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Quality circle participation: Influences on quality of work life, job satisfaction and self-esteem

Lawrence Scott Blair

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QUALITY CIRCLE PARTICIPATION: INFLUENCES ON QUALITY OF WORK LIFE, JOB SATISFACTION AND SELF-ESTEEM

A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Science
in
Psychology

by
Lawrence Scott Blair
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ABSTRACT

Proponents claim that through participation in Quality Circles workers experience an increase in self-esteem and job satisfaction as well as an improvement in workers' perception of their quality of work life. In this study it was hypothesized that employees who participate in Quality Circles would have a more positive perception of their quality of work life, increased job satisfaction and the self-esteem levels of Quality Circle members would increase. Measures used included the Job Factors Questionnaire, Self-Esteem at Work measure and an Overall Job Satisfaction questionnaire. All three measures were administered to production oriented employees of a medium sized service oriented corporation. Of the these, 32 volunteered for participation in the Quality Circle Program. Post measures at three months and five months after starting the Quality Circles were administered to the Quality Circle participants. The results indicated that participating in a Quality Circle program had a positive effect on quality of work life, self perceived success and importance on the job. Self perception of doing the best job possible and overall job satisfaction did not change significantly.
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Recent attention in the American industrial sector has turned to the use of Quality Circles, a management tool widely used in Japan. Proponents argue that Quality Circles boost production rates, reduce absenteeism, and increase the general quality of work life experienced by workers who choose to participate in them. Despite the interest shown by American industry and the claims of Quality Circle proponents, there is a paucity of rigorous research on the subject. As one attempt at filling this gap, this study proposed to determine the relationship between being a participant in a Quality Circle program and the effects that Quality Circles have on the employee's quality of work life, job satisfaction and self-esteem.

What are Quality Circles?

There are almost as many variations of Quality Circle programs as there are firms that utilize the concept. Despite these variations there are several aspects of Quality Circle programs generally found in most Quality Circle activities. Quality Circles are small groups of employees, usually three to twelve members, who voluntarily meet on a regular basis to identify job related problems and devise solutions to those problems. Members of a specific Quality Circle usually are involved in similar
work activities and often are from the same department, although the latter is not a firm rule or requirement. Although historically aimed at problems concerning speed and quality of productivity, American Quality Circles are also concerned with issues relating to improved quality of work life such as working conditions, better opportunities for expression of ideas, increased participation, self-development, improved communications, and social support for members (Brockner & Hess, 1986; Ferris & Wagner, 1985; Marks, Hackett, Mirvis, & Grady, Jr., 1986). Many of the Quality Circles in existence today are viewed as a strategic business unit drawing members from many different disciplines and developed to work at developing members' technical and people skills as well as solving cost related or quality of work life problems (Vernier, 1986).

Members of many Quality Circles in larger companies are frequently taught methods of brainstorming, deductive reasoning, and other techniques for identifying, analyzing and solving the problems they may encounter (Barra, 1983). Facilitators, who are also often trained in group leadership skills, are usually the liaisons between the Quality Circle group members and management. When a solution to a problem has been derived, a formal presentation is usually made to the management at the work place (Antilla, 1981; Marks et al., 1986; Pascarella, 1982). Management then either accepts the idea and gives
its approval for implementation, or management rejects the idea and gives valid reasons for the rejection along with any recommendations they feel may be appropriate.
HISTORY OF QUALITY CIRCLES

To better understand the concepts surrounding Quality Circles it is necessary first to be exposed to a description of their inception. Although Quality Circles originated in Japan, the credit for their conceptualization generally goes to two Americans. Dr. Edward W. Deming and Dr. Joseph M. Juran were sent to Japan by General Douglas MacArthur after World War II to act as consultants to Japanese industry for improving the quality of products it produced. In the early 1950s, Dr. Kaoru Ishikawa, a Japanese professor at the University of Tokyo, used the ground work laid by Deming and Juran to formalize the Quality Circle technique used in Japan today (Antilla, 1981; Barra, 1983; Couger, 1983; O'Donnell & O'Donnell, 1984).

Instead of joining the Japanese in their pursuit of increased quality and worker satisfaction, American industry remained in the 1900s mode of "Taylorism" by using time and motion studies and giving workers increasingly smaller, mindless jobs (Antilla, 1981). It is theorized by some (Antilla, 1981; Barra, 1983; Couger, 1983; Pascarella, 1982, 1984) that the American culture, specifically the general emergence of white Anglo-Saxon Protestant (WASP) managers ruling over a variety of ethnic workers, was the prime reason for the failure of American industry to adopt
Quality Circle programs. The WASP managers may have felt threatened by any ideas of sharing the decision making process with workers whom they considered less capable than they. Japan, on the other hand, has less diversity in its ethnic, racial, and religious make-up than does the United States, allowing greater ease for workers to share ideas and decisions with management (Antilla, 1981).

Due to the decreasing quality of American products when compared to imports it was in the early 1970s that Quality Circle programs first emerged in the United States (O'Donnell & O'Donnell, 1984). Since then hundreds of companies have incorporated Quality Circle programs as part of their organizational structure resulting in thousands of Quality Circles across the nation in a variety of manufacturing industries (Cougar, 1983; Main, 1984; O'Donnell & O'Donnell, 1984). The tremendous growth in popularity of Quality Circles is exemplified by Pascarella's (1984) report that at the first meeting of the International Association of Quality Circles (IAQC) in 1979 there were only 150 people in attendance whereas attendance at the 1984 IAQC meeting was over 3,000 people. Accompanying this growth in Quality Circle activities is also a growth in the diversity and ingenuity of Quality Circle techniques.

Pascarella (1982) reported that although the number of Quality Circle programs is growing rapidly this is no
indication of the successfulness of Quality Circle programs in the United States. Despite the phenomenal growth of Quality Circle usage in the United States, little research using scientific methodology has actually been done. Most reports of success or failure of different Quality Circle techniques or applications has been in the form of anecdotes and testimonials (Barra, 1983; Mohrman & Novelli, 1985). However, it is from these reports that ideas have emerged regarding what type of organization is best suited for Quality Circle applications and what Quality Circle techniques may or may not work well. These issues will be discussed in detail in the Models section (p. 10).

Acceptance of Quality Circles

Articles in popular trade magazines and professional journals have debated the issue of whether Quality Circles are adaptable to the American work force, are valid organizational techniques, or if they are simply another fad sweeping the American industrial scene. Books on Japanese management styles (DeMente, 1981; Gibney, 1982) and Theory Z management (Ouchi, 1981) have been best sellers for years and have attracted many American managers to Japanese management methods.

Jones (1983) has suggested that the issue is not whether Quality Circles can be adapted for use in the United States, but rather, can the Western industrial
organizations adapt enough to adopt the Quality Circle programs effectively? He cites the need to change the general ideas behind many corporations' personnel, training, and development departments if America is to succeed at adopting Quality Circle programs. Senior management's views regarding the lack of free flow of information both up and down the corporate structure also need to be changed (Jones, 1983; Landon & Moulton, 1986) if Quality Circles are to be effectively implemented. Jones also suggests that American organizations considering the adoption of Quality Circles may face problems related to questions surrounding rewards and their possible negative effects and the destabilizing effects Quality Circles may have on organizational structure. Measurement of success or failure of Quality Circles, and development of the right climate to implement Quality Circles requires a structure that is open and able to adapt to the significant changes that must occur within the organization.

Blair and Whitehead (1984) report that only 25% of the Quality Circle programs initiated in the 1970s in the United States were still in operation in 1984. Even Lockheed, this nation's first corporate proponent of Quality Circles and a large corporation able to devote both time and money to its Quality Circle program, has had problems sustaining its Quality Circle programs. As a comparison, Blair and Whitehead emphasize that in Japan two
thirds of the Quality Circles are performing with some success while another third are below standard or dissolved. One half of the successful programs are performing well while the other half have a borderline performance rating. One possible reason for greater Japanese success with Quality Circle techniques is that Japanese industry is constantly striving to insure that Quality Circle activities do not fall into simple ritualistic behaviors. This is most often accomplished by rotating employees through cycles of membership and then non-membership.

The two main causes for Quality Circle failure are a lack of sincere support from all levels of management and the American worker's concerns about job security and recognition (Blair & Whitehead, 1984; Ruffner & Ettkin, 1987). American management often supports Quality Circles for resolutions of quality, productivity, absenteeism, and turnover problems and gives little or no thought to enhancing employee development or involvement. Management views Quality Circles as just another training program or task force, Blair and Whitehead argue, instead of respecting them for what they are, an organizational intervention with the potential to change an organization's assumptions about its employees and the style in which they are managed. Quality Circle programs can have significant
impact on the organization and their survival should be a major concern to management.

