CENTENNIAL ISSUE ON QUALITY

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Beyond Benchmarking: Maximizing Quality One Step at a Time

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INTRODUCTION

It has been said that one can never be too rich or too thin. Organizations might believe the same about quality—that it can never be too high. In a never-ending quest for more, better, or higher quality, businesses often look toward perceived “magic bullets” or “the latest thing” to reach that end. One of the more popular methods of maximizing quality has been benchmarking (Gunasekaran 2001; Harrington 1996; Miller 1992).

Benchmarking, a procedure popularized by Xerox in the early 1980s, is an ongoing process of measuring one’s firm against the world’s best, with an eye toward formulating goals based on how those exceptional businesses conduct themselves (Mittelstadt 1992). Camp recommended benchmarking as an orientation and process leading to “profitable... businesses that meet customer needs and have a competitive advantage” (1989, 3). As with most hoped-for panaceas, however, effects of benchmarking proved to be more complex than first considered.

The International Quality Study (American Quality Foundation 1992) reported that benchmarking had limitations not apparent to its early promoters. Only for the best performing companies did it produce positive bottom-line results. Lower performing businesses failed to show improvement via benchmarking, with the lowest performing suffering performance drops! Likewise, a report by
Ernst and Young (Port and Smith 1992) challenged the notion that benchmarking guarantees success. Ernst and Young surveyed management practices in more than 500 U.S. organizations in the automotive, computer, banking, and health care industries. Those that were already performing well when they introduced benchmarking achieved benefits with the introduction of the practice, but firms that were performing at medium or low levels showed no significant benefits.

The problem gleaned from these investigations seems to be in the difference between one's own firm and those that serve as benchmarks. If the difference is too great, benchmarked goals can appear to be impossible to reach and prove discouraging instead of encouraging (Reger et al. 1994). Research clearly shows that impossible goals do not lead to enhanced performance (Locke and Latham 1990). Many medium and low performers may be overwhelmed by the task of reaching benchmarked goals. Indeed, comparing one's organization to world-class organizations may lead to hopelessness and subsequent performance declines (Snyder 1994). In support of this view is a study by Mann, Samson, and Dow (1998) that found a "small wins" strategy (Weick 1984) where firms introduced a series of short-term, "doodle" projects, led to higher sales performance than a "big bang" approach that incorporated ambitious large-scale change programs over a long time horizon.

Optimally, the difference between one's current situation and the ideal should be large enough to create a desire for change or improve (Huff, Huff and Thomas 1992), but not be so great that the goal seems unreachable (Forward and Zander 1971; Osgood and Tannenbaum 1955). Asking for gigantic amounts of improvement often discourages the worker and disappoints management. An example in academe might be a small, regional, state university whose administration decides to emulate Oxford or Harvard. Though the desire to do as well as possible is laudable, frequently what is perceived by the rank and file, who are usually painfully aware of their resource limitations and the frustrations of increasing or improving them, is the absurdity of the goal. Hence, not only do the average workers not buy into the new benchmark, they may come to look askance at other, more reachable goals promoted by the same sources, a process sometimes labeled over-generalization (Cavanaugh 1982).

By analogy, if a benchmark is too different from current functioning it may be like trying to get from the first floor of one's office building to the second by a single great leap. Which of us would try to do so, even if asked by otherwise rational and supportive management? This is not an accidental analogy, how-
ever, since it has inherent within it the means of reaching the goal—the second floor. In all likelihood, the building has a stairway to the second floor providing a succession of steps, each intended to lead to the next, the final one culminating at the otherwise impossible goal. The idea of reaching goals by small steps is the basis of “shaping,” a means of approximating the overall goal a step at a time (Watson and Tharp 2002) and the topic of this paper.

Yet, shaping is not the solution for all business contingencies. One of the perceived drawbacks of using shaping to reach quality goals is that it takes both a certain amount of time and considerable advance planning. Unfortunately, firms may wait to implement change strategies at the last moment, when problems have become critical. Shaping will not be a realistic option in these instances. Drastic action may be needed, with all the risks and drawbacks that entails (Soper, Von Bergen and Sanders 1996). Where shaping is appropriate, its organized and planned procedures can be an effective prophylactic to crisis development. Any road to enhanced quality must be carefully scrutinized in advance of implementation, to ascertain that it is the best one for the situation and available resources.

