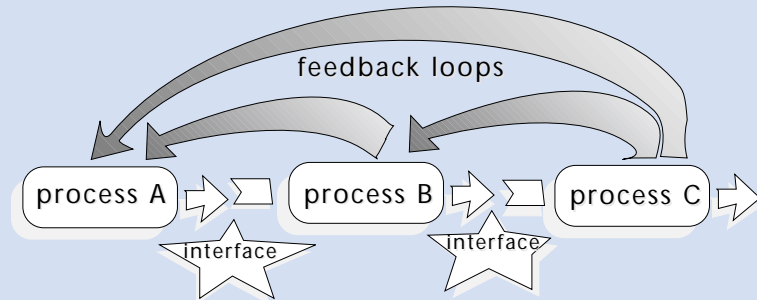


Quality Feedback: A System for Total Involvement

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• Abstract

The focus of this paper is on a system of total employee involvement and management controls aimed at Total Quality. The heart of the approach is Quality Feedback meetings for all employees — short weekly sessions designed to foster better communications and exchange of information aimed at lowering defects. Led by supervisors and managers at all levels, meetings held in every work area focus on feedback of timely, local quality measures and the identification of ideas for work improvement. The focus in each area is specific to the work done in that area - from paperwork to soldering - and upon the elimination of obstacles which are preventing progress or causing errors. Aimed at teamwork and using the knowledge and abilities of people, the program keeps management aligned to



issues requiring problem-solving efforts of supervision, quality circles, management, and support groups. Total Quality involves not only employee involvement, but management systems aimed at quality improvement. Quality Feedback integrates employee involvement with innovative policies, practices and information systems designed to facilitate quality awareness and responsibility on the part of participants.

In one setting involving over 300 employees, this approach resulted in over 80% reductions in workmanship errors and productivity increases in excess of 20% within the first year of the program, along with measureable improvement in quality of work. Over a period of three years, a total reduction in defects of 95% was achieved, while nearly thirty-nine percent (39%) more output was being realized with the same number of employees. The approach has been expanded to an employee base of over 10,000 people.

• Introduction

We are in a new economic age. A major shift in management's thinking has been going on, and it bodes well for the competitiveness of major U.S. manufacturing firms. It's part of a revolution in fundamental thinking about leadership. Managers in every field are rethinking the tried - and maybe not so true principles that nearly became a consensus following WWII. In the past, quality has been looked on largely as a matter of conforming to specifications, and has been treated as a responsibility of design engineers, manufacturing specialists, and quality professionals. The "after-the-fact" focus has been on managing risk rather than galvanizing organization wide efforts toward quality as a central goal of producers and their support services.

Total Quality demands a more comprehensive approach. It calls for continuous improvement in everything we do — everyone in the company is involved in a process resulting in quality products and services for "internal" as well as external customers. Putting quality first is a new way to look at things. It starts, therefore, with a shift of key quality responsibilities to line management and the producers of quality products and services.

Dramatic improvements in productivity are being realized in a number of companies adopting a "Total Quality" approach. Often these gains derive from a realignment of major functional responsibilities, but more often they result from applications of statistical process control. Quality circles have made great contributions, though they rarely bring about the transformations of the

system itself which have to take place if quality is going to be put right up there with cost and schedule..

Quality Feedback starts with a decision that supervisors and managers at all level will conduct a weekly meeting — usually about 15 minutes — to review quality of the work and identify day-to-day problems in the work preventing people from "doing things right the first time." People do the talking — supervisors do the listening and take appropriate action.

Quality Feedback should be considered another "arrow in the quiver" of Total Quality. It involves simple, straightforward techniques which have caused dramatic improvements in product quality and simultaneously created significant increases in both productivity and quality of work life. Focusing on communications and total involvement, is has helped to broaden responsibilities taken by supervision, and has served to develop a bed-rock climate of individual worker responsibility for quality. More than a communications tool, Quality Feedback is a method to get to the heart - in a hurry - of obstacles to improved quality and productivity.

