



DEFECTIVE



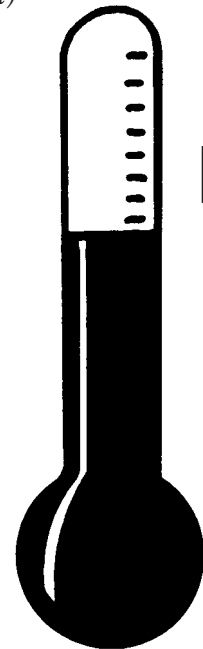
Quality of Solutions

Quality of Solutions.

In the first eight chapters of this book, the focus has been on enhancing one’s creativity and its use in solving problems towards the achievement of some desired end, be it an objective, a goal, or a vision. In other words, the focus has been on the *creation* of solutions to problems. In contrast, this chapter focuses primarily on the *evaluation* of solutions in terms of their quality.

Quality Defined.

The word “quality” has become a common utterance in today’s society. It is used repeatedly as an adjective to describe the relative nature of some product, service, or in this case, solution, in terms of its “value” versus something else in the same category. *Webster’s New World Dictionary (Second College Edition)* defines quality as “that which makes something what it is; characteristic element; basic nature, kind; the degree of excellence of a thing; excellence, superiority.” The American National Standards Institute (ANSI) and the American Society for Quality Control (ASQC) have defined quality as “the totality of features and characteristics of a product or service that bears on its ability to satisfy given needs.”



**Degree
of
Quality**

However, neither of these definitions creates any true understanding of quality in problem solving. In actuality, quality is a very ambiguous term that varies in meaning from person to person, and organization to

“Mr. Bell, after careful consideration of your invention, while it is a very interesting novelty, we have come to the conclusion that it has no commercial possibilities.” - J.P. Morgan

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organization. Regardless of how difficult it may be, though, to generalize a definition of quality, people tend to have “feelings” about

it and seem to know it when they see it.

Therefore, to define quality is to actually define a process; a process of evaluating the relative *value* of something as compared to another in the same category. This “value-sorting” process is the very essence of quality.

It becomes a personal pro-

cess whereby a comparison is made in the mind of the evaluator between the established, desired criteria (**Step 1** of the problem-solving process in Chapter 4 - *Define problem and establish criteria*) and what exists to fulfill these criteria (**Step 3** - *Creating a number of alternative solutions*). Criteria (e.g. timing issues, marketability requirements, and cost constraints) can be divided into two categories: **musts** (needs) and **wants**. The musts are necessary to achieve the desired level of “quality” in the solution and as such must be measurable. All potential possibilities have to meet the **musts** to even be considered. **Wants**, although not required, are desirable and are used to differentiate amongst the viable solutions that have met all of the musts.

Draw Picture

For example, you are looking to buy a new automobile and your primary criteria (element of importance) is that the vehicle must be

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On the other hand, secondary qualities, such as softness, roughness, goodness of fit, and taste, are not specific to either the object itself or its observer. These qualities come as a result of an interaction between the object, observer, and the environment surrounding them: “Do I *hate* this thing? Will it work for me? Does it help me achieve a goal?” The difference then, between primary and secondary qualities, is that the former is based on a sense of measurement and the latter is based on a sense of feeling.

It is this sense of feeling that creates the perception of **QUALITY**: a sense of “attractiveness,” “excellence,” “better than others,” “worthiness”—attributes which are very difficult to observe, count, or quantify, but much easier to just have a gut feeling about. However, things (e.g. products, ideas, and solutions to problems) themselves are neutral and value-free. The value of something comes as a result of the desirability, purpose, and use that we as human-beings place on these things to satisfy perceived needs or wants and comes as a result of *choice*.