The Japanese management approach of using Quality Circle programs should not be culturally exclusive to Japan (Chapey, 1983). Only twenty years ago, "made in Japan" meant poor quality and cheap merchandise. Using ideas originated by two American industrial experts, they changed their management techniques and are now enjoying a reputation that is generally believed to outperform our own. Of course all of this Japanese success can not be attributed to the use of Quality Circles, part of the success is that employees and management worked together to initiate changes. Both historically and in the present mandates for change were and are not forced upon employees but rather employees were and continue to be invited to help plan changes (Chapey, 1983). This type of worker participation is not yet customary in the United States, but it has the potential for being a great motivator of workers. Members can engage in personal development and partially satisfy a desire for autonomy (Blair & Whitehead, 1984).

Success and Failure of Quality Circles

The conceptual literature has suggested a variety of elements that are necessary in an organization for effective and successful use of Quality Circles. Although
some of these might seem obvious, others are not quite as obvious but are considered as being important to the success of a Quality Circle program. Drawing from available literature and personal experiences with many different organizations, Vogt & Hunt (1988) propose several problems with the average United States organization that will lead to failure of a Quality Circle or other participative intervention. One major obstacle to the success of these types of programs is that most organizations do not allow for any strategic planning for organizational change or for the role that Quality Circles can play in that change. Quality Circles, if they already exist or are being planned for, are rarely integrated into the organizational hierarchy. The responsibility for the success of the program is given to someone as an addition to their existing responsibilities and is often not included in their performance reviews. Support from both management and the design of the organization is frequently not a permanent component of the organization's structure. These factors create an environment that is less than adequate for the success of a participative program.

Models. A model proposed by Goldstein (1985) to explain the optimum atmosphere for Quality Circles, is the presence of a dualistic structure. Organizational dualism involves two parallel structures. One segment deals with the production of goods or services while the other deals
with the process of change. In Goldstein's model, since Quality Circles are tools of change and they operate continuously they require an organizational structure with adaptability built into it. In such an organization the two structures coexist and consist of many of the same personnel. The functions of an individual may be quite different depending on which structure is being operated within at any particular moment. In the rational structure the individual may be operating a machine while ten minutes later, that same individual, operating under the adaptive structure, may be involved in a serious technical discussion of impending improvements to a product or production technique. The advantages of a dualistic model as related to Quality Circles are that dualism gives employees the opportunity to become involved in both the rational and adaptive aspects of the work place and hence to broaden his/her overall knowledge of the company. Employees are encouraged to use more of their abilities and this type of opportunity could lead to a much more satisfied employee.

A similar model has been presented by Stein and Kanter (1980). Their model differs slightly in that they propose one structure to react to the exterior environment and another structure to react with the people that make up the organization itself. They assert that in the near future organizations will be faced with the dual problems of a
turbulent external environment and increased pressures from the labor pool within. Issues such as the economy, availability of raw materials and competing organizations as well as external environmental issues such as high uncertainty, rapid change and more permeable organizational boundaries can create problems that are very difficult to solve for any organization. Internal issues such as employees wanting jobs with more autonomy, room for self development and the means to earn more and better promotions are potential time bombs to an organization not prepared to confront and adapt to these issues. A dualistic organization which is concerned with both its own people and the environment in which it operates can react to these problems better than a strictly bureaucratic organization concerned only with production issues (Rubinstein & Woodman, 1984).

Management commitment. It is also imperative to the success of any Quality Circle endeavor that management be committed to active cooperation with the groups and give their full support to group members and their proposals (Alie, 1986; Farish, 1987; Landon & Moulton, 1986). True, sincere commitment to a Quality Circle program is a commitment to a philosophy of management, not to a quick Band-Aid type repair for a current problem. It involves participatory management styles and changing the quality of work life that the workers are accustomed to. This may
mean some rocky roads in the beginning as both management and workers become accustomed to new roles. As with parenting a child, it is in the early stages of life that the Quality Circle program will need its most active and vocal support and, like a child, it will need less but still some support as it grows and expands. A lack of commitment to support the program may result in managers pursuing different objectives than the Quality Circle members. This lack of coordination may result in frustration for both the managers and the employees as well as the eventual failure of the program (Bradley & Hill, 1987; Miljus, 1986). As Antilla (1981) explains, all companies that have successfully implemented Quality Circle programs have integrated them directly into the management structure. Line management needs to lend as much support as upper levels of management; it should be the norm rather than a special project. If done successfully, says Antilla, the program will continue though key people in the organization may leave or change positions within the company.

Peter Trepanier (1984) emphasizes that management often fears that with employee participation, management is going to surrender to the workers its power or responsibility. He stresses that a Quality Circle program involves a participative, co-operative interaction between management and workers. Management keeps its authority.
It has the option either to accept or deny a proposal based on the merits of that proposal. Management maintains responsibility to consider more proposals than management could efficiently devise alone. The workers, on the other hand, gain an opportunity to effect change by presenting their ideas in an organized manner to a receptive management.

Membership. Most proponents agree that membership in Quality Circles should be voluntary, although it is not a necessity (Goldstein, 1985). In fact, O'Donnell and O'Donnell (1984) report that of the organizations sampled more than 95 percent reported Quality Circle participation was on a voluntary basis. A program operating on a voluntary basis has several factors in its favor. Members who are asked to volunteer their time and knowledge are more likely to live up to their full potential than are those who are forced or required to participate. In addition, asking for volunteers rather than demanding participation will increase the likelihood of success for the program by possibly reducing the threat imposed by initiating something that is new (Goldstein, 1985). Pascarella (1984) indicates that many companies are rejecting the idea of voluntary involvement, especially for Quality Circles operating within the ranks of management. He suggests, however, that this is done at some detriment to the effectiveness of the circle's overall performance.
Others, on the other hand, contend that any participation in goal setting can result in increased performance, group commitment and satisfaction (Erez & Arad, 1986; Miller & Monge, 1986; Tang, Tollison & Whiteside, 1987).

**Extent of Quality Circle use.** Initially established for the workers to solve quality control problems, Quality Circles have expanded in the United States to include problems dealing with quality of work life issues as well. With this expansion to a different arena has come the addition of different types of workers. Circles are not only for the assembly line worker or the machine operator any more. They now include both manufacturing and service oriented industries and are found among white collar as well as blue collar workers. Quality Circles are now found in banks, real-estate agencies, retail stores, hospitals, and many other clerical and "knowledge" areas (Antilla, 1981).

McClenahen (1982) reports that getting white-collar employees to embrace this type of program has been difficult. He surmises that white-collar workers are biased against programs that originated on the production floor. He cites examples of white-collar Quality Circles that have been very successful, however. For example, McClenahen reports one banking firm realized an increase of 7 percent in quality as measured by errors and an increase
of 18 percent in labor productivity for one quarter as a result of their white collar Quality Circle program.

Muczyk and Hastings (1984) strongly recommend Quality Circles for all levels of management. One of the main problems with American industry today, they contend, is poor management. They cite that 80 percent of "top managers" (management level not specified) agreed with them. A management level Quality Circle, sometimes referred to as a management club, includes several management level volunteers joining together and meeting on a weekly or monthly basis to improve their management skills and to assess the current methods of management used in their company as well as to explore possible new management methods or techniques.
Why so Little Research?

As mentioned earlier, very little research has been done regarding the many facets of Quality Circles. This is due in part to the difficulty of doing research in the workplace. It is extremely difficult to control for variables in an environment out of the laboratory. Also a factor is the inescapable fact that many Quality Circles are implemented by organizational consultants who generally do not find it economically feasible to do extensive research on a program that is selling well.

Quality of work life. Despite these difficulties, there have been a few attempts worthy of publication. Marks et al (1986) attempted to fill the void with a study of Quality Circle participation and its impact on quality of work life, productivity, and absenteeism. The authors conducted a quasi-experimental field study to answer four basic questions regarding the impact of Quality Circle involvement on employee quality of work life and behaviors. The questions included: 1) "Do Quality Circles achieve their stated objectives of increasing communication and participation opportunities?" 2) "Does participation in a Quality Circle influence perceived job characteristics?" 3) "Does participation in a Quality Circle contribute to growth need satisfaction?" and 4) "Does participation in a
Quality Circle influence employee productivity and absenteeism rates?" (Marks et al, 1986, p. 62). This research was conducted in a non-unionized production facility. An attitude survey, in the form of a questionnaire which was regularly given every two years, was used to assess the quality of work life areas in question. The questionnaire was administered prior to the initiation of the Quality Circle program and again 20 months later. Organizational records were used to quantify employee absenteeism and production rates. Absenteeism was calculated on a number of days per month basis.

