INDUSTRIAL TRAINING IN QUALITY IMPROVEMENT
PART II: THE ROLE OF HUMAN RELATIONS

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I believe that most people in my audience would agree that the use of statistical techniques can improve the productivity in a wide range of companies. This is true — up to a point. Our experience at the Portsmouth Naval Shipyard leads us to take a much wider point of view toward this question than we originally had taken. The training package began as a sequence of courses for employees in the use of simple statistical tools. It didn't take too long for the Shipyard management to see that this was not sufficient for their needs.

The first thing noticed was that problem solving is almost always best done in a group setting, and that none of the training dealt with this issue. Problem solving usually involves working with other people, and is most effective in the hands of a dedicated team. In February, I saw the plant manager for Mazda's United States facility on the Cable News Network. Mazda was in the process of hiring its initial round of U.S. employees, and the manager stressed that management considered the ability to work in a team on equal footing with traditional job skills. An effective team is much greater than the sum of its parts, and the Japanese nurture team-building skills in their employees. In recent years, United States managers have become increasingly interested in doing the same. At any rate, it was clear that we needed to deal effectively with the whole issue of team-building skills.

What else needed to be changed? The problem was that the people who left the statistics courses and tried to apply what they had learned on their jobs were frustrated. What was the nature of their frustrations? They were met with roadblocks put up by managers. Their fellow workers didn't trust the new techniques. They didn't have the skills to relate effectively with fellow workers in their own areas, with people in other shops and codes at their same level, or with subordinates or superiors inside and outside their areas. They didn't know how to make effective presentations to groups of managers, to convince them that their recommendations for improvement were worth implementing. In short, lack of skills in statistics as well as in human relations and team-building needed to be dealt with. So we addressed these issues in a new course, "A Group Approach to Problem Solving". I will give more details a little later.

But first I want to make an important point based on this experience. The improvement of productivity (as classically considered) is the wrong goal for a company's management to pursue. Rather, it should seek to be competitive. To produce more at a lower cost is to improve productivity, but to be competitive is to produce exactly what your clients want in terms of quality, delivery schedules, price, and perhaps other measures as well.

Wickham Skinner, in an article in the July-August 1986 issue of the Harvard Business Review entitled "The Productivity Paradox", makes exactly this same point. There must be a change in climate, starting at the top and going all the way to the bottom (although the bottom can "push" the top!). There must be a single-minded focus on the improvement of competitive position; traditionally defined productivity improvement will be an easy consequence of this one all-important goal. And this leads to the necessity to improve the system as a whole: exactly where statistical techniques are most powerful! The best way to improve competitive position, and coincidentally improve quality and productivity, is to take full advantage of the synergy between an appropriate management strategy and the correct statistical tools.

At the Shipyard, we found in management the full range of attitudes toward a new philosophy. In the workers, we found a great deal of skepticism toward any new program – they had seen too many come and go. At least partially because they work in a government facility, employees tend to have a "can't change the system" attitude. In addition, there is a high degree of emphasis on inspection, checking, and placing blame.

Management had attempted to give everyone who would get the training some orientation to the change in management style and to the fact that they would be formed into project teams which would identify and solve problems statistically. Yet, when they arrived in class, many employees had no understanding of why they were there. Many resented having been taken from their jobs, and having been ordered to go to training. Often supervisors who should have been taking the course with their subordinates ordered them to class but did not attend themselves. They were effectively "delegating" the problem-solving responsibility. Employees often felt defensive because they saw this new program as a threat to their jobs. But more often, workers were overtly hostile, not believing management was at all committed to improving quality. Many saw the new program as just one more charade by management which would have to be tolerated only until the Commander changed, and which would bring them no benefit and only more work. So we decided to build into the fabric of the statistical training a structure which would deal with these issues of attitude and human relations skills.

