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THE IMPACT OF QUALITY CIRCLES: A CONCEPTUAL VIEW

INTRODUCTION

Quality Circles (Q.C. Circles) are one of the most recent managerial innovations to be widely adopted by American businesses. Although originally designed by an American, circles became an integral part of the Japanese effort to improve their industrial reputation in the 1960's and have now achieved widespread usage and acceptance in that country. Starting with Lockheed in the early 1970's, American companies began experimenting with this group-based approach to improving quality of product and to involving the worker in the company.

This paper presents a conceptual model that is useful in understanding how Q.C. Circles impact the worker and productivity in the workplace. The model was developed during a two-year in-depth study of one company's efforts to implement a Q.C. process. Results from that Study will be cited to illustrate the components of the conceptual model.

Background

Definition of Q.C. Circles: A quality circle is a group of employees who meet regularly to solve problems affecting their work area. Generally the composition is from five to twelve workers from the same work area who have volunteered to be circle members. The members receive training in the problem-solving process and the statistical and group process skills necessary to sustain it. Quality circles generally recommend solutions to management, who then may authorize solution implementation. A quality cirlces facilitator is usually a member of management whose job is to train quality circles and facilitate their functioning. The organizational objectives of Q.C. programs generally include the improvement both of productivity and employee involvement.

The Study: The Conceptual Model to be presented in this paper has been developed during a two-year in-depth study of the start-up of a pilot Q.C. project in a large

food-retailing organization. The study involved longitudinal tracking of productivity and attitude data as well as regular periodic interviews and observations of meetings. The pilot QC program was undertaken by the company expressly to learn how to set up an effective employee involvement process which could then be diffused to other areas of the company. The pilot department was a warehousing operation involving 85 employees. Extensive findings are reported elsewhere (Novelli and Mohrman, 1982). A summary of the findings appear below.

After 18 months of Q.C. Implementation:

1. Almost all workers had had the opportunity for membership in a program.
2. Many ideas had been suggested with actual or potential cost-saving implications. About 1/3 of the ideas were being implemented. Most dealt with equipment, damage and procedures.
3. Productivity indicators, collected monthly, were showing signs of improvement compared with a slightly negative pattern in the control department.
4. Attitudes of pilot department members stayed relatively constant, compared to a marked decline in the attitudes of members of the control department.
5. Attitudes of individuals who had on-going leadership in the Q.C. process improved significantly. Attitudes of department members who had partial or no involvement in a circle declined. (Partial involvement was defined as being part of a circle for one of the two rotational periods).
6. The initial high levels of attendance and enthusiasm for the Q.C. meetings declined markedly over time.
7. The management of the department (supervisors and department heads), who had initially volunteered to participate in the program began quickly to experience it as a time and resource drain.
8. Several of the most active Q.C. participants were developing career advancement aspirations and were expressing frustration about the lack of opportunity for such advancement.

This study was used by the company to identify the parameters critical to the success of an employee involvement program.

The researchers had similar purposes - i.e. to identify the key variables and mechanisms which impact Q.C. and other employee participation programs. The conceptual model will be reported below, with reference to the events of the case study. This conceptual model is currently being tested in a larger-scale multi-company study being conducted at the Center for Effective Organizations at USC.

The Conceptual Model

The assumptions underlying the present interest in QC programs in our country are that they will positively impact both productivity and worker attitudes, (e.g. Cole, 1980; Yager, 1981). Cost reduction, quality improvement and, less frequently, quantity improvement are among the company benefits that are cited in the literature. Increased skill developement, greater interest in the company, enriched jobs and greater recognition are the individual-level benefits. The individual outcomes are expected to increase motivation and effort, thus positively impacting on productivity through yet another causal chain. Below, two sets of causal assumptions are specified more completely. Examples from our case study will be cited to indicate the conditions which qualify these assumptions.