Only the direct labor employees were eligible for participation and hence, only their survey results and archival data were analyzed. The participant group (n = 46) was comparable to the comparison group (n = 46) on all dimensions. The participant group was 80 percent female with a mean age of 44 (SD = 11.5) and a mean tenure of six years (SD = 3.8). The results indicated that Quality Circle participation had an influence on quality of work life areas directly associated with participation in the Quality Circle. Participation, decision making, group communication, and enhancing opportunities and skills for advancement were all positively influenced for participants. Interestingly, no significant change occurred in scores relating to communication throughout the organization, job challenge, or personal responsibility for
work. The authors note, however, that although the participant's scores did not change on these points, the comparison group's scores actually dropped. The fact that the participant's scores did not also drop suggests that it may be possible that a factor other than the Quality Circle intervention may have had an influence on the attitudinal results that were obtained. This factor could have been a worsening of the economy that occurred during the period of the study or it could have been the result of a major organizational restructuring that took place. In any case, the authors suggest that the reason that the Quality Circle groups' work attitudes did not worsen may have been a result of the participants being exposed to additional sources of informational, emotional and social support. This added support system may have buffered them from the potentially stress-inducing changes at work.

Performance rates. Performance rates (as measured by number of pieces produced in relation to hours worked and quality) increased for Quality Circle members substantially while only very little increase was seen in the non-participating group. The performance rate increase was attributed to new techniques learned in the Quality Circle meetings and put into application by the Quality Circle members. The researchers felt that if these new techniques had been taught to all production staff, a significant
increase would have been observed for the entire department.

Absenteeism rates. Finally, absenteeism rates dropped consistently for members and sporadically for non-members. The drop in absenteeism could be due in part to economic conditions encouraging workers to put in more hours and increase job security. However, the change in participant attendance suggested that Quality Circle participation favorably influenced attendance.

Self-esteem effects. Participation in a Quality Circle program may also have an effect on the self-esteem of the participants. To the best of my knowledge, the effects of participation in a Quality Circle program on self-esteem have not been formally addressed. However, group participation in general has been explored in terms of its effect on one's self-esteem. Brennan (1985) conducted a study to explore different alternatives for explaining why past literature has shown that there is a positive influence on self-esteem due to participation in participative programs. Brennan's study was designed to measure attitudes about one's self and the level of participation in university activities. Of the six alternatives analyzed, only peer group formation and variety of experience were found significant in explaining the relationship between participation and self-esteem. Through the formation of peer groups one can experience the
opportunity to share in viewpoints of others which enables him or her to more clearly define his or her own views, thus increasing self-identity. In the same vein, as one experiences more of the self, according to Brennan, one reduces subjective perceptions of isolation and the tendency towards self-absorption, which deter development of self-esteem. Although no other research is currently available regarding Quality Circle participation and its effect on self-esteem, Brockner & Hess (1986) have researched the effects of self-esteem on the success of Quality Circles. They report that groups with a higher level of self-esteem are more successful than are groups with lower levels of self-esteem. It should be noted that Brockner & Hess administered a self-esteem questionnaire to pre-existing Quality Circle groups and, as they point out, the previous experiences of success or failure of each of the Quality Circle groups may have effected the measured self-esteem of each of the groups confounding the results.
REASON FOR THIS RESEARCH

It is because of the void in the literature that this research is designed. From the testimonials and anecdotal case observations it appears evident that Quality Circle participation has an effect on the employee's perception of quality of work life and job satisfaction. Also, from the literature on self-esteem, it seems to follow that participation in a Quality Circle program would have some influence on the participant's self-esteem.

Hypotheses

Consequently, three hypotheses were tested in this study. 1) The first states that employees who participate in a Quality Circle program will have a more positive perception of the quality of their work life during participation than they did before they participated in a Quality Circle. 2) The second states that employees who participate in a Quality Circle program will have increased job satisfaction during participation than they did before they participated in a Quality Circle. 3) The third hypothesis states that as a result of participation in a Quality Circle program, member's self-esteem levels will increase.
MEASURES

Three measurements were used to assess the impact on the participants of the Quality Circle program. Data was collected to measure the quality of working life and the self esteem of the employees. All three measures were of the paper and pencil type. Responses to the questions were indicated by darkening the bubble on a computer scored answer sheet and by checking the appropriate box on an answer sheet that was tallied by hand.

Job Factors Questionnaire

A Job Factors Questionnaire, designed to cover a large range of quality of work life factors, was used in this study (M. H. Sieck, personal communication, November, 1986). The questionnaire consists of 81 questions and includes several measures of each of these twelve factors: (a) The level and quality of communications within the organization (sample item: "Effective two-way communication exists between management and workers."), (b) Comfort with the work environment ("Work areas are noisier than is comfortable."), (c) Job satisfaction ("People act enthusiastic about what they do."), (d) Management-staff relations ("Management and workers trust each other rather than fear each other."), (e) Performance pressure ("There are very high standards for performance."), (f) Awareness
of role ("The jobs are clearly defined and structured.")
(g) Resource availability ("Many individuals have too many responsibilities.")
(h) Staff and manager competence ("People in authority don't have the necessary skills or ability to effectively perform their jobs.")
(i) Promotion possibilities ("There are good opportunities for advancement.")
(j) Personal interactions ("The people are hard to get to know.")
(k) Pay scale ("The pay scales are fair for each job level.")
and finally (l) Safety ("Work conditions are less safe than they could be.").

Response scale and reliability. The response scale ranges from A (Always) to E (Never) for all of the measures. The questionnaire consists of 81 items. Each of the items is answered twice, once as it applies to the respondent's department and again as it applies to the organization as a whole. The questionnaire is in an electronically read (Scan-Tron) format. Previous use has shown this measure to be content valid and the coefficient alpha of the measure for this sample was .87 (see Appendix A for the complete questionnaire). This scale was used because of its comprehensive coverage of issues that may be pertinent to overall quality of work life.

Time constraints imposed by the company regarding any future testing made it necessary for the 81 item Job Factors Questionnaire to be pared down to include fewer items that were yet meaningful to the sample. To discern
which items were most salient to the sample for inclusion in the post-test measurements a principal axes factor analysis with a varimax rotation was performed on the Job Factors Questionnaire. The sample used for the factor analysis was the same as the initial sample described in the subjects section. A confirmatory analysis, forcing a twelve factor solution, was performed because the original questionnaire was developed to address twelve basic concepts of quality of work life (these twelve concepts are explained in detail elsewhere in this section).

Using the Kaiser eigenvalue criterion, four factors with a total of 27 items were selected (see Appendix D for the factor items and their loadings) as being of importance to this population. Reliability analysis for this shortened scale yielded a coefficient Alpha of .82, relatively close to the .87 coefficient Alpha of the original measure. The original twelve factors accounted for 36.2 percent of the total variance while the four factor solution accounted for 29.0 percent of the total variance. These four factors consisted of a management support factor, management style factor, environmental issues factor and a work pressure factor. This shortened, 27 item scale was used in the two post-intervention batteries along with the Self-esteem at Work and Overall Job Satisfaction surveys mentioned below (see Appendix G for a listing of the 27 item scale).
Self-esteem at Work

In addition, a three item measure was administered to assess employee levels of self-esteem. This second measure, Self-esteem at Work (Quinn and Shepard, 1974), has been designed to measure self-esteem in a job-related context. Each item consists of two bipolar adjective type descriptors (Example: Successful – Not successful). Each item is rated on a seven-point continuum asking respondents to indicate how they view themselves in their work setting. This scale was used by Beehr (cited in Cook, Hepworth, Wall, & Warr, 1981) and had a reported Spearman-Brown internal reliability coefficient of 0.68. The coefficient alpha for this sample was .63 (see Appendix B for the complete questionnaire). This measure has been designed to be easy to understand and quick to complete, hence lending itself to this application.

Overall Job Satisfaction

Finally, a fifteen item questionnaire, Overall Job Satisfaction, (Warr, Cook and Wall, 1979) was appended to the self esteem measure described above. This measure is a short robust scale easily completed by blue-collar workers with modest educational levels. The scale covers both extrinsic and intrinsic job features. A seven point continuum scale is used to indicate the level of
satisfaction or dissatisfaction with each of the fifteen items. This measure has a reported coefficient alpha of 0.85. The coefficient alpha for this sample was .88 (see Appendix C for the complete questionnaire).
METHOD

Setting

This research was conducted in the production division of a medium sized (200-300 full time employees) service oriented corporation. The plant is located in an urban area in the south-western United States and is non-union. Production is primarily conducted in a batch process method (In batch process production, machines are adjusted to specifications for a certain job and that job is run until it is completed. The machines are then re-adjusted as necessary to run the next job). Management has been generally receptive to hear ideas from employees for improvements but traditionally is inconsistent in its follow-through on those ideas. A suggestion box had been tried two years earlier to encourage employee interaction but was reportedly discontinued after four months because of lack of interest by the employees.