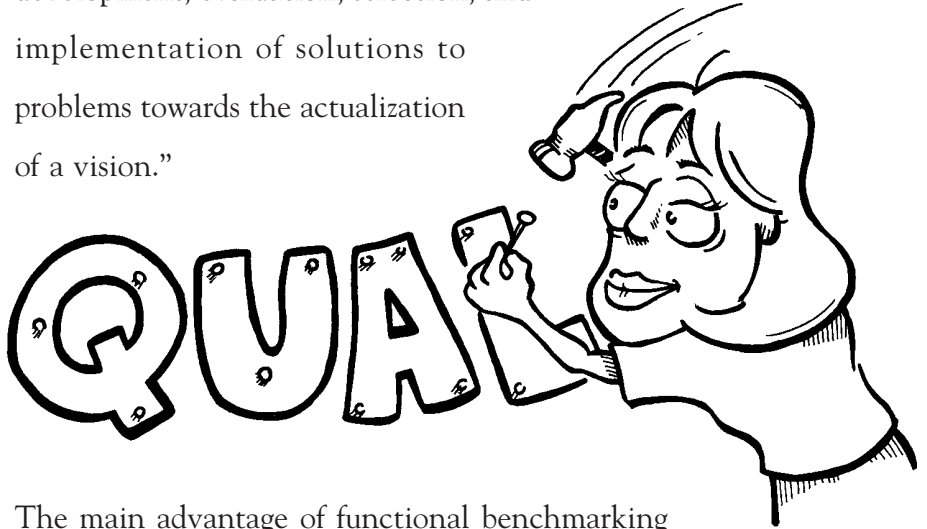
Values.

This sense of value was discussed in a slightly different context in Chapter 6. It was stated that an understanding of one’s values was critical for long-term success in problem-solving



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In the context of problem solving, the term “benchmarking” is defined as “a continuous, systematic process for evaluating the development, evaluation, selection, and implementation of solutions to problems towards the actualization of a vision.”



The main advantage of functional benchmarking is the ability to create paradigm shifts, which often involve radical alterations in one’s approach to problems. Functional benchmarking requires the ability of one to keep an open mind and develop effective listening and observation skills (See Chapter 5). As time progresses, you will have numerous assumptions challenged and will have to deal with an abundance of barriers. It also requires a sense of discipline. Of all the chief executive officers of major corporations in the United States, a large percentage have military experience. One point is clear: People who use the benchmarking process with a clear purpose or objective have a greater likelihood of achieving their vision than those who do not.

Value-Sorting.

Another method to build in quality is the conscious approach to value-sorting based on both effectiveness (doing it right) and efficiency (using the least amount of resources and having the least

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the best in actual terms. But at this point, it has the best “goodness of fit” with your values and established criteria. Once implemented, a close watch should be kept on its progress. If the solution is not achieving the required benchmarks or just is not working due to changes in the environment or your values, you should stop, reevaluate, and implement another of the good solutions or develop more solutions under the new changes and criteria. As shown above, both of these methods to build in quality should be used together to increase the overall quality level of your problem solving and decision making.

This approach works just as well with team problem solving as it does with individuals. In this case, the continuum will be broken down into regions and scaled with zero being at the center (See Example 9A). Once each team member has differentiated the quality and value of each solution based on his or her perception in the manner expressed above, the scores are tabulated. The highest score would indicate some group consensus. Although this is an overly simplified approach to the technique, it does demonstrate a concept of how to evaluate quality in a team or group environment. As Huntley (1986) states, “Whatever has value, must have value for somebody, but not necessarily for everyone. Nobody knows good and bad for sure, forever, or for everybody. Only time can prove the wisdom or folly of a choice.” And with a strong vision based on one’s values (or that of an organization) combined with proper planning and benchmarking, the “wisdom or folly of a choice” will become evident more rapidly and with greater assurance.

Practice Kaizen.

Continuous improvement—the Japanese call it *kaizen* (pronounced ky'zen)—offers some of the best insurance for good problem solving. *Kaizen* is the relentless quest for a better way, for even higher quality solutions. Think of it as the daily pursuit of perfection. *Kaizen* keeps one reaching, stretching to outdo yesterday. Although the constant improvements may only come a little at a time, these small, incremental advances or gains will eventually add up to better quality in problem

solving. As Tom Peters once put it, “Good quality is a stupid idea. The only thing that counts is your quality getting better at a more rapid rate than your principal competitors.