I. The Generation of Ideas Leads to Productivity and Satisfaction

Diagram A illustrates this causal chain. In its most simple form, it states that after the circles meet and generate ideas, the subsequent implementation of these ideas will lead to productivity improvement and to increased satisfaction and feelings of involvement of the employees. There are several intervening variables which can interrupt this chain:

A. The circles may fail to generate ideas, either because of the lack of skills in problem-solving, in group process and conflict-resolution or because of lack of task-relevant information. This may or may not be related to a lack of leadership in the group. In the case we studied, only two of the four pilot circles generated a significant number of ideas. Despite the fact that all circle members were volunteers, two groups showed little energy or activity.

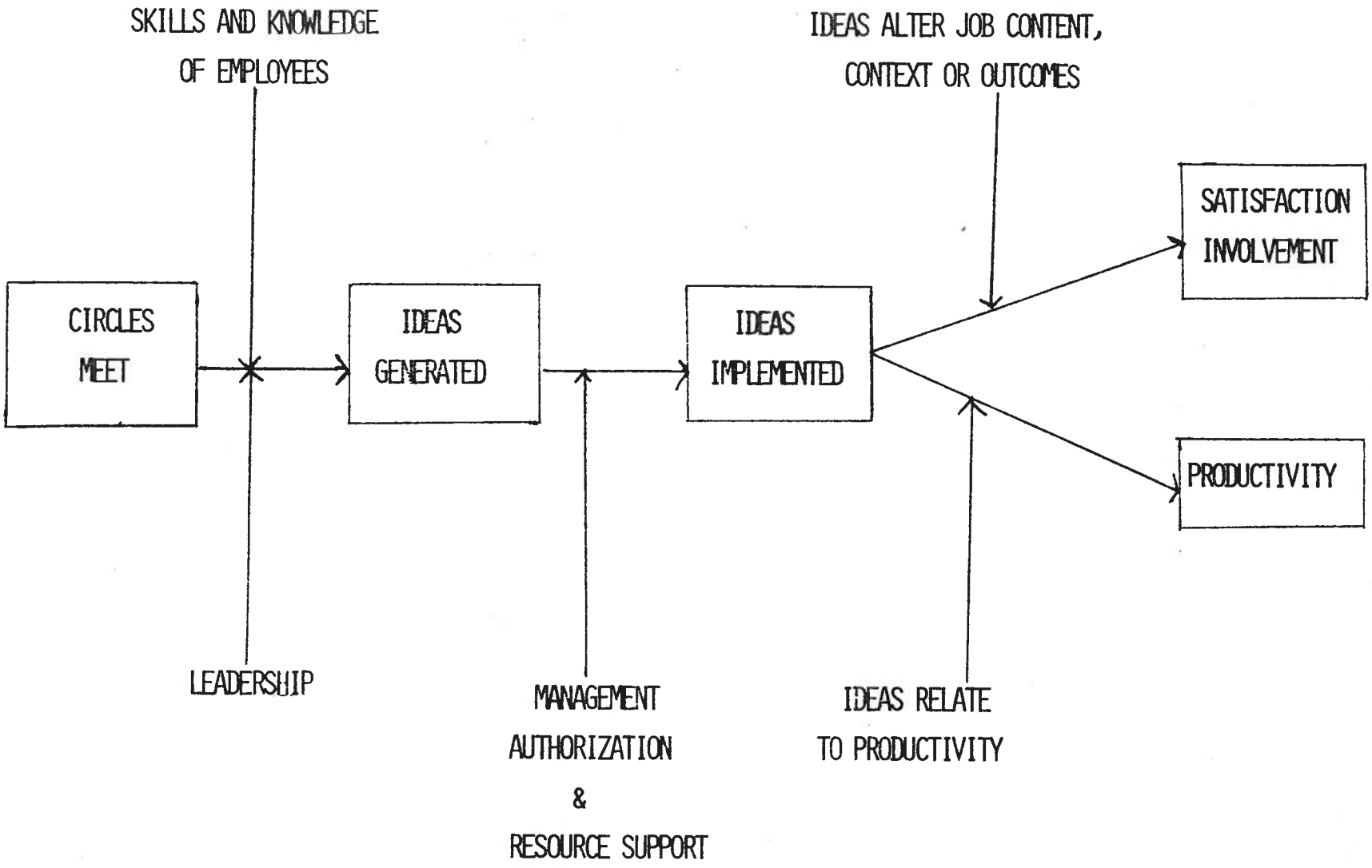

DIAGRAM A

IDEAS LEAD TO PRODUCTIVITY AND SATISFACTION

One of these was characterized by sporadic leader behavior. A third group was energetic and enthusiastic during meetings but produced very few ideas. Only one of the four circles produced multiple ideas for solutions to substantial issues in the workplace. Although the team leaders received substantial advance training and the members received on-going process training and assistance, the research team could detect very little improvement in the problem-solving process over time in at least two groups.

B. In order to impact the workplace, ideas which are generated by circles must be implemented. In many cases this requires management authorization and resource support. We observed the generation of ideas which were acknowledged to be of high quality, but which never reached the implementation stage. Responsibility for implementation was fuzzy, and/or circle ideas were not important management priorities. The employees in the circles often lacked the skills, initiative or resources to implement the changes unilaterally. All this occured in an organization where management had volunteered for the program, and seemed to cognitively attach importance to supporting circle ideas.

C. Once ideas are implemented, positive productivity and individual outcomes result under certain conditions.

Productivity improvement results if the ideas for change actually solve problems which previously restricted performance, and/or create conditions which facilitate improved performance. Some ideas, such as the development of a strapping mechanism to reduce spillage, had a clear relationship to productivity. Other ideas, such as a lift truck parking system to reduce clutter in the workplace, made the work area neater but had no observable impact on efficiency.