The corporation owner/CEO was willing to use a Quality Circle program in an attempt to reduce production associated costs and to increase employee participation in the decision making process and hence creating a more dualistic corporate setting. He also wanted to give employees a greater opportunity to demonstrate their qualifications for promotions.
Subjects

Eligibility for participation. Only first line supervisors and full time employees were eligible to participate in the Quality Circle program. There were 132 employees who were eligible. This population consisted of 49 males and 83 females from seven departments. They had a mean of 2.77 years with the company (SD = 2.99). There were 67 on the day shift and 65 on the night shift. These are the only two shifts traditionally operating. The modal educational level of the population was a high school diploma.

Quality Circle sample. Thirty-two of these employees, enough to establish four Quality Circle groups of six to ten individuals each, volunteered for participation (see feedback and selection of volunteers section for solicitation procedure). There were 19 from the day shift and 13 from the night shift. These volunteers consisted of 12 males and 20 females. They had a mean of 2.36 years with the company (SD = 2.56). The modal educational level was a high school diploma. Analysis of the preintervention data showed no difference in any of the dependent variables between these subjects and those who did not volunteer.
Procedure

First administration (preintervention). Over a period of one week a questionnaire battery consisting of the Job Factors Questionnaire (long form), the Self-esteem at Work survey and the Overall Job Satisfaction questionnaire was administered to all eligible employees of the organization in five groups of 25 - 30 people each. The questionnaires were administered by the author and an assistant during the last hour of the shift. As part of the instructions given on how to fill out the answer sheets and on the purpose of the questionnaire, it was explained to the employees that: 1) This questionnaire was being given by an outside organization and that no names or identification numbers were to be provided to any person within the organization under study. 2) Name, identification number, department, sex, years with the company, and educational level were required for statistical reasons. The identification number and department were also needed for helping the consultants in pinpointing areas where problems might exist within the company. 3) Answers should be completely honest as the results of this study were to be used for diagnosing problems that may exist and that affect them all. 4) Based on the results of the questionnaire and other data, the consultants would propose possible solutions for any problems to the company management.
Feedback and solicitation of volunteers. One week after the final administration an announcement was made to the managers that an analysis of the data from the questionnaires was completed and a summary had been supplied to the owner/CEO. It was then explained to the managers that the general indication in the questionnaire results was that the employees felt several production related problems existed and they would like to have an opportunity for more overall involvement. One of the recommendations of the consultants was to establish a Quality Circle program.

The design, implementation and purpose of such a program was explained to all levels of management at three successive regularly held management meetings (see Appendix H for a detailed description of the topics covered) and then to the employees at the next regularly held general employee meeting. At this meeting volunteers were recruited for participation in the program. Each eligible employee was given a handout explaining the concepts and basic guidelines of the Quality Circle program (see Appendix E for the original handout) along with a preprinted card asking the name, shift, department and badge identification number of anyone wishing to participate in the Quality Circle program. All volunteer cards were to be given to the personnel office. Groups were then formed based on department so that each of the
four groups consisted of people from several departments. Having several departments represented in each group added variety and a greater base of overall knowledge to each of the groups.

Group members were told that they were involved in a pilot program, consequently questionnaires would be administered periodically to help assess the effectiveness of the program. Facilitators for each group were then selected by group members and received training both before the second group meeting and as an on-going process (see Appendix F for facilitator's instructions). There were just enough volunteers to fit into four pilot groups eliminating the need for a lottery to chose Quality Circle members from the list of volunteers.

First post measure. After three months had passed the first post-test questionnaire battery consisting of the Overall Job Satisfaction questionnaire, the Self-esteem at Work survey and the shortened Job Factors Questionnaire was administered to the Quality Circle group members (n = 32). It is believed that for the purposes of this study, a three month period between pre- and post- measures was sufficient as it is possible for employee job satisfaction, quality of working life, and self-esteem to all change in this amount of time (Mohrman and Novelli, Jr., 1985; Brockner, Davy, and Carter, 1985).
Second post measure. The second post-test battery consisted of the same measures used in the first post-test. The second post-test was administered to the Quality Circle group members after an additional two months time had passed.

The study was conducted over a five month period at the end of which all participants were informed that data had been gathered for research purposes.

Implementation of the Quality Circles. The Quality Circle groups were administered in a fashion common to the technique. Quality Circles met for one hour each week (20 meetings over a five month time span) on company time to discuss and analyze work related problems that were identified by the group members and/or their co-workers. Brainstorming, cause and effect analysis, and problem prioritizing as well as dialectical inquiry were all methods used by Circle members for problem identification and problem solving. Solutions reached by Quality Circle members were presented to top level management and, if accepted, implementation was immediately begun by the Quality Circle group members. An example of a problem and its proposed solution that was accepted by management was a feeling of low morale and lack of pride by the production employees. The Quality Circle group solution was the development of an "employee of the month" program to boost morale and encourage a higher quality of work. Names of
those who earned the title of Employee of The Month and a statement of why the title was deserved were posted in a specially constructed display box and the employee of the month in each department was allocated a special parking space for one month.

No material or extrinsic rewards were provided to Circle members for any suggestions contributed or successfully implemented. The opportunity to make formal presentations and have informal meetings with upper levels of management were incentives in themselves. Also, trying to administer any type of material reward system would severely complicate the process (e.g., Antilla, 1981; Barra, 1983; Chapey, 1983; Marks, Mirvis, Hackett, and Grady, 1986; Goldstein, 1985).
RESULTS

Hypothesis One

The first hypothesis tested was that employees who participated in a Quality Circle program would perceive the quality of their work life to be improved during participation as compared to quality of work life levels prior to participating in the Quality Circle groups. Quality of work life, as measured by the Job Factors Questionnaire, was analyzed using a repeated measures ANOVA and was found to have increased significantly over the first and second post measurements \[F(2,21) = 4.60, p<.05\]. The quality of work life mean for the preintervention measure was 72.13 (SD = 10.39) and the mean for the first post test was 73.78 (SD = 7.49) while the mean for the second post test was 67.87 (SD = 7.09). (The Job Factors Questionnaire is scored so that a low score indicates greater quality of work life.) Post hoc analyses of variance indicated that the significant difference was between the preintervention and the second post test.

Hypothesis Two

The second hypothesis tested whether employees who participated in a Quality Circle program had increased job satisfaction after joining a Quality Circle program. Overall job satisfaction as measured by the Overall Job
Satisfaction questionnaire using a repeated measures ANOVA did not change significantly \[F(2,21) = .58, \text{NS}\] although the means of the final post measure did progress in the expected direction with 65.17 (SD = 13.32) for the pretest, 65.00 (SD = 14.60) for the first post test and 68.35 (SD = 13.77) for the second post-test.

**Hypothesis Three**

The third hypothesis tested was that employees who participated in a Quality Circle program would experience an increase in their own self-esteem as measured against their self-esteem levels prior to joining a Quality Circle program. This measure consisted of three items: doing the best job I can, my importance here and my success here. Discussions with the group members revealed that they perceived that their feelings about doing their best job were not relevant to self-esteem as they felt that management always expected better work from them regardless of their actual performance. In light of this information, it was decided to look at each of the three self-esteem issues separately through the use of repeated measures ANOVA rather than sum the three items.

The dependent variable of self perceived success was significant in measuring an increase in participant's perception of success on the job \[F(2,21) = 4.23, p<.05\]. The mean of the preintervention was 2.43 (SD = 1.38); of
the first post test was 2.00 (SD = 1.28); and of the second post test was 1.61 (SD = .89). Post hoc analysis of variance revealed the significant difference was between the preintervention and the second post test measurements.

Self perceived importance on the job also increased significantly \[F(2,21) = 3.23, p<.05\]. The mean of the preintervention was 2.61 (SD = 1.41); of the first post test was 2.17 (SD = 1.15); and of the second post test was 1.78 (SD = 1.13). Post hoc analysis of variance revealed the significant difference was between the preintervention and the second post test measurements.

Self perception of doing the best job possible, as expected, did not change significantly \[F(2,21) = .05, \text{NS}\].
DISCUSSION

In a field study such as this it is impossible to control all of the factors that may have an effect on the participants. To minimize the possibility of erroneously interpreting positive changes from Quality Circle participation, organizational activities were tracked. Also, frequent discussions with management and Quality Circle members took place to discern if they perceived anything unusual that may have affected employee perceptions of quality of work life in a positive or negative manner. No major reorganizations of management took place, nor were there any unusual hiring or firing activities during the course of this study. The external environment that the organization and its members had to contend with was not noticeably different during the study than it was before or after the study. No major economic upheavals took place. Production levels were well known and were normal or slightly higher than normal during the duration of the study. Despite the lack of any obvious extraneous variables quality of work life, importance on the job and successfulness on the job all increased as expected while job satisfaction did not change significantly.