There are, of course, no panaceas. But Quality Feedback is practical and effective — particularly in labor intensive settings — it yields results in a very short time. For "incrementalists" who like to take things one step at a time, Quality Feedback can be heartily advised. Unlike many approaches requiring new staff specialists, hardware, or gargantuan training budgets, Quality Feedback is

about as “free” as you can get. Quality Feedback is a “starting place” for organizational learning about quality system needs. Where the authors have seen it work best, they’ve seen a series of innovative steps on the part of managers to respond to unfolding opportunities for improvement and system building. By starting with the problems and issues raised in separate groups, managers have an opportunity to develop quality programs in relation to the needs of their people.

With Quality Feedback, the burden is on management to address the problems of “doing things right” which people see all around them. The tool is powerful, but it is two edged. Every job contains some amount of content known only to the person doing the job. When management opens the door to communicating about these things, an amazing number of simple, little things are always found in the way of people’s efforts. Once identified, responsibilities that have gone unmet are often clear, and fixing things is often surprisingly straightforward. But - after having asked and been told, supervisory and management action to be accountable must be immediately visible — or people will get the clear message that management would rather talk about problems - and blame others - than do something about them. We advise managers not to undertake this program if they aren’t serious about fixing what they find.

Problems of quality data — in their chronic lack of timeliness and validity — are often challenged. Fuzzy or unaccepted quality criteria get roundly challenged. Staff and support services too often preoccupied by their own priorities are called to be responsive to the needs of producers. As groups

get used to talking about unit quality results, an individual accountability emerges — even where Labor Relations might say performance data shouldn’t be kept by individuals. The developing ethic of quality provides solid groundwork for cooperative commitment and accelerated progress at statistical process control and shifts toward “just in time”. When coupled with other program elements, Quality Feedback, by providing for universal involvement in a very behavioral way, goes a long ways toward rounding out a strategy for quality.

• **The Common Situation**

Most managers and supervisors are so concerned with today — and with getting their own real and imagined problems settled — that they rarely have the time to communicate with their people in a way that they know they should. With supervisors moving on priorities as they see them — employees generally learn to stay out of the way and to initiate communications about only the most extraordinary conditions, or about the most trivial things. Too generally, employees doubt that managers are interested in problems experienced in the day-to-day work, and see management as taking little action to change the way things are. In the midst of this communication gap grow barriers to communication, and poor estimates of contributions being made, both by managers and employees. Therein lie root causes of quality problems!

Quality Feedback is a program designed to focus two-way communications on things that matter in the day-to-day work. It asks supervisors to develop weekly meetings — and with practice, they

usually do amount to about 15 minutes — to review performance feedback, identify problems, and define action steps toward improvement. The announced focus is decidedly NOT on labor relations or vague “morale” issues - but on specific problems in the day-to-day work. The best way to assure a healthy focus of any discussion is to have some measurable objectives for focusing the discussion. After all, “problems” are nothing but “obstacles” to getting something done - and a clear sense of goals is required to organize effective problem-solving. Quality data can provide the focus.

In improvement programs, employees are rarely motivated to talk about “doing more,” working “harder” or “faster.” It’s for this reason that most effective programs of improvement are organized around a theme of doing something “smarter,” or “doing it right the first time.” The key question in Quality Feedback is “What keeps you from accomplishing your work in the way it should be done?” Quality provides for common goals between supervisors and their people.

Quality feedback involves providing meaningful feedback on group performance, and providing room for open discussion as to root causes and possible solutions. The job of the supervisor is to formulate acceptable goals, to provide for valid feedback, and then to LISTEN hard! The supervisor serves to mirror discussions of the group in short minutes that communicate problems and proposed solutions to others in the organization. The program requires a commitment to create an environment where people can be completely honest with each other and work together without

feeling that they are going to be criticized or competed with. The best way to deal with these problems is to start communicating and work hard toward developing trust. With management commitment, there’s little-to-nothing to lose

The principles behind Quality Feedback are basic:

- * Workers need to know what is expected of them
- * They need to be told how they are doing
- * Feedback must be based on objective data
- * Obstacles to improvement are management’s responsibility

Quality Feedback meetings are designed for people to do the talking, supervisors to do the listening and take appropriate action. They are also based on the idea that people who make errors will continue to make them unless they get specific feedback. Everybody thinks they do a good job - they usually identify problems “elsewhere”. It became clear to supervisors that if tools are needed, new methods need to be developed, or if problems are coming from other areas, it is their job to resolve the issue for their people, and provide timely feedback on their efforts and accomplishments.