LEARNING FROM CHILDREN
Shaping promotes gradual improvement from a known, initial behavior to the desired goal (Grant and Evans 1994). Shaping allows one to build desired behavior in steps and reward those behaviors that come progressively closer to the one selected as the final objective. When using shaping, rewards depend on behaviors increasingly similar to the final goal. Shaping is similar to the child’s game of “Hot and Cold” (Morgan 1974), where hearing “hotter” (being reinforced) occurs only when movement is increasingly closer to the target. Shaping has been described as “a series of successive approximations, each made possible by selectively reinforcing certain responses and not others. Thus behavior is gradually brought closer and closer to the desired pattern” (Hill 1963, 71).
Shaping can be applied to virtually any behavioral outcome that can be analyzed and broken into discrete steps, reachable from those that have come before.

Many sports programs for children represent shaping in practice. Teaching children sports, such as gymnastics, tee ball, and basketball provide further examples of the utility of shaping. For example, Daniels and Daniels (2004) wrote that when teaching gymnastics, coaches give considerable physical help in the early stages and gradually remove such support until students perform
solo. They describe teaching a back flip in which the coach frequently places a hand on the back of a child and uses the other to toss the child. Good gymnastic coaches reward even the smallest improvements until help is no longer needed. From that point on, occasional praise maintains the behavior and encourages continued improvement.

Likewise, many boys and girls aged 5-10 years get their start in baseball and softball by playing tee ball. The program eliminates pitchers and catchers and replaces them with an adjustable tee at home plate on which the ball sits, hence the name. Batters hit the ball from the tee and send it out towards the fielders and play continues as in a game of baseball or softball. Because there is much less chance to strike out, the games are usually much faster than traditional baseball and children feel a sense of achievement. The elimination of pitching allows children to participate without the fear of being hit by a pitched ball. Tee ball develops the primary baseball skills of hitting, running, fielding and throwing; it has proven to be a natural transition into standard baseball and softball. As such, it provides a steady supply of young players already equipped with the basic skills and an enthusiasm for these sports.

Similar approaches to help children learn basketball have occurred. Professional basketball is played on a floor 94 feet in length, having four 12-minute quarters and a half, using a ball 30 inches in circumference, with the basket 10 feet above the playing floor. Youth leagues, generally accepting boys and girls beginning at age five, have modified these dimensions to make basketball a challenging but not impossible game for children, by adjusting the length of time that the game is played to meet the age, fitness level, and skill of the players (most youth games have six-minute quarters). There are short breaks between each quarter and at half-time. Also, the game is played on courts as short as 50 feet. Likewise, the height of the basket and the size of the basketball are adjusted for the player's size, to ensure that there are opportunities for the children to succeed. For example, mini-balls, 22 inches around, are available for the younger children and adjustable-height basket systems can be lowered to six feet. As the children mature, the playing dimensions are adjusted and approach the professional sizes. Such adaptations have contributed to the success basketball has recently experienced and have made it accessible to millions of young players who would have found the game all but impossible in its standard professional size.

Shaping, therefore, uses two important behavioral principles: consecutive goals that move individuals ahead in small steps to a distant point, and increased op-
opportunities for rewards and success that keep the overall effort vigorous
(National Heart, Lung, and Blood Institute).

THE LONGEST TRIP STARTS WITH THE FIRST STEP
The adage, "A journey of a thousand miles begins with but a single step" is
analogous to the shaping process if each successfully completed step is re-
warded. Though not typically thought of in this light, complex organizational
behaviors and programs begin with a single step and build upon it. Organiza-
tionally, shaping can be particularly beneficial when teaching new responses
for people who have been unsuccessful in the past or with those for whom the
ultimate goal seems far removed. For example, modifying the performance of
those with past deficiencies and new employees learning the ropes may require
extensive shaping.