Doing field research in an organization where all factors and variables can not be controlled for involves
greater problems in gathering data than research in a laboratory setting. For example, behavioral indices such as absenteeism and job performance were examined but were not practical in this setting as company records were not reliable. In addition, establishing a control comparison group was the initial plan but was rejected by upper management because of the time off work required to complete the battery of questionnaires.

Quality of Work Life

Participants did show the expected increase in their perception of their overall quality of work life during their participation in the Quality Circle program. The activities that appeared to affect the quality of work life were those initiated by the Quality Circle groups themselves. These activities were a direct result of the Quality Circle program and it can be reasonably assumed that they contributed to the measured increase in overall quality of work life. Marks et al (1986) noted similar findings in their study of a similar manufacturing facility. Although the Marks study was conducted with a similar sample of employees and was a survey type study, the Marks study was conducted over a twenty month time period whereas this study covered a five month period. The similarity in findings seems to imply that the effect for
quality of work life may be relatively quick to show itself with the possibility of being long lasting.

**Self-esteem**

The initiation and successful operation of the Quality Circle program seems to have had a positive effect on the amount of importance that the participants saw themselves as having in the work place. This coincides with Blair and Whitehead's (1984) observations that through participation in decisions surrounding their own work, employees partially satisfy a need for autonomy and hence see themselves as being more important to the organization. Another possibility for partially explaining this effect is that peer groups often form in a work group setting such as this. Having your peers listen to and consider your suggestions may make you feel more important in the work place (Brennan, 1985).

Along with self perceived importance on the job, the participant's sense of job success increased. This could be due in general to the same self-esteem issues discussed above or to another Quality Circle related issue. None of the groups had a suggestion "flat-out" denied. All had their suggestions minimally modified by management with the modification process ongoing throughout the development of the proposals. It is possible that the feeling of success on the job stemmed directly from this interaction with
management and the subsequent approval of the proposed changes in the work place.

Possibly as a result of the employees' pervasive feeling that it was impossible to please management completely, responses to the item "doing your best" were not changed by participation in Quality Circles. Participation had not yet had a direct effect on the speed or quality of work being done. First line supervisors were still seen as constantly wanting more regardless of what work had already been done.

Overall Job Satisfaction

Although quality of work life attitudes changed for the better, overall job satisfaction did not. This may have occurred for a variety of reasons. Job satisfaction for the employee consists of several facets of the environment, including pay rates. Pay is the factor employees are most often dissatisfied with; however, they usually have little or no control over this factor. Some aspects of job satisfaction (eg., pay, promotion and hours) could not be discussed as topics of Quality Circle meetings; hence one would not expect to see a change in job satisfaction of pay or comparable issues.

Another issue that may have affected job satisfaction but was not permitted as a topic in the Quality Circles was personality conflicts with peers or supervisors.
Discussions with the Quality Circle members revealed that both pay and personality conflict issues were areas of considerable concern for the employees. Each of these issues may have had a large effect on overall job satisfaction. It is interesting to note, however, that the job satisfaction means did move in a positive direction. Perhaps some issues relating to job satisfaction were positively affected to a certain degree, but this effect was not large enough to overcome the pay and personality issues to affect the results of the overall job satisfaction scale.

General Summary of Facility Environment

The organizational structure was similar to the dualistic structure model proposed by Goldstein (1985). In this model one structure within the organization is concerned with immediate and real production issues such as scheduling and materials supplies while at the same time the second structure is dealing with the process of change within the organization. In the ideal situation of Goldstein's model, all members of the organization actively participate in both structures. Although both structures existed in the organization studied, only the management level was actively and regularly involved with the process of change within the organization. Although input was accepted by the president/CEO from employees of any level,
rarely were production level employees encouraged to participate in or contribute to any changes within the organization.

The management at this facility entered into this program in a very positive and hopeful manner. All levels expressed an interest in the program and indicated a willingness to try it. However, by the end of the five month period during which this study took place first line management had begun to complain about lost work time from the participants due to the one hour a week the Quality Circle meetings required. Although participants were never forced to miss a meeting, first line supervisors let it be known that the lost work time was an issue. Supervisors dropped hints that missed work was expected to be made up during the next shift worked. The problem seemed to stem from a lack of willingness to change on the supervisors' part rather than a lack of communication or trust. The supervisors gave more credence to issues relating directly to quality assurance and production rates and gave less input or time to issues relating to quality of work life. This follows the Blair and Whitehead (1984) proposition that American management is not yet willing to address the issues of enhancement of the employees' working life or education. Although upper levels of management remained open to the program and encouraged interaction between themselves and group members, they were not able to instill
this acceptance to the lower level supervisors. For the last four weeks of the study management was not able to quell this situation until, during the last week of the study, the company president/CEO reiterated to the first line supervisors that the Quality Circle was only one hour a week and it was for the long term benefit of the company. Because this happened so late in the study there is no evidence that it had any effect on the supervisors and consequently on the Quality Circle group members. In retrospect, it seems that this lack of first line supervisory support may have been a key factor in the eventual failure of the program at this facility.

Due to the growing lack of support from the lower levels of management, which the workers interacted with on a regular basis, and the continued support of upper management, Quality Circle group members may have seen overall management support as decreasing over time. However, the employees still may have felt that they were being more effective than they had been before joining the Quality Circle program. This feeling of effectiveness relating to intrinsic work values may help to explain the lack of significant change in overall job satisfaction while there was a significant increase in their perception of quality of work life.
Future Research

Any future research should try to eliminate as many uncontrolled variables as is possible. Clearly, one of the variables to control or measure for is the general economic situation. As the Marks et al (1986) study suggests, economic stability may effect job stability and job related status, although this factor can not be ruled out as it was not controlled for or precisely measured.

Another area for exploration is the effect of Quality Circle programs in different types of facilities. If variables such as organizational design can not be controlled, they should be measured. Is a Quality Circle program either more or less effective in a small manufacturing firm that only employs 100 people as it is in a large corporation which employs thousands? Traditionally only large corporations can afford the initial start-up costs involved, hence few smaller companies have a formalized Quality Circle program. Another factor involved is the lack of funds for doing empirical research in both large and small companies.

Also in need of exploration is the effectiveness of Quality Circle programs in the service based industry versus the manufacturing industry. Most of the literature indicates that Quality Circles exist mainly in the manufacturing/production based industry. As Antilla (1981)
notes more Quality Circles are being established with reported success in service oriented industries. Are these programs as effective or more accepted in a service based organization than they are in a production based organization?

Additional research also needs to be done in regarding the effects of involvement in a Quality Circle program on intrinsic versus extrinsic job satisfaction. Although the data in this study did not show this to a significant degree, involvement in this type of program may have an intrinsically satisfying effect on the participants even if certain negative elements such as a lack of support from direct supervisors are present. If a supervisor is demanding that the participant make up lost time by working harder or doing whatever it takes to maintain the production quotas, that participant is not likely to experience an increase in extrinsic job satisfaction. The physical working conditions or immediate environment are not going to seem to improve. However, the participant can still experience a sense of increased job satisfaction intrinsically. The result of contributing and being involved in decisions surrounding one's job and being respected by one's peers may lead to this sense of greater intrinsic job satisfaction.

It would also be beneficial to measure both the employee and managerial receptiveness to the idea of a
participative intervention. Support at all levels of management is another variable that should be measured. A lack of support at the lower levels of management may not be readily noticed by the researcher in a large company but could have a major effect on job satisfaction. For example, if employees and upper management are very receptive to the idea but first line management is not, there could be an effect on the effectiveness of the program. Measuring the level of support at each level of management and combining that information with known corresponding management styles present could shed valuable light on this aspect of the Quality Circle movement.

Finally, collecting behavioral indices such as absenteeism, turnover and performance data would be helpful to determine the dollar benefit of Quality Circles. The experience of the researcher in this study indicated that measurements of these behaviors will probably need to be developed by the researcher in many cases as reliable data are not kept or are unavailable to the researcher.

Implications for Management

There are several implications for management based on this information. As Quality Circle participation has positively increased satisfaction in quality of work life and self-esteem in this study, it would seem beneficial for organizations to explore the possibility of adopting a
Quality Circle program. Through increasing job satisfaction and self-esteem it is expected that employees will take more pride in their work with the possible results being better quality, less absenteeism and higher production rates. In any organization, these are factors that can result in a substantial monetary savings.

