Elaborate on the Definition

There are a variety of ways to enlarge, alter, or replace a problem definition once it has been specified. One way is to force yourself to generate at least two alternative hypotheses for every problem definition. That is, specify at least two plausible definitions of the problem in addition to the one originally accepted. Think in plural rather than singular terms. Instead of asking, "What is the problem?" "What is the meaning of this?" "What will be the result?" ask instead questions such as: "What are the problems?" "What are the meanings of this?" "What will be the results?"

As an example, look at Figure 3.9. Select the figure that is different from all the others.

A majority of people select B first. If you did, you’re right. It is the only figure that has all straight lines. On the other hand, quite a few people pick A. If you are one of them, you’re also right. It is the only figure with a continuous line and no points of discontinuity. Alternatively, C can also be right, with the rationale that it is the only figure with two straight and two curved lines. Similarly, D is the only one with one curved and one straight line, and E is the only figure that is non-symmetrical or partial. The point is, there can often be more than one problem definition, more than one right answer, and more than one perspective from which to view a problem.

Another way to elaborate definitions is to use a question checklist. This is a series of questions designed to help you think of alternatives to your accepted definitions. Several creative managers have shared with us some of their most fruitful questions, such as:

- Is there anything else?
- Is the reverse true?
- Is this a symptom of a more general problem?
- Who sees it differently?

Nickerson (1999) reported an oft-used acronym—SCAMPER—designed to bring to mind questions having to do with Substitution, Combination, Adaptation, Modification (Magnification—Minimization), Putting to other uses, Elimination, and Rearrangement.

As an exercise, take a minute now to think of a problem you are currently experiencing. Write it down so it is formally defined. Now manipulate that definition by answering the four questions in the checklist. If you can’t think of a problem, try the exercise with this one. "I am not as attractive/intelligent/creative as I would like to be." How would you answer the four questions?

Reverse the Definition

A third tool for improving and expanding problem definition is to reverse the definition of the problem. That is, turn the problem upside down, inside out, or back to front. Reverse the way in which you think of the problem. For example, consider the following problem:

A tradition in Sandusky, Ohio, for as long as anyone could remember was the Fourth of July Parade. It was one of the largest and most popular events on the city’s annual calendar. Now, in 1988, the city mayor was hit with some startling and potentially disastrous news. The State of Ohio was mandating that liability insurance be carried on every attraction—floats, bands, majorettes—that participated in the parade. To protect against the possibility of injury or accident of any parade participant, each had to be covered by liability insurance.

The trouble, of course, was that taking out a liability insurance policy for all parade participants would require far more expense than the city could afford. The amount of insurance required for that large a number of participants and equipment made it impossible for the city to carry the cost. On the one hand, the mayor hated to cancel an important tradition that everyone in town looked forward to. On the

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**Figure 3.9** The Five-Figure Problem

Of the five figures below, select the one that is different from all of the others.

A  B  C  D  E
other hand, to hold the event would break the city budget. If you were a consultant to the mayor, what would you suggest?

Commonly suggested alternatives in this problem include the following:

1. Try to negotiate with an insurance company for a lower rate. (However, the risk is merely being transferred to the insurance company.)
2. Hold fund-raising events to generate enough money to purchase the insurance policy, or find a wealthy donor to sponsor the parade. (However, this may deflect potential donations away from, or may compete with, other community service agencies such as United Way, Red Cross, or local churches that also sponsor fund raisers and require donations.)
3. Charge a "participation fee" to parade participants to cover the insurance expense. (However, this would likely eliminate most high school, middle school, and elementary school bands and floats. It would also reduce the amount of money float builders and sponsoring school bands and floats could spend on the actual float. Such a requirement would likely be a parade killer.)
4. Charge a fee to spectators of the parade. (However, this would require restricted access to the parade, an administrative structure to coordinate fee collection and ticketing, and the destruction of the sense of community participation that characterized this traditional event.)

Each of these suggestions is good, but each maintains a single definition of the problem. Each assumes that the solution to the problem is associated with solving the financial problem associated with the liability insurance requirement. Each suggestion, therefore, brings with it some danger of damaging the traditional nature of the parade or eliminating it altogether. If the problem is reversed, other answers normally not considered become evident. That is, the need for liability insurance at all could be addressed.

