

SPECIAL REPORT

Value of Quality-Control Circles for U.S. Work Organizations

Robert E. Cole

Quality-control circles are a new Japanese import that is making inroads in the United States. There are now at least 400 U.S. corporations with active circle programs, and many more are contemplating starting them. To understand their potential value to U.S. work organizations, we must first look at how these circles operate and the basic assumptions behind them.

As the name implies, a quality-control circle is a small, relatively autonomous group formed to uncover and solve problems of quality. Typical efforts involve reducing defects, scrap, and rework. But broader problems, such as safety and absenteeism, which certainly have a major impact on production and quality, may also be chosen.

In Japan, quality-control circles are practically a national movement, involving one out of every eight employees. In companies with circles, typically 90 percent of the blue-collar workers participate.

Participation, in principle, is voluntary. Membership ranges from 3 to 20 people, with the average circle having 10 participants.

Members get together on a regular basis because the circles are a continuing group study process, not formed in response to a particular problem or set of problems. Foremen are trained in participative techniques, and both foremen and workers are taught techniques of problem-solving, including statistical methods as sophisticated as regression analysis. A great range of study materials, including case histories of problems and solutions worked on by other quality-control circles, is made available to all members. The company provides extensive managerial and staff assistance.

Timetables are set for the completion of each phase of circle activity. At each circle meeting, all members are given assignments that they are expected to complete by the next meeting, using both company and their own time. Recognition is given to members through company awards, public demonstrations, and regional and national

conventions of quality-control circles; financial incentives are downplayed.

Emphasis on Self-Development

It can be readily seen that, while circles aim at improving quality and methods of production, they also emphasize the self-development of workers and recognize their abilities to contribute. Every person in the organization—from top management to the ordinary shop-floor worker—participates in a circle and each employee is expected to take responsibility for solving quality problems.

In U.S. companies, by contrast, it is customary to regard quality control as the prerogative of engineers, and when problems arise, they are usually solved by adding more inspectors and reliability assurance personnel.

In Japan, not only do circle members solve problems that confound engineers, but they often question existing practices and find them the cause of problems. This is where the worker's intimate knowledge of the shop floor gives him or her special insight.

Most motivational schemes in U.S. work organizations assume that workers know how to raise productivity and improve quality, but they are holding back, in management's view, for no justifiable reason. Operator indifference or even sabotage are assumed to be normal problems that management must combat. The common response is close supervision of workers.

The quality-control circle, however, starts with the assumption that the causes of poor quality or performance are not known by either management or the workers and that analysis is needed to discover the causes and develop effective remedies. It therefore follows that participants must be provided with the tools and training to undertake sound analysis.

Quality-control circles, by the very nature of their operation, develop workers' skills. They also develop leadership abilities in both foremen and workers, improve employee morale and motivation, and stimulate teamwork.

Organizational Advantages

Circles have other clear advantages for organizations that use them. Because they involve continuous study, they perform what one sociologist has called opportunity surveillance for the organization. In other words, they scan the environment for opportunities, do not wait to be activated by a particular problem, and do not stop their activities when a problem has been found and solved. This kind of seeking out of new or better ways to do things is rare in organizations and obviously a tremendous asset. Second, even if the solutions arrived at by workers are no better than those proposed by technical personnel, workers are more likely to carry out the solutions with enthusiasm because they have been involved in the problem-solving process from the beginning.

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Limitations of Quality-Control Circles

While Westerners have an image of the Japanese as miracle men who never make mistakes, it is important to note that the quality-control circles do not always function in Japan the way they are supposed to. For one thing, in spite of all the emphasis on spontaneity and bottom-up initiative, in practice there is a great deal of top-down control in many companies. Workers in these situations see the circles as a burden imposed by management rather than as their own program. When quality-control circles become coercive, workers are of course less likely to come up with innovations.

A second and related problem is that, while in theory there is equal emphasis on developing workers' potential and improving productivity, in practice productivity improvement has often taken first place. Third, unions have not played a major role in these programs but have merely monitored them to see that no excesses occurred. And finally, as the quality-control circle movement has evolved, circles have begun to lose their original spontaneity and become more of a regular feature of a bureaucratic organization, with participation an expected ritual rather than an enthusiastic and voluntary involvement.

Despite these drawbacks, the Japanese have made impressive strides in this area. They may be far from perfect, but they are on the right track and they work very hard, as we know, at improvements.

Implications for U.S. Management-Worker Relationships

While the quality-control circle is not a panacea for what ails U.S. management-worker relationships, it does provide a vehicle for unlocking the potential of workers' contributions to the organization, by allowing workers a sense of dignity and of full participation in the organization along with an opportunity to develop their skills. At the same time, it contributes to key organizational goals, such as increasing productivity, reducing costs, and improving quality control.

Many of these gains can be achieved by methods other than quality-control circles. What is important is to recognize the basic principles that make circles effective and that can be applied in U.S. work organizations with or without quality-control circles.

Six Basic Principles

The principles Japanese management applies, in a variety of practices as well as circles and which I think are worthy of emulation, are

1. Trust your employees. Believe that they will work to implement organizational goals if they are given a chance.
2. Build employee loyalty to the organization; it will pay off.
3. Invest in training and treat employees as valu-

able resources that, if cultivated, will produce economic returns for the organization. This means develop employee skills and aim for a long-term commitment by the employee to your organization.