The implementation of ideas may result in increased employee involvement and satisfaction if it results in a change in the job itself, its context and/or the outcomes experienced by the individual. For example, the reduction of clutter in in the work area may have positive attitudinal impact.

One circle in our study devised a rotational quality control inspection position which added variety and responsibility to the job of the general warehouseman. Devising a system for equitable assignment of lift trucks removed the necessity to come to work early to make certain of getting a "good" truck.

The best situation occurs when a change is implemented which both improves productivity and worker outcomes. For example, the establishment of an insurance rebate for workers with no accidents can result in cost containment for the company and income to the worker if it results in fewer lost time accidents during the year. Predictably, getting authorization and implementing such a change is quite complex.

Ironically, circles do generate ideas which, when implemented, decrease worker satisfaction. A check-out system to reduce loss of equipment and uniforms resulted in cost savings to the company but was experienced as an inconvenience and a demonstration of lack of trust by the employees.

It can thus be seen that the path between the establishment of a quality circle program, the generation and implementation of ideas, and the company's experience of desired outcomes can be interrupted very easily. It is a fragile process which demands time, energy, skills and ingenuity. If any of these ingredients are missing, this causal path may become inoperative. Worse, negative outcomes may result if initial inputs result in no ideas, ideas which are not implemented, and/or if the ideas fail to achieve the desired outcomes.

II. <u>The Quality circle process itself results in individual and productivity outcomes:</u> Diagram B demonstrates this causal chain. Advocates of quality circles programs sometimes see the QC program itself as a solution to the lack of employee motivation and involvement in the workplace. According to this line of reasoning, the circles program would have an impact regardless of how many ideas are generated and put into practice, since it gives workers an opportunity to be involved and experience accomplishments.

