Circles. The scales measure self-perceived power and organizational climate, not the actual circumstances of power and organizational climate. This is felt to be important due to the fact that self-perceived circumstances may not mirror the actual situation, but it is an individual's perceptions, rather than the acutal circumstance, that will mediate behavior.

Method

Thirty-five persons, employed by a manufacturing company in the Midwest currently using Quality Circles, served as subjects in this study. Participation was voluntary, with no reimbursement to participants. The company, which employs approximately 1,700, has been using Quality Circles since July 1981. In March of 1983, 35 circles were in operation.

Design

An adapted version of Dieterly and Schneider's (1974) Self-Perceived Power and Organizational Climate scale was used. Due to the fact the original scale came from a laboratory study dealing with both line and staff employees, some questions were reworded to be garmaine to the employees surveyed. Several questions dealing with reward and coercive aspects of power were deleted because the union system operating in the company does not allow employees to reward or punish other employees.

Procedures

Plant Quality Circle coordinators were contacted to discuss and revise procedures for data collection. Due to the difficulties associated with work interruption in industrial settings, several methods of data collection were utilized. Some participants received and filled out the survey during Circle meetings. Many of the respondents took the questionnaire back to their work station to be filled out during breaks or filled out the questionnaire at home. The

questionnaires were then returned to the Quality Circle coordinators' office.

Results

Measures taken included personal descriptors of age, sex, length of service with company, and length of time in a Quality Circle. From Dieterly and Schneider's (1974) Self-Perceived Power Scale, six measures of power were used: overall, referent, expert, legitimate, coercive, and reward. Organizational Climate subscales were: overall, individual autonomy, reward orientation, structural position, and consideration. For the purposes of this investigation the term "overall power" is a composite of the five subcategories of power listed below (also see Appendix C).

Referent power can be shown in at leat two forms in an organization. First, it can be based on a certain attractiveness or appeal of one person to another. A person may be admired because of certain characteristics or traits that insprie or attract followers. Referent power may also be based on a person's connection or relationship with another powerful individual. Questions 1 through 7 of the questionnaire deal with referent power.

Expert power is derived from special abilities, skills, or knowledge exhibited by the individual. Expert power is gained through experience and training. Questions 8 through 14 address expert power in the organization.

Questions 15 through 20 deal with legitimate power. Legitimate power is given to an individual by the organization because of their position in the organizational hierarchy. It is derived from authority

assigned to positions. The organization usually sanctions this form of power by titles of manager, director, or supervisor.

Reward power is based on the ability of an employee to control and administer rewards to others. Reward power questions are numbers 21 through 24.

Coercive power is based on the ability to use punishment against others. Coercive power is addressed by questions 25 and 26 in the questionnaire.

Organizational climate refers to the set of characteristics that endure over time, describe the organization, set it apart from other organizations, and influence the behavior of its members. For our purposes, the concept of organizational climate is seen to result from the following components: individual autonomy, reward orientation, position structure, and consideration. Each is described below.

Individual autonomy is defined as the freedom to choose or make decisions pertaining to how one carries out their job duties, responsibilities, and tasks. The latitude or independence an individual exhibits in performaning a job is dependent upon the amount of responsibility individuals perceive themselves to have. If the job is intimately interrelated to other job tasks, the potential for high levels of individual autonomy is low. Questions 27 through 33 of the questionnaire address this concept.

Reward orientation is defined as how the employees view the organizational company policies as they pertain to the delivery of rewards. The question the employees must ask themselves is, "what does the company want from me if I desire X?", where X is a need. The important question to ask in evaluating reward orientation is whether or

not the organization has established reward systems that are easily recognized by the employees. Reward orientation is measured in questions 47 through 52.

Questionnaire items 34 through 40 deal with position structure. Position structure deals with the amount of structure imposed upon the employee's position. The principle element is the degree to which the objectives of and the methods for the job are established and communicated to the individual by superiors.

Consideration refers to the support and consideration received from one's superior. Questionnaire items pertaining to consideration are 41 through 46.

A correlational analysis was performed on an LSI 11-23 microcomputer. Personal descriptors were correlated with subscale responses using the Pearson Product-Moment correlation coefficient.

Means and ranges were computed for each category. The variance in N is caused by participant's omission of a descriptor or questionnaire section. Sex was coded as male = 1 and female = 2. Results are as follows:

Insert Table I about here

Correlation coefficients found are also presented. Those noted by an asterisk were found to be significant at the .05 level. These included: Age x Length of time with company, Referent power x Age, Referent power x Time with company, Coercive power x Length with company, and Reward power x Length of time with company.