Any organization that is considering adopting a Quality Circle program needs to educate all levels of management regarding the procedures and possible benefits that this type of program offers. A decision to implement the program must be made with 100 percent conviction backing it. Any uncertainty may result in a complete failure of the program and in decreased relations between management and employees as well as a negative effect on the overall quality of work life. Success of Quality Circle programs may rely on the pre-existence of some form of dualistic organizational structure (Goldstein, 1985; Stein & Kanter, 1980). This type of structure would involve the Quality Circle members in both the service or manufacturing structure of the organization and also in the structure that reacts to the exterior environment by initiating change within the organization. Allowing the employees to experience and contribute to both structures should help to enhance their general knowledge of the organization and how it operates. This knowledge and additional participation may cause the employees to react
in a more positive fashion to the work environment. For example, an employee who is aware of an impending change in the location of a set of machines to allow for expansion of a neighboring department may be able to suggest a more efficient configuration for those machines early enough in the game plan for the suggestion to be implemented at no additional planning or layout cost to the organization.

The supposition that Quality Circles can not work in American organizations is not entirely accurate. As mentioned earlier, Quality Circle programs have been successfully adopted by American organizations. However, these organizations are more aptly suited for the inclusion of a Quality Circle type program than are other American organizations. Simply having an organization's higher echelon mandate that Quality Circles will be adopted because they decrease operating costs is not sufficient. Quality Circles in themselves are not an effective tool for fighting costs or quality control. It is in an environment that currently includes a participative management style where the inclusion of Quality Circles can be an effective tool. Some organizations are not yet ready for the initiation of a Quality Circle participation program. Organizations that operate in an autocratic fashion are poorly suited for Quality Circles. It is their environment that makes those organizations that have successful Quality Circles operating better suited for participative
interventions. An environment that treats all of its members as valuable participants in achieving the organization's goals and one that encourages input from all levels is a good starting point. Organizations whose structures are designed to adapt to changes rather than fight them offer a more favorable environment for the introduction of Quality Circles. An American corporation contemplating the initiation of a Quality Circle program should first conduct an in depth analysis of its current structure. The changes that may be involved to successfully adopt such a program may be substantial. A dualistic structure would need to be implemented if it does not already exist. This involves formally establishing in the organization's structure the ability to readily react to changes from within or outside of the organization as well as provisions for economically meeting its established organizational goals. The American culture is generally not amenable to the idea that everybody can have valuable input. This is a process that would need to be accomplished over time. Soliciting ideas from key personnel while allowing their supervisors to remain in control is not a task to be taken on half-heartedly. A trust between management and staff must be established simultaneously with open lines of communication both vertically and horizontally within the organization. When all of these conditions exist, the organization is prime
for the introduction of a participative management program such as Quality Circles.
Appendix A

Job Factors Questionnaire
JOB FACTORS QUESTIONNAIRE

Copyright

HEALTH MANAGEMENT RESOURCES - 1986
INSTRUCTIONS

This questionnaire will help determine what aspects of your job function well and why they do so. It also helps to identify areas that don't work so well and why they don't. Your answers could be used to develop a better running organization, so please be as honest as possible. By telling it "like it is" you can help your organization become the best possible place for you to work.

Although your badge number is required on the test, your confidentiality will be protected. It is important that you identify your badge #, department, years with the company, education and sex so that we can determine if different classes of people see things the same way and if there are different problems in different areas. Your individual questionnaire results will not be provided to your company. Only an overall general summary of all of the questionnaires will be provided.

Please work quickly and don't spend a lot of time on any one question. Go with your first impressions. Answer all of the questions and DO NOT SKIP ANY OF THEM. Use the scale on the answer sheet when making your choices.
IDENTIFICATION

To help us identify groups of individuals for better analysis, the following information is necessary.

**ID BOX**

<table>
<thead>
<tr>
<th>Line 1</th>
<th>Sex</th>
<th>0 = Male</th>
<th>1 = Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line 2</td>
<td>Education completed</td>
<td>0 = None</td>
<td>1 = Grammar School</td>
</tr>
<tr>
<td>Line 3</td>
<td>Department</td>
<td>1 = Folding, Bursting, Inkjet</td>
<td>2 = Mailing, Labeling</td>
</tr>
<tr>
<td>Line 4</td>
<td>Years with Roger's (10-50) - if less than 10, enter zero [0] here and years worked on line 5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line 5</td>
<td>Years with Roger's (0-9) - if less than 1, enter [1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line 6</td>
<td>Shift</td>
<td>0 = Days</td>
<td>1 = Nights</td>
</tr>
<tr>
<td>Line 7</td>
<td>Badge Number</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Code ID by filling in appropriate boxes.

Example: Mr. Jones has a high school education, works in Day shift in folding, has been with Roger's for 8 years, and his I.D. number is 724.

He fills out the ID box as follows:

<table>
<thead>
<tr>
<th>Line 1</th>
<th>Sex = 0</th>
<th>0 = Male</th>
<th>1 = Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line 2</td>
<td>Education = 3</td>
<td>0 = None</td>
<td>1 = Grammar School</td>
</tr>
<tr>
<td>Line 3</td>
<td>Department = 1</td>
<td>1 = Folding, Bursting, Inkjet</td>
<td>2 = Mailing, Labeling</td>
</tr>
<tr>
<td>Line 4</td>
<td>Years = 8</td>
<td>0 = Days</td>
<td>1 = Nights</td>
</tr>
<tr>
<td>Line 5</td>
<td>Badge # begins here</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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55
JOB FACTORS QUESTIONNAIRE

SCALE: A = Always
B = Often
C = Sometimes
D = Rarely
E = Never

Using the scale above answer the following questions as they apply to your department or area in the left column of the accompanying answer sheet. Answer the same questions as they apply to the Company as a whole in the right column.

EXAMPLE:

1. [In my department or area...] 51. [In the Company as a whole...]
   a friendly atmosphere prevails. a friendly atmosphere prevails.
   [A] [B] [C] [D] [E] [A] [B] [C] [D] [E]

DO NOT WRITE IN THIS TEST BOOKLET

1 & 51. ...the jobs are clearly defined and structured.

2 & 52. ...people have the necessary resources and power to effectively perform their job responsibilities.

3 & 53. ...with our promotion system the best people rise to the top.

4 & 54. ...we need to take some large risks to maintain our position with the competition.

5 & 55. ...a friendly atmosphere prevails.

6 & 56. ...there are relaxed, easy-going working conditions.

7 & 57. ...if you don't associate with the right group of people, you won't feel like you belong.

8 & 58. ...management makes an effort to talk with us about our career goals.

9 & 59. ...there are very high standards for performance.

10 & 60. ...management or team meetings tend to be disorganized and a waste of time.

11 & 61. ...people act enthusiastic about what they do.

12 & 62. ...it is common to use blame placing or finger pointing when things go wrong.

13 & 63. ...what is learned in training is related to what actually happens on the job.
14 & 64. ...there is active, productive communication between different departments.
15 & 65. ...a lot of overtime is required.
16 & 66. ...the policies and organizational structure have been clearly explained.
17 & 67. ...it is unclear who has the formal authority to make a decision.
18 & 68. ...we get our jobs or functions completed on time.
19 & 69. ...individual judgment is not relied on; almost everything is double-checked.
20 & 70. ...people in authority don't have the necessary skills or ability to effectively perform their jobs.
21 & 71. ...there are good opportunities for advancement.
22 & 72. ...our management is willing to take a chance on a good idea.
23 & 73. ...management's philosophy emphasizes the well-being of the people. If the people are happy then production will take care of itself.
24 & 74. ...there is a feeling of pressure to improve our personal or group performance.
25 & 75. ...our management feels that conflict between both individuals and competing units is healthy.
26 & 76. ...most of the people will put forth extra effort to help when it is needed.
27 & 77. ...managers are directly involved in training.
28 & 78. ...written communications are long and generally not very helpful.
29 & 79. ...work pace is rushed.
30 & 80. ...there is a lot of red-tape.
31 & 81. ...there is a great deal of pressure to meet deadlines or quotas.
32 & 82. ...individuals have responsibility for jobs without sufficient authority to get them done effectively.
33 & 83. ...the pay scales are fair for each job level.
34 & 84. ...the people are hard to get to know.
35 & 85. ...physical fitness or other self improvement programs are made available for employees.
36 & 86. ...it is best to steer clear of open arguments and disagreements.
37 & 87. ...people are made to feel that they are important and appreciated.
38 & 88. ...effective two-way communication exists between management and workers.
39 & 89. ...the physical environment is uncomfortable (little space, uncomfortable chairs, difficult to operate machines, must stand for long time periods, etc.).
40 & 90. ...our productivity suffers from a lack of organization and planning.
41 & 91. ...management urges workers to work at a fast pace due to the pressure of getting the job done on time.
42 & 92. ...people are rewarded for their performance on the job, not just how long they've been here.
43 & 93. ...our management feels that, in the long run, we will get ahead fastest by taking the safe and sure way.
44 & 94. ...my boss and co-workers will give assistance if one of us is on a difficult assignment.
45 & 95. ...there is more importance put on short term profits than on long term growth.
46 & 96. ...workers tend to be alienated and distrustful of management.
47 & 97. ...regular, constructive feedback is given at all levels.
48 & 98. ...work areas are noisier than is comfortable.
49 & 99. ...management isn't as concerned about formal organization and authority as it is about getting the right people together to do the job.
50 & 100. ...employees are generally under-paid.