By looking carefully at Diagram B, however it becomes clear that productivity

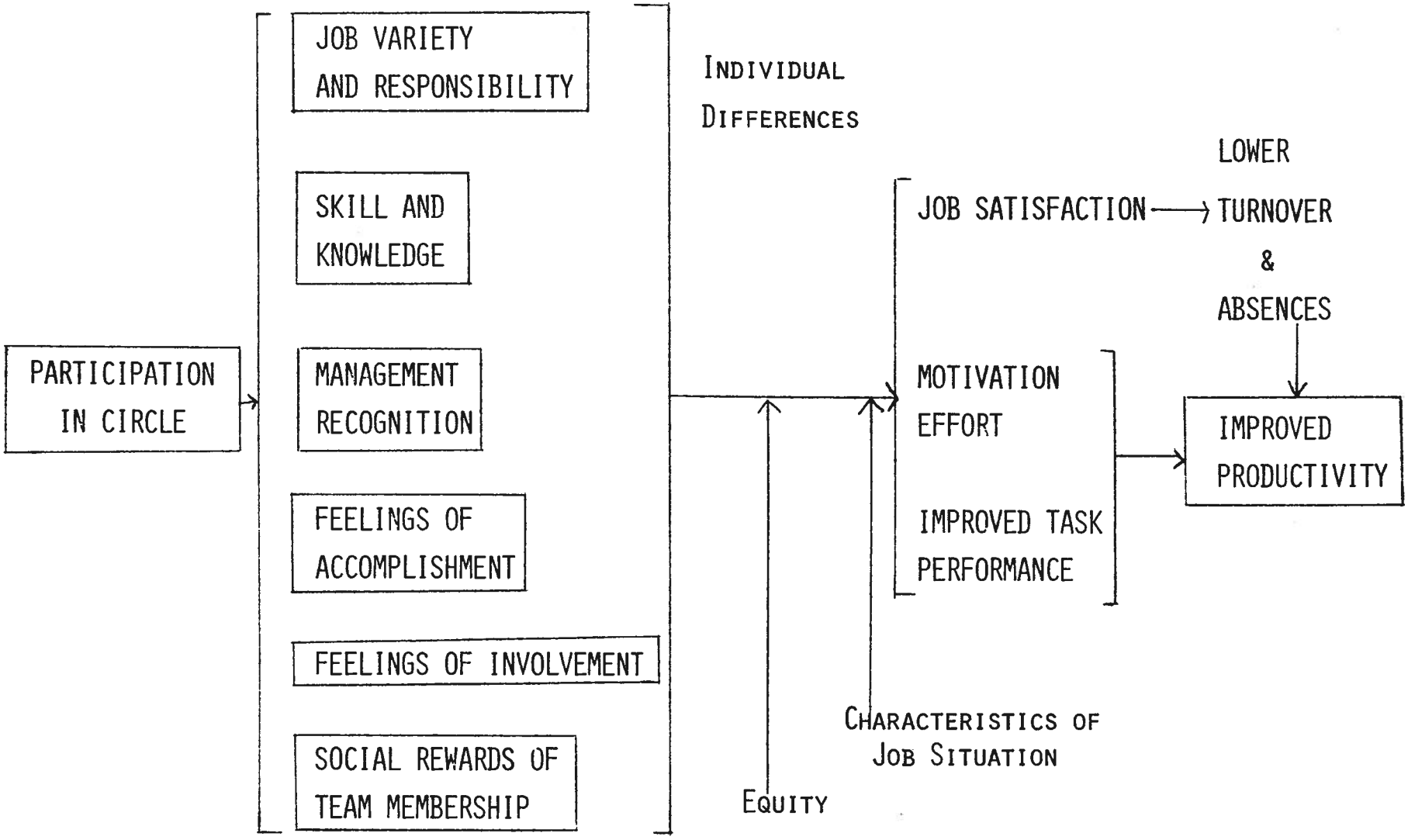

DIAGRAM B

THE QUALITY CIRCLE PROCESS RESULTS IN PRODUCTIVITY AND SATISFACTION

benefits still depend to a large extent on circle accomplishments, and therefore on the same variables that qualified the first set of causal links. Management recognition and feelings of accomplishment in particular will be experienced only if ideas are generated which attract management's interest and are subsequently implemented. Perceptions of increased job variety and responsibility and feelings of involvement in the company will result only if circle participation is perceived as a significant part of one's job and as allowing one access to important issues in the workplace. Sporadic time off to make token decisions can hardly be expected to lead to these outcomes. In the case study, only those in an on-going leadership role in the quality circle process experienced an increase in these outcomes. Some participants dropped out because they thought the circles were dealing with unimportant issues. Those who were members of a circle for only one rotational period experienced decline in attitudes toward many aspects of their work.