The first line supervisor has the toughest job in the business. Managers need to “stay tuned” in order to help out where supervisors can’t take responsibility alone. Confronted with data about defects, employees often talk about some “them” who causes all the problems. Managers

may come to see that it makes sense to have inspectors sit in with production team feedback meetings. When problems relating to support groups are more than can be handled by supervisors alone, support staff representatives can be invited to sit in, sometimes on a regular basis. Dealing with quality data among producers can come to call many players to accountability.

One of the things which most supervisors and managers will learn before long is that while some errors are made by people, the greater causes of problems usually are “inputs” - such as inadequate planning, problems with incoming materials or information, or poorly performing equipment. These “upstream” areas need to know the kinds of problems they are causing “downstream”. Management support is required — either in the form of elaborate information feedback systems — or in calling for intergroup forums to address issues of “cause and effect”.

- The 3 M's of Quality Feedback Measures, Meetings, and Minutes, are all important parts of Quality Feedback.

Measures:

Quality information graphs, summarized by work area, are posted on the line to create awareness of our performance and quality goals. Graphs show weekly results and provide comparisons to performance in prior quarters. Where it's possible, expanding the amount and timeliness of quality information helps. In addition to posted results, assembly line supervisors in several situations get daily reports of inspection activity which provide overall results such as “defects per unit” and “percent yield”, and the kinds of defects found in rank order.

Minutes:

Brief minutes of Quality Feedback meetings can be kept in the form of an Action Item List which serves to record the problems identified during the meeting, and the action items assigned. They also serve as a reminder to the supervisor to be prepared to provide status on all open items, and as an agenda for the next meeting. Copies of the lists are often sent to support groups for action, and to managers for their help. In one setting, short minutes for all feedback meetings throughout the plant are posted on a main bulletin board each week for all to see. Rosters posted in the work area offer a convenient place for members to identify issues to be raised at the next meeting.

Meetings:

Quality Feedback meetings last between fifteen minutes and a half-hour. The meeting is conducted by the first line supervisor, often with help from the quality supervisor for the area. The participants may include support people involved in production goals. The focus is on quality, and day-to-day problems in the work. It is not unusual in a meeting to have a representative of a department affected by group errors describing problems they are having with outputs.

• Results

Quality Feedback meetings had had major impacts on workmanship, and therefore, on productivity. In one setting, most of the errors reduced during the first year were attributable to workmanship rather than relating to the “inputs” received; the thrust, after all, had been on what “we're doing”. Lower defect rates have left more productive time spend on unit output — 20% in the first year.

Quality Feedback generates important impacts on how people feel about their work and their supervisors. In order to track those effects, we conducted a longitudinal survey in one setting over a one year period involving 200 assembly employees. Results suggested that supervisors were doing a better job in the eyes of their people (in a “statistically significant” way) when it came to things like:

- * encouraging suggestions for improvement
- * encouraging greater responsibility
- * getting people the information they need in order to do a good job
- * listening to problems and complaints
- * being easy to see with problems and complaints
- * letting people know what kind of job they are doing
- * showing employees respect as individuals
- * appraising performance fairly
- * solving technical problems
- * solving people problems

In addition to these findings, it was clear from a comparison of survey results that job satisfactions had increased. People rated their jobs — “the kind of work you do” — more highly, and felt that their jobs made better use of their skills.

• **Implementing Quality Feedback**

Implementing a Feedback program seems simple to some, and impossibly complex to others. It’s for these reasons that this paper has been written. Based on experience and hard thinking, the paper will set out “STEPS” for implementing a Quality Feedback program. These steps may lead to quite different actions in different circumstances.