TURN THE ANSWER SHEET OVER AND CONTINUE

101 & 151. ...there are programs to assist employees who are under stress or are having personal problems.
102 & 152. ...people are proud to belong to this organization.
103 & 153. ...there are adequate training programs.
104 & 154. ...the physical layout of the work space makes individuals feel tense or inefficient.
105 & 155. ...management's priorities change a lot.
106 & 156. ...due credit is given to people who suggest new ideas regardless of their rank.
107 & 157. ...management gives you support if you make a mistake.
108 & 158. ...people are responsible for solving their own problems.
109 & 159. ... workers have a lot of loyalty.
110 & 160. ... the work is monotonous and uninteresting.
111 & 161. ... individual task or job priorities change in the middle of a task or job.
112 & 162. ... decision making is too cautious for maximum effectiveness.
113 & 163. ... it is more important to get along with others than it is to produce the best you can.
114 & 164. ... poor performance is discussed in a constructive manner.
115 & 165. ... working conditions lead employees to feel exhausted at the end of the day.
116 & 166. ... people tend to be cool and aloof toward each other.
117 & 167. ... management and workers trust each other rather than fear each other.
118 & 168. ... the temperature is too hot or too cold to keep workers really comfortable.
119 & 169. ... to get ahead you need to stick your neck out and do things on your own.
120 & 170. ... people don't seem to take much pride in their performance.
121 & 171. ... there is more criticism for mistakes than there is recognition for a job well done.
122 & 172. ... the relationship between management and workers is a warm one.
123 & 173. ... our management believes that there is no job so well done that it couldn't be done better.
124 & 174. ... many individuals have too many responsibilities.
125 & 175. ... we are encouraged to speak our minds, even if it means disagreeing with a superior.
126 & 176. ... people know how they fit into the "Big Picture".
127 & 177. ... recognition is given for good work.
128 & 178. ... identification of problems is rewarded, not ignored.
129 & 179. ... our training programs give us the knowledge needed to do our jobs well.
130 & 180. ... people are reluctant to accept responsibility for their own mistakes.
131 & 181. ... work conditions are less safe than they could be.
Appendix B

Self-Esteem Questionnaire
Here are some words and phrases which ask you how you see yourself in your work. For example, if you think that you are very "successful" in your work, put a mark in the box right next to the word "successful". If you think that you are not at all successful in your work, put a mark in the box right next to the words "not successful". If you think that you are somewhere in between, put a mark where you think it belongs.

I see myself as being ...

1. **Successful**
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]

2. **Important**
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]

3. **Doing My Best**
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]

   **Not Doing My Best**
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]

   **Not Important**
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]

   **Not Successful**
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
Appendix C

Job Satisfaction Questionnaire
Job Factors Questionnaire

Part Two

Please answer the following questions in the spaces provided below. Again, work quickly and don't spend a lot of time on any one question. Go with your first impressions. Answer all of the questions and do not skip any of them.

Here are some words and phrases which ask you how you see yourself in your work. For example, if you think that you are very "successful" in your work, put a mark in the box right next to the word "successful". If you think that you are not at all successful in your work, put a mark in the box right next to the words "not successful". If you think that you are somewhere in between, put a mark where you think it belongs.

I see myself as being ...

1. Successful
   □ □ □ □ □ □ □
   Not Successful

2. Important
   □ □ □ □ □ □ □
   Not Important

3. Doing My Best
   □ □ □ □ □ □ □
   Not Doing My Best

For the following questions, please circle the number that best describes your level of satisfaction with the company where you work. Use the scale below.

<table>
<thead>
<tr>
<th>Question</th>
<th>Scale</th>
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<tbody>
<tr>
<td>4. The Physical work conditions</td>
<td>1 2 3 4 5 6 7</td>
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<tr>
<td>5. The freedom to choose your own method of working</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>6. Your fellow workers</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>7. The recognition you get for good work</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>8. Your immediate boss</td>
<td>1 2 3 4 5 6 7</td>
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</table>

Answer Key For Questions 4 - 8
1 = I'm extremely dissatisfied
2 = I'm very dissatisfied
3 = I'm moderately dissatisfied
4 = I'm not sure
5 = I'm moderately satisfied
6 = I'm very satisfied
7 = I'm extremely satisfied

TURN PAGE
9. The amount of responsibility you are given
   1 2 3 4 5 6 7

10. Your rate of pay
    1 2 3 4 5 6 7

11. Your opportunity to use your abilities
    1 2 3 4 5 6 7

12. Industrial relations between management and workers in your firm
    1 2 3 4 5 6 7

13. Your chance of promotion
    1 2 3 4 5 6 7

14. The way your firm is managed
    1 2 3 4 5 6 7

15. The attention paid to suggestions you make
    1 2 3 4 5 6 7

16. Your hours of work
    1 2 3 4 5 6 7

17. The amount of variety in your job
    1 2 3 4 5 6 7

18. Your job security
    1 2 3 4 5 6 7

END OF QUESTIONNAIRE
Appendix D

Factor Analysis Loadings
### Factor Analysis Loadings for Job Factors Questionnaire, Short Version

<table>
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<tr>
<th>Factor</th>
<th>Percent of Variance Explained</th>
<th>Item</th>
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<td>.52</td>
<td>21</td>
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</table>

**NOTE:** All item numbers correspond with item numbers in the short Job Factors Questionnaire found in Appendix G.
Appendix E

Employee Basic Concepts And Guidelines
Q. What Are Attack Squads?
A. An Attack Squad is a small group of employees who meet regularly to identify, analyze, and solve problems related to job performance and the conditions of their workplace. Each squad will be made up of about 8 people. The squads will each hold their own meetings for 1 hour each week on company time.

Q. What is the Purpose of the Attack Squads?
A. 1. A team approach aimed at improving the work situation and maintaining the survival of the company and improving communications within the company.
   2. To increase the quality of the employee's working life by identifying problems and devising solutions to them.

Q. What Types of Problems Can Attack Squads Attack?
A. 1. Issues dealing with methods, speed, schedules, efficiency, costs, and quality of production, payroll, morale, safety, learning, absenteeism, etc.

Q. How Do Attack Squads Work?
A. 1. The group will select a problem to work on and propose several solutions. After group discussion, one will be selected for implementation.
   2. The solution will be developed into an understandable, workable, realistic form and then presented to management for approval.
   3. Management will either approve and implement the solution or it will not approve the solution. If the solution is not approved, the group will be given feedback as to why and what could be done to make it more acceptable.

Q. Are there any problems that the Attack Squads will NOT address?
A. Attack Squad groups will avoid dealing with the following issues:
   1. Salaries or wages
   2. Benefits
   3. Grievances
   4. Hiring/firing practices
   5. Personality conflicts.
Appendix F

Quality Circle Leader's Handbook
As leader of your Attack Squad you are going to be expected to perform several duties during the course of each meeting. Below are listed several of those duties and ideas or ways of effectively performing them.

1. Keep your fellow team members on the right track!!!
   This means that it is your job to let the group know if they are getting carried off into discussing some other problem. You only have one hour each week to discuss the issues related to your selected problem. Therefore it is very important that the group spend this time discussing topics that relate to the problem that you are working on. This means not dwelling on a specific examples of problems or on what someone did last week. Listed below are some ways of dealing with this type of a situation.
   - Encourage everyone to contribute their ideas or examples only one time. Everyone will hear it and will take it into consideration.
   - Encourage the group to look at the problem from the viewpoint of other people in the company, including management as well as workers in other departments.
   - If the conversation is not needed to help solve the problem say something like "O.K., what else can we do about this or that?" or "Bill, do you think we could try to do this or that?" or "What information do we need to get to learn more about this or that?"
   - Wait for a break in the conversation or make your own break and politely remind your group members what you are all here to discuss.

2. Lead the discussions.
   - You should be the one to ask the secretary to remind everyone where you left off last week and what was supposed to be done in preparation for this meeting. You also should start the ball rolling by telling what, if anything, you have found out or thought of since the last meeting.
   - Ask the secretary to read the notes of the last meeting including who was supposed to do what.
   - Volunteer your own information.
   - Ask the other group members to report on their responsibilities. Ask what they found out or why they didn't complete their assignment.
   - Lead the discussion after each person has told what has been learned by asking them further questions to clarify what they said or to praise their performance.
3. Communicate with your teammates!
   - Use both verbal and non-verbal communication to motivate your teammates. If you act excited and interested in what is going on then that enthusiasm will spread to your teammates.
   - Show the others good communication skills: Listen to the speaker with all of your attention, make eye contact frequently, ask questions until the point is clear to you, keep an open mind, watch facial expressions for signs of exaggeration, shut out other noises.
   - Give encouragement to the speaker such as "tell me more" or That's interesting".
   - Summarize what has been said and ask if the others agree with your summarization.