4. Recognize employee accomplishments; symbolic rewards mean more than you may think.
5. Decentralize decision making.
6. Emphasize work as a cooperative effort, with employees and managers doing the job together. This implies participation in decision making about how best to do the work.

These principles are not novel. Indeed, many U.S. organizations already apply them, and with some success, but only to management personnel. One of the secrets of the Japanese approach, in my view, is that they take many of the practices we reserve exclusively for managers, like career training, and extend them to blue-collar workers. In this country we have an adversary mentality that makes it very difficult for U.S. management to take such a far-sighted view, but, hopefully, the barriers are starting to come down.

All of the principles I have outlined can be found in the behavioral science literature of the United States, but Japanese managers have taken this literature far more seriously than their U.S. counterparts. The principles themselves are not earthshaking. What is earthshaking is the extent to which the Japanese have institutionalized them in daily practice.

Adaptation to the United States

We do not yet know how those U.S. organizations that have introduced quality-control circles will fare, although some preliminary results are in. From my own observation I believe the greatest barrier to their success is not employees, nor even top management; it is middle management.

In almost every situation that I have observed, workers appear to be quite enthusiastic once they have a chance to become involved. Top-management support is, of course, critical in order to launch the circles. But all too often middle management sees the circles as a threat to their own positions—and they are not necessarily wrong. There is a threat to the traditional role of giving lots of orders and controlling what people do and when and how.

Also, quality-control circles stand little chance in situations where there is a lot of hostility among management, workers, and unions. The atmosphere has to be changed first.

Just as the Japanese took Western ideas on quality control and adapted them to fit their own values and practices, so will U.S. management need to adapt quality-control circles to fit our environment. For example, unions in Japan adopt a laissez-faire attitude so long as the circles do not make unreasonable demands on workers; but, in the United States, where an organization is unionized, I think the unions will have to be heavily involved from the outset so that success rubs off on them as well as manage-

ment. This is the lesson of many work-innovation experiments in this country.

Given the value system of U.S. workers and the strength of U.S. unions, I think the voluntary approach to participation in circles will have to be more strictly adhered to in this country than it is in Japan. This may make launching circle programs more difficult, but it is also likely to ensure far greater rewards. Indeed, because of our ingrained tradition of voluntarism, I think U.S. citizens may have an advantage over the Japanese in this regard.

Other adaptations and changes will be needed. But I would like to underscore that the principles behind quality-control circles and similar innovations can make an enormous contribution as U.S. work organizations seek to improve both quality of products and services and the quality of working life for their employees. Both are essential to increase our productivity.

SPECIAL REPORT

State Transportation Agency Use of Non-Traditional Work Schedules

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State DOTs Looking for Ways to Do More with Less Resources

The steady and persistent decline in real income coupled with constantly escalating costs of building and maintaining highways have sent most state departments of transportation (DOTs) to their legislatures seeking improved funding. However, legislatures and governors have insisted that there be clear evidence that the DOTs are being effectively managed and that they have eliminated waste. As a result many states have gone through or are going through management reorganizations and reductions in force ranging up to 25 percent. At the same time that staff is being reduced, the public expects that current levels of service be maintained and even improved.

Pennsylvania is a typical example of a state undergoing major management changes, improving its credibility with the public, and, as a result, obtaining additional funding from the legislature. There has been a reduction in staffing from 15 212 employees to 14 500. Fortunately, much of the reduction came through attrition but some lay-offs have been necessary. In addition there was a management audit and unnecessary supervisors as well as staff were eliminated—120 administrative positions were eliminated. In the construction-oriented units, personnel were reassigned where possible to other functions.

Following good management practices, the Pennsylvania Department of Transportation (PennDOT) has reduced the span of control for top administrators and the number of levels of management. The maintenance crews along the roadway give the public a highly visible image of the department and efforts have been made to increase productive time and eliminate the image that five men stand around while one works. At the same time, efforts to standardize maintenance procedures to improve quality are under way.

Equipment maintenance and management have been improved. Another visible way of improving the public image has been through the elimination of unnecessary state cars, so that the public is no longer given the impression that department employees are using vehicles for frivolous or personal purposes.

There has been a general audit of all policies and practices. Administrative forms have been reduced, application of road salt has been reduced, and information on project status, costs, and schedules are now readily accessible to management.

As a result of such actions, PennDOT is achieving the credibility that it needs to convince the public and the legislature that its house is in order and that additional funding will be efficiently used. The results have been that the legislature has been willing to increase the PennDOT revenues. However, gone are the days when a highway commission could operate with dedicated revenues as a semiautonomous branch of state government. While the legislature is now more willing to provide much needed transportation revenues, it also wants a continuing assurance that the department is well managed.

The PennDOT example is typical of the process under way in most of the states. After a period of declining real income and revenues, the state legislatures and governors have required a reduction in staff and improvement in management as prerequisites for additional funding. Once this is done additional funding has generally been forthcoming. The question is not "Do we want to let the current investment in transportation deteriorate?" It is: "***Based upon an efficient management***, how much is needed to maintain the current transportation infrastructure that we have?"

(Note: The Pennsylvania experiences were reported by Pennsylvania DOT Deputy Secretary James I. Scheiner at the TRB Annual Meeting.)