Our new course began with active listening, a technique whereby the listener feeds back to the speaker a short summary of what he has heard. We also stressed that the actual words used are only a part of what happens in effective communication. Things such as body language, voice tone, eye movement, emotions, etc. are also very important. This exercise helped make people feel that they could trust us with the truth, and that we would be truthful with them. This is invaluable in the industrial setting. On a practical level, the workers could see (at the very least) that active listening would be very valuable during such times as shift turnover of jobs.

It also set the stage for a recurring theme: the importance of awareness. When working with a problem solving team, everyone needs to be very aware of everything that is going on: aware of one's own role, aware of

how that role fits in locally and globally in the whole process, and aware of how other's actions both limit and expand the full range of outcomes.

Brainstorming is a good way to teach acceptance of other ideas, no matter how bizarre. Quality circles usually use "structured" brainstorming, wherein the group members give ideas in succession. The reason is that this assures that everyone will have an opportunity to speak, and will not feel that they have to assert themselves in order to be heard. "Unstructured" brainstorming allows anyone to put forth an idea at any time, so long as no one else is talking. This approach assumes that the people in the group have a sensitivity to and awareness of the others involved in the brainstorming session. In either approach, the group has a powerful tool in its search for answers to the questions it must naturally address. We included brainstorming early in our course, both to make that point and to get across these ideas about team-building skills.

Many group decisions are made by taking a vote. This is an efficient way to reach a decision, and yet lacks many of the attributes of an ideal decision-making process. One would like it if all of the members of the team were willing to work to implement whatever decisions get made. Also, one would like to be sure that everyone with something to say about the decision were given a full chance to be heard by the others. Everyone should feel, at the end of the process, that their ideas had been given a fair hearing. The group should take a sufficient amount of time in its deliberations to be sure that it has considered all of the important variables. It is rare that all of these goals are met, and particularly so if the final decision is reached by voting. Almost always, the vote is taken too soon. And if one member's position loses in the vote, the people agreeing with it will most likely feel that they "lost": they will simply withdraw (to a greater or lesser degree) from the group process. Rarely will they be committed to carrying out the decision. So we decided to include an introduction to consensus decision making in our course. It is much more difficult, and usually more time-consuming, but it requires the best from all of the group members and could be used as a vehicle to make more points about the skills necessary for individuals to have in order to work well in a team setting.

When teams come together to find ways to improve what they are doing, then, the individuals need some specific skills (outlined above) as well as statistical knowledge (outlined by Professor Gaudard). But this is not enough. They need to have had experience in building good team qualities with other people, to have seen good and bad examples of group functioning. They need to know the role of "group chemistry" in determining how well or poorly a team performs its task. They need a good understanding of the role a team leader plays in the process, that this person can have a powerful impact (both positive and negative) upon the effectiveness of the group process. They need to understand the necessity for a recorder or "secretary" in order to have a record of what occurred (both for future reference and for interim reports to management). They also need to develop, during the course of the preliminary training, an ability to accept overt and subliminal criticism of themselves, an ability to respect their cohorts even when they disagree with them, and a commitment to the problem-solving procedure. The ideal way to learn these things is to ex-

perience them, rather than just have the instructor assert their righteousness. So we developed a structure in which these ideas were incorporated into exercises which overtly dealt with the task of problem solving.

To monitor and teach these attitudes and skills, we decided that it was important to have a group assistant (or facilitator) be present with each group throughout the exercises included in the course. This person's role was to be mainly that of an observer, but with the power to intervene if absolutely necessary. Also, the group assistant would help the team reflect on its effectiveness, point out good as well as inappropriate comments from group members, add observations which had been missed by the participants, etc. Also the team could use the assistant after the course if that seemed useful in its problem-solving efforts.

More details on how these goals were actually implemented in our course will be given by Professor Shore in the next talk. Because of our experience with the Portsmouth Naval Shipyard we agree with W. Edwards Deming and others that mere statistical training in the industrial setting is doomed to failure. Also needed are a commitment from management at all levels to a new way of doing business, and the inclusion in the training of basic team-building and human relations skills. The change in management philosophy must come from within the organization itself. The Group Approach to Problem Solving course which we have developed is an effective tool in helping the organization meet the statistical and human relations requirements.