4. Motivate your teammates
   - Show enthusiasm. Be interested in the conversation and in what is being done outside of the meeting setting.
   - Encourage your teammates to participate, ask them questions or ask them what they think about the current topic.
   - Keep the conversation and activities moving.
   - Watch out for apathy.

5. You are still a "regular" group member
   Above all else, remember that your role as leader does not mean that you are at a higher rank than the others. You are still a group member and you have no more power or privileges than your teammates.
Appendix G

Shortened Job Factors Questionnaire
JOB FACTORS QUESTIONNAIRE

Using the scale below, answer the following questions as they apply to your department or area. The scale also appears on your answer sheet.

<table>
<thead>
<tr>
<th>ANSWER KEY - Questions 1 - 27</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = Always</td>
</tr>
<tr>
<td>B = Often</td>
</tr>
<tr>
<td>C = Sometimes</td>
</tr>
<tr>
<td>D = Rarely</td>
</tr>
<tr>
<td>E = Never</td>
</tr>
</tbody>
</table>

EXAMPLE:
1. [In my department or area...]
a friendly atmosphere prevails.
   [A] [B] [C] [D] [E]

DO NOT WRITE IN THIS SECTION OF THE TEST BOOKLET

1. ...management makes an effort to talk with us about our career goals.

2. ...there are very high standards for performance.

3. ...the policies and organizational structure have been clearly explained.

4. ...people in authority don't have the necessary skills or ability to effectively perform their jobs.

5. ...there are good opportunities for advancement.

6. ...our management is willing to take a chance on a good idea.

7. ...there is a feeling of pressure to improve our personal or group performance.

8. ...work pace is rushed.

9. ...there is a great deal of pressure to meet deadlines or quotas.

10. ...the pay scales are fair for each job level.

11. ...physical fitness or other self improvement programs are made available for employees.

12. ...people are made to feel that they are important and appreciated.

13. ...effective two-way communication exists between management and workers.

14. ...our productivity suffers from a lack of organization and planning.
15. ...management urges workers to work at a fast pace due to the pressure of getting the job done on time.

16. ...people are rewarded for their performance on the job, not just how long they've been here.

17. ...our management feels that, in the long run, we will get ahead fastest by taking the safe and sure way.

18. ...my boss and co-workers will give assistance if one of us is on a difficult assignment.

19. ...workers tend to be alienated and distrustful of management.

20. ...people are proud to belong to this organization.

21. ...there are adequate training programs.

22. ...it is more important to get along with others than it is to produce the best you can.

23. ...poor performance is discussed in a constructive manner.

24. ...people don't seem to take much pride in their performance.

25. ...we are encouraged to speak our minds, even if it means disagreeing with a superior.

26. ...our training programs give us the knowledge needed to do our jobs well.

27. ...work conditions are less safe than they could be.

PLEASE GO ON TO THE NEXT PAGE.
Appendix H
Management Basic Concepts And Guidelines
I. What are Quality Circles?

A. Definition

1. A Quality Circle (QC) is a small group of employees who meet regularly to identify, analyze, and solve problems related to the performance of their jobs.

B. Purpose

1. A team approach aimed at improving the work situation and maintaining the survival of the company.
2. To identify problems and devise solutions to them.
3. To increase the Quality of Work Life (QWL)
   a. QWL is the approach taken in the workplace for increasing output by better management of human resources while also providing for a more satisfying life at work for all employees.
4. To give each individual the opportunity to learn and grow in the work environment.

II. What Types of Problems Can QCs Act On And How Do They Work?

A. Production Problems

1. Issues dealing with methods, speed, schedules, efficiency, costs, and quality of production.

B. QWL Problems

1. Issues dealing with morale, safety, learning, absenteeism, etc.

C. Methods of operation

1. After some minimal training, the group will decide which problems are appropriate to work on and will prioritize them.
2. The group will select the top priority problem and will analyze it's characteristics, origins, and methods of measuring it if appropriate.
3. Several solutions will be proposed and, through group analysis, one will be selected for implementation.
4. The solution will be developed into an understandable, workable, realistic format and presented to management at a meeting.
5. Management will approve and implement the solution or it will deny the solution and give feedback as to why it was denied and what could be done to make it more acceptable.
III. What Are Some of The Potential Benefits of A QC Program?

A. Improved Communication

1. QCs can make more people aware of the total picture in the company. Members will learn why certain things are done in a certain way. They will learn how things can get accomplished by following the guidelines.
2. QCs will enable management to see how strongly employees feel about issues that are addressed.
3. Often a problem will require the QC members to communicate with the workers and supervisors in other departments or shifts, promoting more open lines of communication.

B. Team Building

1. Involvement in QCs often produces a "team spirit" among the members that carries out onto the production floor and may spread to non-members.

C. Respect Between Workers and Management

1. By looking at the problems from another viewpoint instead of simply complaining about them, workers gain an increased understanding of the problems and difficulties faced by management.
2. Supervisors gain new respect for the workers from seeing them demonstrate their abilities and knowledge.

D. Increased Commitment to the Company and to Jobs

1. By actively participating in decisions and making meaningful contributions to their jobs workers will have increased pride, interest, and commitment to the job and the company.

E. Improved Morale and Job Satisfaction

1. Development of Individual Employees
   a. Individuals are given opportunities to improve their work and "people" skills.
2. Participation tends to increase one's self-respect and induce feelings of "I'm not dumb, I can contribute good ideas and use my abilities."

F. Improvements in Productivity and Quality

1. Through the implementation of solutions developed by the QC members.

G. Cost Savings

1. Through the implementation of solutions developed by the QC members.
IV. What The QCs Will NOT Address.

A. QC groups will avoid dealing with the following issues:
   1. Salaries or wages
   2. Benefits
   3. Grievances
   4. Hiring/firing practices
   5. Issues not dealing specifically with the work-place (such as family or political issues).

V. QCs Are Not Just a "Quick Fix"

A. Adopting a QC program is not going to result in a totally renewed or improved company overnight.
   1. It involves a long-term commitment to making improvements over a period of time.
   2. It reflects a management philosophy to ongoing improvements in the organization.
   3. The QC program is more than a motivational tool designed to make the workers "feel good."

VI. Management Commitment

A. All levels of management need to support the program if it is going to succeed.
   1. Top management must show it's sincere commitment to the program before the other levels of management will commit themselves to making it work.
   2. If the first line supervisor doesn't show enthusiasm or approval of the program the members will be reluctant to provide quality input for fear of irritating their supervisor.

B. The importance of the program to management needs to be communicated to the employees.
   1. Management needs to convince the employees that this is not "just another project the boss is going to push on us for a week or two".

C. Management is not losing it's power to the employees.
   1. The workers are taking some of the load off of management by working on the hard to solve or too simple to deal with problems. This frees management up to work on the more pressing issues of running the show.
VI. Management Commitment (cont'd)

D. Management Needs to be Involved Too.

1. All levels of management should be involved in the setting up of the guidelines for the program. This will give everyone an opportunity to help work out any scheduling or functional problems before the program is initiated.
2. All relevant management members from the top management down to the first line supervisors that are involved in a problem and its proposed solution should be present at a QC group's formal presentation of its solution.

E. This is Not a Ploy to Use Employees

1. Management must not force groups to work on specific problems. Groups must be free to choose their own projects.
2. Workers need to be shown that this is not a ploy to "squeeze more productivity" from them without sharing the rewards with them. Show them how this will help the company to survive and grow more stable, improving job security, etc.
3. The groups will probably try to test this in the beginning by taking on problems that are not going to result in direct $ savings to the company. By supporting these types of projects (within reason, of course) management shows a commitment to the program and to its employees.

VII. A Pilot Project at First

A. Everyone involved should know that the first few months are going to be considered a pilot project.

1. There is no guarantee of success
2. If the QC program does succeed, it should be known that the starting up of other groups will be considered.

VIII. The Guidelines and Procedures

A. The following guidelines and procedures need to be decided upon and formalized by the management team:

1. Group size (recommended is 6-9)
2. Voluntary (partially, totally, or mandatory participation)
3. Time allotted for each group each week [amount and scheduling (recommended is 1 hr/week for each group)]
4. Other guidelines as discussed above (ie; problems not to be dealt with, membership restrictions if any, selection of group leaders, etc.)
References