It’s real simple. If we’re

not getting more, better, faster than they are getting more, better, faster, then we’re getting less better or more worse.” (Pritchett, 1994)

One method of practicing *kaizen* is not to get lazy about learning. In our fast-changing world, it doesn’t take long for one’s skills and knowledge to become outdated. Advances in technology



“Most of us will never do great things, but we can do small things in a great way.” - Unknown

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and the resultant flood of information have made it hard to keep up. Although a college education is a good base, lifelong learning is the only way to remain a truly effective problem solver. As stated throughout this book, a diverse background and generalist thinking are critical for good problem solving.

Therefore, you must invest in your own growth, development, and self-renewal through regular studying, reading, workshops, seminars, college courses, and even yes, watching television (e.g. Discovery Channel, Learning Channel, etc.). Become a perpetual student. The more you know how to do and the better you do it, the more valuable you become, not only from an economic or social perspective, but also from a general problem solving standpoint.

Another method of practicing *kaizen* is an increased sense of personal accountability for one’s problem solving and decision making. You must hold yourself personally accountable for the outcomes of your solutions. This requires you to think in very wholistic terms looking at the big picture and consequently, your own immediate behavior to see if what you are doing will bring about desired results. As emphasized throughout this text, you must continually shift from short-term to long-term thinking thereby delaying any short-term gratification for long-term successes. For this to work, it requires a high level of long-term commitment.

Ethics and Morality.

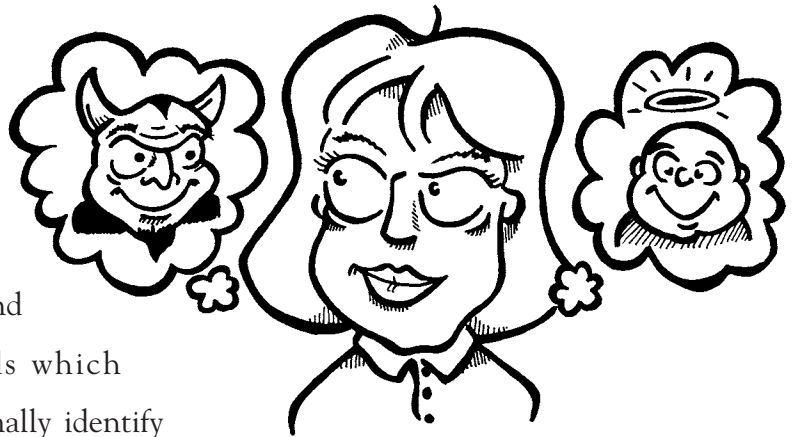
How do ethics fit in to the quality concept of problem solving? To begin, we must first discuss the concept of morality. Morality describes the social rules, norms, and standards that govern and limit our conduct, especially the ultimate rules of right and wrong

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(Solomon, 1984). The key word in this definition is “social” which derives its basis from the word “society.” Every problem is solved within the context of some society, be it the world, a country, a state, a city, a corporation, an organization, or one’s own family.

Each of these “societies” has a different scope, and depending upon its context, can deviate dramatically from one another in terms of how moral principals are used to evaluate the adequacy of social policy. The members of a particular society will typically adhere to their

system of moral rules, norms, and standards which will normally identify situations in which



each person must restrain his or her self interest in order to preserve a system that is mutually advantageous to everyone within.

For example, when looking at the world as a whole, murder is generally seen as immoral. However, within the context of some countries or collectives of people such as a cannibalistic society on some remote island, murder is accepted as an appropriate function in life. The general sense of morality in Bettendorf, Iowa, could easily be seen as being very different than that of Las Vegas, Nevada. It is the majority viewpoint within these societies that constitutes its state of morality.