An example of how shaping has been used successfully in business involved a
management trainer who wished to shape public speaking behaviors in supervi-
sors who particularly feared doing so. Although the supervisors had considerable
discomfort reading a prepared speech to others, they had much less difficulty
reading lists of words. Therefore, list reading was the initial step in the shaping
process, with the trainer providing abundant praise as each supervisor succeed-
ed. Subsequent steps included reading a paragraph to the class without looking
up, followed by a reading that included glancing at the audience after each sen-
tence, and so on toward the goal of giving a 15-minute extemporaneous speech.

As illustrated, those using shaping must be creative in choosing starting be-
haviors to reward. Steps should be large enough so that progress is as quick as
possible but small enough to be doable. Each increment should be clear and con-
crete. There should be no doubt if the step has been attained. It is essential that
success experiences be built in from the start. This may entail what would seem
(to those who can already perform) like very small initial steps. As performance
increases, however, the intervening steps can sometimes be made larger to better
fit developing confidence and competencies. When requisite changes in behavior
are too great between steps the new behavior may be "lost", and the response
must be reshaped by reverting to an earlier step that is still performed success-
fully.

ESTABLISHING STEPS
When using shaping, the criterion for reward or positive reinforcement is any
new movement toward the final goal. Generally, the smaller the improvement

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reinforced, the faster the progress (Daniels 1989). Shaping consists of establishing intermediate steps along the way to the final outcome. Attainment of new steps should be reinforced several times before moving to the next step. Having subgoals is not the distinguishing feature of shaping in itself; rather, it is these steps and consistently rewarding their attainment in a stepwise fashion. The following example might approximate a quality improvement situation. If people are performing at 70% efficiency and a new goal is set at 90%, one is not shaping if that improvement is not readily reachable. Intervening steps of 72%, 75%, 80%, etc. may be necessary subgoals—ones more readily attainable.

Successful use of shaping requires knowledge, skill, and patience. One must know the proper behaviors and sequences of behaviors that lead to the quality goal. One must have the skill to recognize and reinforce even small improvements. Finally, one must have the patience to watch workers struggle at something others may do well. Most supervisors are not skilled at identifying small improvements in performance and reinforcing them; many function on an “all or nothing” basis. This ability is critical for the most efficient managers, however, and it is an ability that can be learned. Daniels (1989) contends that when done properly, shaping is the most efficient and quickest route to high performance. And what is quality, but a predefined high level of performance?

**SHAPING STRATEGY**

Managers should follow certain steps, to implement an effective shaping strategy (Luthans and Kreitner 1975):

1) Precisely define the goal, which should always be related to performance and be stated in terms of behaviors to be performed.

2) If the final goal entails a complex chain of behavior, convert it to a discrete, observable, and thus measurable sequence of specific behavioral steps.

3) Make sure employees are capable of doing the behaviors required to reach the new goal. If not, train them in appropriate behaviors.

4) Select potentially effective rewards on the basis of the organization’s history and members’ perceptions.
5) Make all positive reinforcement contingent upon successively closer approximations to the final goal. The behavioral chain must be built link by link.

6) Maintain and strengthen target behaviors as they occur. Once the desired goal is achieved, it must be continually monitored, managed, and reinforced.

For a better understanding of the shaping process, these steps are explained in more detail.

**Define the Target Behavior**
That which is to be accomplished must be pinpointed precisely. This requires precise descriptions of behavioral results that are observable and measurable and indications of where and when the behaviors are expected to occur. Results are tangible, observable behaviors, not beliefs, attitudes, or anything internal, subjective, or abstract. Overgeneralization or imprecision during this first step will sabotage later steps and permanently cripple any attempt to shape organizational behavior successfully.

This initial step in the shaping process is similar to management by objectives (MBO; Drucker 1954). It can be defined as setting behavioral objectives and appraising performance results. MBO experts generally agree on the need for specific, measurable objectives. The close correlation between objectives and pinpointed behavior in the shaping process may seem obvious. However, there are differences. The shaping process gives closer attention to specific performance-related behaviors. MBO relies heavily on self-control with the commitment to and accomplishment of mutually determined objectives. Shaping entails a more precise and systematic program of positive consequences than the typical MBO approach.