STEP 1: The Management Decision: The initial step seems obvious but is not always fully understood. Someone, at some level, has to decide to “do it.” Since Quality Feedback is quite a new way of doing business, a key manager making the decision to implement the program in his or her organization will do so because of a conviction that the benefits will far outweigh the implementation effort.

A great number of factors impact the ease with which programs of improvement can be implemented in a particular setting. This program is easier where Quality Assurance personnel have been tasked to provide information in a manner which operating people can understand and use. QA assistance in providing graphical trend data on defects broken down by key operations is especially helpful, and requires data collection systems which are both timely, and judged valid by users.

Where support groups have been managed with an eye less to “functional purity” and with more regard to contributions to floor performance, they are more psychologically predisposed to involvement in problems identified by operating personnel. The readiness of supervisors to embrace the

program will rely a great deal upon the support which supervisors expect from management in implementing suggestions and changes which will emerge from the Quality Feedback meetings to come.

For all of these reasons, the manager must communicate ahead of time, not only a philosophy which supports the program, but the specific roles he sees himself as taking in program activities.

STEP 2: Finding a Starting Place: Implementation of Feedback programs follows many patterns falling into one of three broad categories:

- (1) Across the board implementation
- (2) A pilot approach
- (3) A supervisor-by-supervisor voluntary approach.

The three approaches have all worked in practice and are usually selected in proportion to the level of commitment on the part of the leader. Those who grasp the idea and are totally sold on it at once tend to call their people together, present/explain it and announce “let’s get going!” This class of manager will often be found to have an organization where the trust level is relatively high and whose management team is willing to follow his lead until they understand the program and its benefits themselves.

When a pilot area is chosen, the basic parameters of the program are developed with substantial participation on the part of middle managers and supervisors. These starts are informal and rarely involve commitments from management in the form of written policies and

procedures. In such cases, supervisors are often given great latitude in defining meeting practice, and results of these meetings are often widely communicated. The approach works best where detailed plans and procedures for implementation are developed in a way which generates commitment on the part of all participants, including support functions who will find new roles in production problem-solving.

Voluntary approaches are usually selected by managers intrigued by the idea but not fully committed to it. They are willing to “give it a chance” and offer the implementation role to individual supervisors who are willing or wish to take the lead. In our experience, over 90% of supervisors think the Quality Feedback approach has great merit, though they are sometimes reluctant guinea pigs if they expect a lack of cooperation from support groups or if they anticipate a shortfall of support from management. Supervisors taking such early leadership should be provided support and recognition — and these supervisors once comfortable with the practice — should invite their peers to attend to observe and collect “pointers” for application in their own areas. One drawback of this pattern of program initiation is often that feedback groups may not be well enough defined to involve those necessary to solve problems. Another drawback is the lack of synergy created by a total involvement program.

Whichever approach is selected, the top managers are responsible to see to it that certain pre-implementation steps are accomplished. These may include draft procedures and policies for management signature, and should usually

include presentations, briefings, and open discussion with all supervisors and managers who will be involved in implementing the program. The plan should set firm dates for accomplishing plan elements, such as orientation, defining measurements for group focus, training, and should involve scheduled evaluation reviews of program success.

STEP 3: Measurements: Feedback programs are most effective when the feedback is based on objective data. Output is — or should be — in all functions — measured for goodness against a standard and sorted for acceptance or rejection. If the measures are not valid and timely — meeting participants will soon make that clear!

The key is in getting the data needed to focus group effort on where — specifically — improvement is needed. What class of work or which processes are people having trouble with? Who is having the troubles — all of them — or just some of them? The data should help you sort out problems for which training can help, and those which are out of the control of the group — “system problems” which only management can take responsibility for. If standards for acceptance are clear and in place, and if relevant data is fed back in a timely manner, Quality Feedback meetings will be successful in all areas.