Insert Table II about here

The results of the present study shows low correlations between the personal descriptors and the subscales of power and organizational climate. The highest correlation existed between length of time with company and power ($r=.56$; p .05). This correlation was expected to be high. Reward power ($r=.54$; p .05) and coercive power ($r=.43$; p .05) were also correlated with length of time with the company.

Discussion

These results would suggest that the descriptors of age and length of time with company are the better predictors or self-perceived power than Circle membership. The organizational climate scales did not correlate significantly with any of the descriptors. Instead of finding persons' length of Circle service to be most predictive of their power and their feeling toward the climate in which they work, the correlations in their categories were low ($r = .33$; $p<.05$). This finding draws attention to the needs being met by Quality Circle participation. Several inferences may be drawn. It is possible a minimum length of service in a Circle must be met prior to attitude shifts. The average length in the Circle was 6.11 months. At this point it is possible the groups had not yet completed their first project. Perhaps a series of successes are needed to build a sense of perceived power or for attitudes to shift.

A more viable explanation remains in the fact that individuals who like their work and enjoy where they work are the most likely to stay at their job. This explains the higher correlation with length of time in

the company. Individuals who feel they have no power in a job situation and do not feel positively about the company or work surrounding are more apt to leave the company for other employment.

The remaining descriptors of sex and age correlated at low levels with the subscales. These low correlations suggest little relationship exists between one's self-perceived power and organizational climate and one's individual characteristics of age and sex. In a time when people are becoming more aware of equality between the sexes, this seems a positive sign. It must be kept in mind, however, that the number of females sampled was low (eight) and not enough to base firm conclusions upon.

The use of participative management techniques such as Quality Circles is increasing throughout the world. More research is needed into the psychological processes affected by such programs. In particular, I would like to see research conducted concerning the effects of self-selection of the make-up of the group. Do these persons bring to the group a set of attitudes that sets them apart from others who do not wish to participate? Another fruitful avenue of study deals with productivity. What sources are being tapped when the introduction of Quality Circles coincides with productivity increases, if these increases do occur?

The present study's purpose was to describe, as well as to act as a base from which to build for future research. The sample size was small and techniques imperfect. The need exists for research, both observational and empirical, to add to our basis of knowledge in this exciting area of study.

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APPENDICES

APPENDIX A

TABLES

TABLE I

MEANS AND RANGES OF RESPONSES

	AGE	SEX	TIME W/ COMP	TIME W/ CIR	POWER	REF	EXP	LEG	CO	REW	OC	IA	PS	CONS	RO
N	35	F=8 M=28	35	32	36	36	36	36	35	35	36	36	36	36	35
MEAN	32.28	-	73.51	6.11	3.73	4.1	3.79	3.63	3.37	3.29	2.89	2.75	2.55	3.53	2.77
Low	23		1	.75	3.15	2.71	2.43	2.5	1.67	1.5	1.84	1	1.14	2.17	1.17
High	49		146	18	4.58	5	4.86	4.83	4.5	5	3.56	4	3.43	5	4.5

TABLE II

CORRELATION COEFFICIENTS

	AGE	SEX	LENGTH W/ CO.	LENGTH W/ CIRCLE
POWER	.18	.08	.56*	.16
REFERENT	.43*	.07	.32*	.15
EXPERT	.08	.31	.41	.02
LEGITIMATE	-.36	-.37	.29	-.07
COERCIVE	.34	.08	.43*	.33
REWARD	.28	.24	.54*	.29
ORGANIZ. CLIMATE	.03	-.06	-.24	.09
INDIV. AUTO.	-.11	-.20	-.16	-.03
POS. STRUCTURE	.25	-.02	.16	.25
CONSIDERATION	.03	.14	-.06	-.04
REWARD ORIENT.	.02	-.06	-.32	.18

APPENDIX B

EPILOGUE

Through the course of the present project, the researcher has gained new insights into the conduct of research in industrial settings. While not revolutionary, it is felt that others may be able to benefit from these insights. It is often the case that we, in academia, while professing to be in "applied" fields, lose touch with the actual concerns of industry. This may become a major difficulty when designing research to be done in an industrial setting. The following points will be discussed with this in mind:

a.) design of research

b.) recruiting industrial support

c.) actual conduct of research, and

d.) follow-up

Design of Research

When designing research to be carried out in the field it is well-known that one must often relinquish an amount of control in exchange for higher applicability or generalization. It is often felt that any loss of control is regrettable and should be avoided. However, if realistic research is to be conducted it is inevitable that some amount of control will be sacrificed. These feelings of retaining control may come from the values we hold of practicing a "pure" science, when in fact, these "pure" scientists are not the audience to whom the research is directed. Parsimony is the key in designing research of this type. When presenting a proposal of research to officials of a company one must be aware of, and have spelled out, the amount of time and disruption of work that the research will cause. Companies will

naturally resist outside activities that may disrupt the rhythm of daily work.