The term *ethics*, on the other hand, also has many nuances. The

*"Though I am not naturally honest, I am so sometimes by chance."
- William Shakespeare*

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Random House College Dictionary defines ethics as a “system of *moral* principles; the rules of conduct recognized in respect to a particular class of human actions or a particular group, culture, etc.” Ethics has also been defined as “inquiry into the nature and grounds of *morality* where the term morality is taken to mean moral judgments, standards, and rules of conduct.” (Taylor, 1975)

As seen, the concept of morality can be found in both of these definitions. Many philosophers and scholars, though, like to distinguish ethics from morality such that morality refers to human conduct and ethics refers to the study of that conduct. However, in everyday speech, we often interchange “ethical” and “moral” to describe good actions as we perceive them to be *right* within our societal context, and “unethical” and “immoral” to be what we consider to be *wrong*. Morality tends to have a religious connotation while ethics seems to have a secular connotation.

Ethics come into the problem-solving picture when the “accepted or defined rules” no longer serve to guide the problem solver who, as a result, must weigh individual values to reach a judgement in a situation which is somewhat different than he or she has experienced before. When greater emphasis is placed on one’s system of values or sense of morality, ethics is being used in problem solving. In the context of the business world, for example, ethical considerations can be found in the following sample questions:

- Should manufacturers reveal all product defects?
- At what point does “acceptable exaggeration” in advertising become lying about a good or service?
- What rights do employees have on the job?
- When is the good of the employee greater than the good of the company?

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The first step of the problem solver is to identify under which societal context the problem should be solved.

For example, in the 1970s, the Ford Motor Company introduced the Pinto. Shortly after its introduction, it was found that if a Pinto was hit in the rear hard enough by another vehicle, the car would explode. After some investigation, it was discovered that Ford knew of the defect before the car was first sold. Ford later recalled the cars so as to fix the problem, which was combined with a number of civil lawsuits. However, the total cost of not introducing the Pinto when they did would have been far greater than both the recall and lawsuits combined. *NOT* delaying the introduction of the Pinto actually saved the company millions of dollars.

Following the public disclosure, many people felt that Ford had acted unethically in its decision to sell the Pinto. Were they

Draw Picture

unethical? It depends upon which society Ford management felt the most responsible to. Upper management is hired by the Board of Directors which are appointed by the corporation's stockholders. The primary mission of this management team was to "maximize shareholder wealth." If the management of Ford felt primarily responsible to its stockholders (society) rather than the public (society) as a whole, its lack of ethical behavior can be debated,

"Despite inflation, a penny is still sometimes a fair price for the thoughts of many people." - Unknown

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especially when it required a hard accident to cause the problem in the first place.

You must also view the situation in terms of its time context. This was a period in which the Japanese were not yet big players in the automobile market, and quality as a whole was not the issue it is today. Although this is a highly abbreviated version of this case, you can see the dilemma. When solving problems, what societal context is the most important? There is no easy answer to this question, but it is one which must be established prior to solving any problems.

The purpose of this section is not to dictate what is ethical or moral in problem solving but to draw attention to it and how it will affect the “quality” of your problem solving. Consideration must be given to the societal context of the problem, who is affected, and what ethical issues exist prior to solving it. These considerations combined with an understanding of your individual values will form the basis for quality problem solving.

Questions for Discussion.

1. In the space below, write what the word “quality” means to **you** (not a textbook definition): _____

2. In the space below, write what the word “ethics” means to **you** (not a textbook definition): _____

3. What are some of the specific ethical situations you encounter and must work through from time to time?
How do your responses to these situations affect the quality of your decision making or problem solving? _____

Exercises.

9A

You are alone and are out hiking one day in a forest. Suddenly, you come to a wide river of molasses with a very slow, but strong current. Somehow, you must cross the river, but there is no bridge. Please describe the situation as you perceive it including assumptions and constraints (e.g. the weather, time of day, description of forest, available natural materials, type of wildlife, etc.).

9B

According to the situation in Problem 9A, create as many possible solutions as you can (no less than five) to cross the river which are based on your constraints and perception of the situation. Use the techniques detailed in Chapter 4 as a guide.

9C

As described in the chapter, value-sort the solutions from Problem 9B on a quality continuum. Which are the best and why (based on both effectiveness and efficiency)?