Traditional measures: Feedback meetings often focus on measures such as “defects per unit,” “percent defective,” etc. Defects can often be singled out for frequency, and problem

potential, and are often classified as to seriousness, cause, and responsibility. Large trend charts often provide a graphical display and are posted in the work area for all to see. The best specific use of these charts is to establish improvement goals — and to keep these charts exposed constantly to personnel. Display charts can be created easily from art board and colored tape. They should be large enough so that they can be seen from anyplace in the work area. Where operations are suited to statistical process control, control charts are helpful in stimulating discussion of “special causes.”

Most often the source of this data is Quality Assurance. Most usually, Quality Engineers provide listings of items causing important or frequent defects. Noncomplex forms may be supplied to inspection and test personnel so that they can record the results of their measurements. Collected data are compiled, and status charts are developed. Data is supplied to supervisors of the area as well as to others. QA supervisory attendance or co-leadership of feedback meetings is often helpful.

Untraditional measures: Improvement programs are easiest to develop in manufacturing areas — people are physically well organized, work is usually measured and analyzed, and supervision is usually resigned to the fact that improvement is a continual imperative. In many areas, it is not traditional to think about quality, goals, or measurement. These “service groups” or “white collar” areas often amount to more than half of all employees — even in manufacturing. Since they never “touch” the product, less attention is paid to measurement, and improvement programs are

rare. Where effort isn't put to measuring status, problems are harder to recognize, and improvements are rarely discussed. These service roles, while necessary, are often inefficient, and creative efforts to define goals and create measures is called for. Quality Circle Training programs may provide the skills and experience necessary to allow employee involvement in data acquisition.

Quality measures in staff groups may be derived from the formal system - for example, purchase order change notices, computer punched cards - or the measurement process may be informal - for example estimates of time spent in wasted functions such as replacing, erasing, scrapping. However rigorous the measurement, people in service areas know about quality problems, they know how things should be done, and they can propose easy ways of measuring them. Another trick used by consultants is to ask a supervisor who their best people are, and to follow up with "how do you know?" in order to get an idea of measures that could be used. Quality Assurance personnel, with a knack at measurement, can often serve as useful consultants in helping supervisors find useful indicators of performance¹.

Quality goals in service areas often focus on paperwork. Studies in some settings have shown that over 85% of paperwork contain at least one error. Repairing these errors starts a chain of waste which often accounts for 25% of operating expenses in staff functions. In many support groups, at least 25% of time is spent doing things over, and in the process, not doing something else which could have been accomplished. This results in even greater loss than may be seen on

the surface. First, the time spent creating the error is waste — the time to find and fix the error are spent - and things which could have been done with the time used in both steps are unaccomplished.

STEP 4: Introducing the Program: After the starting place and meeting focus have been chosen as discussed in steps 2&3, management must provide a meaningful presentation of the concept and action plan to personnel in the area. The plan should be outlined in some detail, and should be introduced to supervisors and managers team in a face-to-face setting - in many situations it may call for a stand-up presentation. Where plan elements aren't yet specified and will involve learning from the experience of pilot groups, this must be communicated clearly and stated as an intention - a specifically chosen course of action — lest the whole concept come across as vague and ill-defined.

The program then needs to be explained to all supervisory personnel in such a way that they can easily explain it to their people. The program introduction to supervisors needs to involve considerable 2-way communications for clarifying concepts as well as goals. A single-page explanation of the concept has proven to be helpful for supervisors as a hand-out to their own employees.

Program implementation can be supplemented with other components of an awareness campaign. Information about the program can be communicated through posters, articles, and special events. The purpose of these steps is to provide reassurance of seriousness on the part of

management — and to keep the message constantly in front of people. Managers often see efforts toward this kind of communications, as they judge many others, as superfluous. We are not advising massive expenditures or large parties — what is wanted is low-key and constant reminders — a consistent stream of events with no real start or finish. Information campaigns often help. Many companies engaging in similar programs have generated poster contests for employees and their families, giving small prizes for winners.

Training of first-line supervisors at this point can be very helpful. This training may involve informal sharing with supervisors who have experienced the process and developed their own practices, but should also include a more formal element for reviewing program concepts and skills. In the author's experience, 2-3 hours provides a substantial orientation which clarifies responsibilities of supervisors and allows them to identify barriers to program success worth considerable attention from management. Formal training should come later.