An extremely important part of selling a proposal is working with company officials or knowledgeable others to design measures of importance to the industrial setting. While some measures may have an outstanding theoretical basis, they may have no meaning to the company as beneficial or useful. This is not to imply that theoretical work is not basic or important, but suggests that both the practical and the theoretical aspects must be considered.

Recruiting Industrial Support

When meeting with representatives of the company it is important to have a clear plan of the research to be done. It is helpful for all concerned to have this in written form, including what is expected of both the researcher and the company or its representatives. This will allievate possible future misunderstandings of both parties' responsibilities. While the proposal is a guideline from which to work, flexibility must remain to tailor the research to the specific needs and conditions of the particular setting. It may even be advantageous for the researcher to outline a contract for the representative to consider, but this may not always be practical.

Unforeseen circumstances will always be the bane of the industrial research. Many of these cannot be predicted or avoided, such as strikes, layoffs, plant closings, or changes in corporate policy. While unpredictable, these circumstances need not bring the research to an end. They may instead be unique opportunities to observe unplanned events. Not all difficulties are unforeseen and hence preparations can

be made. Chief among these preparations is to secure a good working relationship with the representatives of the company with whom the researcher will be dealing.

Sponsors of research vary from situation to situation. It is advisable to explore all possibilities. Company management and the Union (if applicable) are primary sources of sponsorship and information. Other sponsors are also available to the creative researcher such as citizen-advocacy groups or governments. It is extremely important, whoever the sponsor, to seek the cooperation of the other groups involved. Discussion of the intent of the research and obtaining feedback from all groups involved is vital to reduce suspicions that may arise regarding the research as well as to form a cooperative, working relationship with all parties.

Data Collection

As in other research settings, employees' rights must be preserved. Anonymity and volunteerism are often used to protect the individual, as well as to allow truthful expression of attitudes. It should not be assumed that this is understood. The questionnaire given to employees in the present study included such questions as age, department where the individual worked, and sex. Pilot subjects later discussed with the researcher feelings that anonymity was not preserved, due to these descriptors. It must be stressed that the researcher has no access to company files and the company does not have access to the researcher's individual data.

Instrusion into work time, or as in the case of the present study, Quality Circle meeting time, should be minimized. Alternative procedures

for the collection of data, such as distributing surveys to be filled out at the subjects' convenience, is one way to avoid this situation. More importantly, we as social science researchers seem to be oriented toward the survey or questionnaire when these are not necessarily the most viable or informative measures available. Imagination and creativity are as much a part of conducting research as is a knowledge of the literature of the area.

Follow-up

The follow-up segment of research brings the project full circle. At this point, one should prepare a summary report designed for the audience to whom it will be presented: the sponsors with whom initial contacts were made at the site. These should include the representatives with whom the researcher worked most closely, the company manager, and union officials, if applicable, and all other concerned interest groups. Although a current research project is ending, it is important to receive the feedback of these individuals to increase the quality of the researcher's future project. Research sponsors also enjoy receiving comments pertaining to their situation in particular. Again, the question of "what does it mean to us" is one of the most important in their minds. A quality research project should be able to add to their understanding, point out possible problem areas, or lend insight into areas of fruitful pursuit.

Conclusion

It is often the case that industries are reluctant to open their doors to students or even to more advanced researchers. There are good

reasons for this. Many companies have had bad experiences when students arrive to do research. This situation is regrettable due to the complementary roles the researcher and company may attain. Both have a great deal to offer in different areas. The blending of this knowledge can be valuable to both. This compatible relationship need not end at the conclusion of the project. Findings may suggest future avenues to be explored, as mutually agreed upon, or the researcher and contact persons may become long-term consultants to one another on an informal basis. Whatever the case, the goal can be for all to look back upon the experience as a successful and worthwhile undertaking.

There are two keys to applied research in industrial settings:

1.) Commitment of time and energy

Industrial contacts do not develop overnight. These contacts may be made through professionals involved in the field, or through Quality Circle Association meetings. It is unlikely that the first company contacted will be the ultimate site of the research to be conducted. Unforeseen circumstances may cause delays. It will not likely run as smoothly as a laboratory experiment, where subjects can more easily be scheduled to suit the time slots developed by the researcher.