The attainment of skills and knowledge and the experience of the social rewards of circle membership both can be blocked if the circle fails to develop into a well-functioning entity. Some members of the two pilot circles which generated few ideas expressed frustration and disillusionment with the QC program and with fellow members. There was also some frustration about the apparent lack of progress in group skills.

Even if participation in quality circles does lead to the list of first order outcomes in Diagram B, there are circumstances under which this would not in turn lead to increases in job satisfaction and motivation and improved task performance. Research on the effects of enriched jobs suggests that individual differences moderate their impact on individual motivation and satisfaction. Likewise, we noticed that some employees simply didn't enjoy being members of a circle, and ultimately dropped off or stopped attending meetings. Among the steady attenders and contributors, equity concerns were beginning to dull the positive feelings toward the program. In particular, participants were beginning to desire pay for their good ideas.

Department management and workers themselves were in agreement that active participation in the circles did not result in improved task performance back "on the job." In fact, there is some indication that active circle participants showed a greater interest in getting out of their job - i.e. in applying for promotions. Some verbalized the belief that they had demonstrated their ability to handle a supervisory position through their circle participation. Returning to their relatively unenriched jobs was experienced as a let-down. Because of the repetitive pre-programmed nature of their main tasks, the skills and knowledge gained through the circle did not translate into improved job performance.

When considering the overall impact of the quality circles program on the department, another equity concern became apparent. Attitude survey trends demonstrated that while there was some improvement in the attitudes of workers who had continued leadership roles in a circle, there was substantial decline in the attitudes of those who were uninvolved or had temporary or minimal involvement in the program. QC programs often can include only part of those who are interested in membership. Rotational systems such as the one established in the case we studied are often established to deal with this. Participation, time-off from major task and in particular the opportunities for assuming a leadership role in a circle are scarce resources. Their distribution is likely to set up perceptions of inequity in the workplace.

Design Implications

The conceptual model presented above reveals many opportunities for the causal chain between quality circles and positive outcomes to break down. In the case we studied a company which was willing to commit considerable resources and attach great importance to the involvement of employees in decision making, but was unable to anticipate many of the problems which were to arise. Because of its sponsorship of the pilot, however, it is currently redesigning its approach to employee participation.

Although this model is preliminary, it is possible to begin to draw some de-

sign implications. The major lesson is that employee involvement structures are unlikely to lead to meaningful outcomes if the structures for involvement are separate from the structures in which the main tasks of the work setting are performed. Only if the worker can become involved in the work group, working through the management of that workgroup can responsiveness be regularly anticipated. Meaningful influence can be "designed in" through such mechanisms as providing the workgroup with a budget, with open information, with ability to meet as needed, and with a mandate for broad decision making. The conditions for blockage in the causal links can be avoided through a conscious design strategy.

Diagram C lists the characteristics of groups which are more likely to lead to true involvement and of "suggestion circles" which often self-destruct because of their inability to lead to meaningful involvement.

The results of the current trend toward wide-spread adoption of quality circle programs will depend on the ability of companies to anticipate the required conditions for their successful operation, and to ensure both a program design and organizational context which nurtures the involvement process.

INVOLVEMENT GROUPS

SUGGESTION CIRCLES	HIGH INVOLVEMENT
VOLUNTEERS	VOLUNTEERS
SAMPLE	WORK GROUPS
NO BUDGET	BUDGET
PRODUCTIVITY AND QUALITY	BROAD MANDATE
NO REWARDS	POSSIBLE GAIN SHARING
ROTATING MEMBERSHIP	PERMANENT
TRAINING	TRAINING
LIMITED INFORMATION	OPEN INFORMATION
REGULAR MEETINGS	AS NEEDED
FACILITATOR	TEAM LEADER
SUGGEST	SUGGEST/DECIDE

DIAGRAM C

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