STEP 5: Conducting the Meetings: Meetings should be short, and to the point. The goal is providing feedback and opportunities for problem-identification — not problem-solving. A supervisor who is interested in a more participative format should seek management approval for a quality circle, and should structure his meeting with a problem-solving discipline such as that to be found in Quality Circle Leader/facilitator training.

Employees should be encouraged to develop agenda items for their weekly meetings, though they should be advised not to hold back on any problem-solving actions between sessions. Some supervisors have successfully posted agendas in the work area for additions during the week. At times, when there is a quality problem, “all hands meetings” on the floor should be called to resolve issues, in addition to regularly scheduled meetings. In some places, all meetings in a shop are held at the same time to abate noise, to encourage uniformly short meetings, and to signal the total involvement character of the program. It is often said to be unusual for employees to see their efforts as part of a coordinated program including support groups and other areas. Participation in Feedback reinforces a “big picture” outlook which has favorable motivational impacts.

Regular weekly meetings must be held between supervisors and employees, and between supervisor and managers, to discuss specific problems, and to attempt to arrive at solutions. These meetings may be structured as a review of Feedback minutes. All meetings in the Feedback chain should be short, positive, and to the point. They must take place on a regularly scheduled basis.

STEP 6: Growing the Program: After the Feedback meetings have been in place for a short time it will be increasingly apparent that a number of causes of error lie outside the control of the work unit. Many of the issues which are often raised involve the interpretation of quality standards. To eliminate the generation of “we”

and “they” factions, it will be wise to involve inspectors or internal customers of each work area together in the same Quality Feedback meeting.

People are likely to point out that while some errors were being made by themselves, the greater causes of problems really are “inputs” to their area. Problems relating to support groups will quickly become more than supervisors can handle alone, and it is important that representatives of such groups attend on a regular basis. Managers who keep tabs of “chronic” problems across feedback groups know where to put their attention — or where to call for quality circles or task teams.

Problems identified in the feedback meetings often will point the way to long range problem-solving efforts. In one company, for instance, operators complained about the difficulty of correctly prepping “flat packs” — surface mounted integrated circuits which operators were forming and trimming to fit on circuit boards properly. High scrap and rework rates were being experienced in a time-consuming, meticulous hand tooling process which left large margins for error. Manufacturing engineers who participated in shop floor meetings invented a completely new method of prepping which provided for improved process control. They developed and patented equipment which was installed. The new equipment not only solved the problem but allowed a six-hundred percent productivity gain over the old method.

Training sessions are best conducted once program commitments have been made and Quality Feedback activities are under way. This cre-

ates a need to learn and shared experience as a basis for motivated skills development. A one-day follow-up training session involving skills training and review of confidential surveys administered to members of each supervisor’s Feedback team has proven extremely useful for enhancing the quality of Feedback leadership on the part of first line management.

Training should focus on leadership skills such as listening, posting, and involvement techniques, should provide insight into meeting dynamics of small groups, and should impart fundamental principles of problem-solving and root cause analysis. Where training follows program implementation, the sharing of supervisory successes and approaches is an important component of workshop activities. Voluntary paper and pencil surveys from Quality Feedback team members and focused on the skills of individual supervisors has been extremely helpful for learning as well as developing benchmarks of program success.

STEP 7: Assessment: Once the program is launched, steps should be taken to facilitate periodic program review and to plan supportive activities. These assessments should involve participants, and should be broadly communicated. Assessments may involve a review of statistical performance data, a follow-up administration of the short survey used in training, a more subjective evaluation by an advisory team, or could be derived from a two-hour meeting with an ad-hoc representational group of participants from all levels of the feedback system. Results can provide considerable

impetus and motivation for additional program commitment.

• Footnotes

1 Guides for developing quality measures in staff areas, and semi-structured small group activities for group estimation of cost of quality by output or timecard classified task activity are available from the author.

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