2.) Knowledge of the area

The study of Quality Circles is still quite new. However, much of the knowledge that Quality Circles incorporate from the fields of motivation and participative management is not new. Applicability of existing knowledge to industry cannot be stressed enough. As in all endeavors of this type, knowledge of the area is basic. This knowledge should not be confined to the theoretical. For example, the use of incentive programs associated with Quality Circles is extremely

applicable. A potential researcher should be aware of important areas connected with the basic unit of analysis, in this instance, Quality Circles.

While not insurmountable, there are many difficulties associated with this type of research. A well-planned design, and consideration to all the areas where difficulties may arise, will reduce these obstacles. Although planning gives a project a more favorable future, the essential elements that must be supplied by the researcher are patience, patience, and patience.

APPENDIX C

SELF-PERCEIVED POWER AND ORGANIZATIONAL CLIMATE SCALE (ADAPTED)

The following questions are part of our research dealing with Quality Circles. Your participation in this research is strictly voluntary and you may withdraw without penalty at any time. Your answers will be anonymous and will be kept confidential. If you have any questions regarding this research, please feel free to contact Dr. Bob Helm or Karen Lewis Taylor in the Department of Psychology, Oklahoma State University, (405) 624-6025.

Thank you for your time and participation. Please answer the following questions before going on to the questionnaire.

Please check all that apply:

1. _____ I have been a member of a Quality Circle.
2. _____ I am now a member of a Quality Circle.
   (The name of my Circle is _____.)
3. _____ I was asked to be in a Circle, but declined.
4. _____ I would like to participate in a Circle, but have not met with one.

Please answer the following:

5. My department is _____.
6. My age is _____.
7. My sex is M F (Circle one)
8. I have been with this company _____years, _____months.

Please answer the following questions only if you are currently a member of a Quality Circle.

9. How long have you been in this circle? _____
10. How many males are there in your circle? _____
11. How many females are there in your circle? _____

Please answer the following questions regarding yourself and your job as honestly and accurately as possible. Your answers will be kept confidential. You are to answer using a, b, c, d, or e.

a - strongly agree
b - moderately agree
c - no opinion or does not apply
d - moderately disagree
e - strongly disagree

Please use a number two (2) pencil and mark your answer on the answer sheet provided. Thank you for your time and help.

1. I attempt to set a good example for other employees.
2. My personality allows me to work well in this job.
3. I do not get along well with other employees on this job.
4. I frequently have arguments on this job.
5. Other employees ask my opinion about how they should do their job.
6. My fellow employees look to me as their informal leader.
7. I try to help my fellow employees.
8. I am an expert in this job.
9. My ability gives me an advantage in this job.
10. My previous experience prepared me to work at this job.
11. I find this job difficult to perform.
12. I have no difficulty in doing this work.
13. The tasks required in this job are not similar to others I have done.
14. Given some time I could improve the methods used on this job.
15. My position gives me a great deal of authority.
16. My function is not important to the company.
17. The decisions made at my level are of critical importance.
18. Others do not respect my authority.
19. I consistently make the correct decisions.

20. Others look to me for guidance.

21. It is not my responsibility to reprimand sloppy employees.

22. My evaluation of others' work can be an important determinant of their performance.

23. My work is a check on other employees.

24. My diligence reduces error.

25. My actions affect the rewards gained at other levels.

26. I do not control the fate of other personnel.

27. This job allows the employee to be autonomous.

28. In this job the employees control the decisions they make.

29. In this job the employees are free to establish their own work procedures.

30. The work of employees in this job is not closely reviewed.

31. Employees can pace their own work flow in this job.

32. No one tries to tell employees how to do their job.

33. The employees establish their own output standards.

34. The jobs in this company are highly structured.

35. The goals for employees are set for employees by the supervisor.

36. All job tasks are established by management.

37. The jobs in this company are very narrow.

38. People in this company do not know what their area of authority is.

39. Employees of this company are required to meet specified objectives.

40. The jobs in the company consist of repetitious tasks.

41. This is a warm and friendly company.

42. This is an unpleasant company to work for.

43. This company is considerate of employees as people.

44. The employees in this company are relaxed.

45. Subordinates can always get assistance from their supervisor.

46. There is conflict in this company between supervisors and employees.

47. Employees in this company are rewarded for their effort.

48. Increased profits are channeled into employee benefits.

49. Employees who serve the company well are seldom promoted.

50. Employees seem to work hard to save the company money.

51. Employee effectiveness is directly related to increased wages.

52. Hard work at this company is directly related to promotion to more responsible positions.

VITA

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