**Break Down Behavior into Sequential Steps**
A natural second step is to divide complex behavior into sequences of observable behavioral events, so observers can decide whether they have occurred. Next, consider how large each step (approximation/subgoal) should be and how long the organization needs to remain focused on each step before proceeding to the next.

What action should be taken if the organization's behavior begins to deteriorate? Unfortunately, there are no hard and fast rules. In general, one can say that each
step must be small and specific enough to be accomplished, but not so small as to be boring or trivializing. Consider the following. Observe the organization's behavior closely. If progress is consistent and satisfactory, one may assume that step size and time spent on each step are appropriate. But, if progress begins to level off or falter, the steps should be reexamined. If goal levels are increased too rapidly, failure to earn rewards will impede progress. The situation should be structured so employees succeed much more often than they fail. Failure inhibits movement to the next step, the same as when climbing the staircase mentioned earlier (moving to the second floor of one's office building). If one stumbles along the way, one must still take each step successfully. The best mistake to make is to set goals too low (Daniels 1989). If the goal is low, the probability of success is greater. If the goal is reached and success is celebrated, motivation to do even more the next time is usually increased.

**Meet Skill Requirements**
The third step emphasizes the technical skill requirements that, if not mastered by employees, block the attainment of the goal. Managers and executives are cautioned against using labels like "lazy," "lacks drive" and "bad attitude" in describing employee skill deficiencies. Such vague generalities imply that the problem, and therefore the solution to the problem, is within the person. Using such labels not only fails to change performance, but also produces blame with all the negative side-effects associated with it. Labels put individuals on the defensive and interfere with their cooperation. When a manager approaches job requirements this way, the only solution is to tell the person to "shape up or ship out," which introduces another set of managerial problems and provides little benefit. Skill deficits, conversely, can usually be overcome.

**Select Positive Reinforcers**
Just as the target behavior and its components must be identified, appropriate rewards or positive reinforcers must be specified. One place to start is to analyze individual employee histories of reinforcement and use self-report instruments. The critical point is to make sure that the most powerful reinforcements become part of the shaping process.

**Apply Contingent Reinforcers to Approximations**
Complex chains of responses leading to the target behavior must be built link by link, through a carefully managed program of positive consequences. Each link in the behavioral chain is positively reinforced initially and later is not reinforced, as the next behavior closer to the benchmark occurs. The new behavior is
rewarded instead. Thus, only the newest link or the latest behavior, closest to the target behavior, is reinforced.

Celebrate Results
Remember that how one sets goals in relation to present performance is critical, but an equally important consideration is the celebration of goal attainment. Acclaim is a great motivator. David McClelland, a Harvard psychologist who has studied achievement for decades (McCllland 1961), determined that the highest achievers in our society set moderate goals. To become high achievers these persons undoubtedly have high aims, but they set moderate goals to manage their day-to-day performance. Employees are no different; they can operate at their best nearly every day. What we have to do is help them reach that goal one step at a time. “Goals that are celebrated are records waiting to be broken” (Daniels 1994, 124).

CONCLUSION
The foregoing six-step strategy permits the practicing manager to reduce performance deficits in an employee’s behavior systematically, and in so doing attain goals specifically identified with desired changes in quality. Shaping permits the attainment of goals initially thought impossible. Supervisors and managers can benefit from a working knowledge of how to shape organizational behavior if they wish to maximize quality and are willing to define it in behavioral terms. Executives using benchmarking strategies to set goals and improve organizational performance must be aware that the procedure can be helpful only when the goals established are perceived by employees as possible and attainable. In designing benchmarking programs, organizations must set performance targets that take into account the magnitude of the performance gap vis a vis the other (benchmarked) firms’, and in light of what can be achieved, realistically, within a given time period. Hence, the continual attainment of quality goes beyond benchmarking.
REFERENCES


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