Here is an excerpt from a newspaper report of how the problem was addressed:

Sandusky, Ohio (AP) The Fourth of July parade here wasn't canceled, but it was immobilized by liability insurance worries. The band marched in place to the beat of a drum, and a country fair queen waved to her subjects from a float moored to the curb.

The Reverse Community Parade began at 10:00 A.M. Friday along Washington Row at the north end of the city and stayed there until dusk. "Very honestly, it was the issue of liability," said Gene Kleindienst, superintendent of city schools and one of the celebration's organizers. "By not having a mobile parade, we significantly reduced the issue of liability," he said.

The immobile parade included about 20 floats and displays made by community groups. Games, displays, and food booths were in an adjacent park.

Parade chairman Judee Hill said some folks didn't understand, however. "Someone asked me if she was too late for the parade, and she had a hard time understanding the parade is here all day," she said.

Those who weren't puzzled seemed to appreciate the parade for its stationary qualities. "I like this. I can see more," said 77-year-old William A. Sibley. "My 80 percent blind. Now I know there's something there," he said pointing to a float.

Spectator Emmy Platte preferred the immobile parade because it didn't go on for "what seemed like miles," exhausting participants. "You don't have those little drum majorettes passing out on the street," she commented.

Baton twirler Tammy Ross said her performance was better standing still. "You can throw better. You don't have to worry about dropping it as much," she explained.

Mr. Kleindienst said community responses were favorable. "I think we've started a new tradition," he said.

By reversing the definition, Sandusky not only eliminated the problem without damaging the tradition and without shifting the risk to insurance companies or other community groups, it added a new dimension that allowed at least some people to enjoy the event more than ever.

This reversal is similar to what Rothenberg (1979, 1991) referred to as Janusian thinking. Janus was the Roman god with two faces that looked in opposite directions. Janusian thinking means thinking contradictory thoughts at the same time: that is, conceiving two opposing ideas to be true concurrently. Rothenberg claimed, after studying 54 highly creative artists and scientists (e.g., Nobel Prize winners), that most major scientific breakthroughs and artistic masterpieces are products of Janusian thinking. Creative people who
actively formulate antithetical ideas and then resolve them produce the most valuable contributions to the scientific and artistic worlds. Quantum leaps in knowledge often occur.

An example is Einstein’s account (1919, p. 1) of having “the happiest thought of my life.” He developed the concept that, “for an observer in free fall from the roof of a house, there exists, during his fall, no gravitational field... in his immediate vicinity. If the observer releases any objects, they will remain, relative to him, in a state of rest. The [falling] observer is therefore justified in considering his state as one of rest.” Einstein concluded, in other words, that two seemingly contradictory states could be present simultaneously: motion and rest. This realization led to the development of his revolutionary general theory of relativity.

In another study of creative potential, Rothenberg and Hausman (2000) found that when individuals were presented with a stimulus word and asked to respond with the word that first came to mind, highly creative students, Nobel scientists, and prize-winning artists responded with antonyms significantly more often than did individuals with average creativity. Rothenberg argued, based on these results, that creative people think in terms of opposites more often than do other people (also see research by Blasko & Mokwa, 1986).

For our purposes, the whole point is to reverse or contradict the currently accepted definition in order to expand the number of perspectives considered. For instance, a problem might be that morale is too high instead of (or in addition to) too low in our team (we may need more discipline), or maybe employees need less motivation (more direction) instead of more motivation to increase productivity. Opposites and backward looks often enhance creativity.

These three techniques for improving creative problem definition are summarized in Table 3.5. Their purpose is not to help you generate alternative definitions just for the sake of alternatives but to broaden your perspectives, to help you overcome conceptual blocks, and to produce more elegant (i.e., high-quality and parsimonious) solutions. They are tools or techniques that you can easily use when you are faced with the need to solve problems creatively.

### WAYS TO GENERATE MORE ALTERNATIVES

Because a common tendency is to define problems in terms of available solutions (i.e., the problem is defined as already possessing a certain set of possible solutions, e.g., March & Simon, 1958; March 1999), most of us consider a minimal number and a narrow range of alternatives in problem solving. Most experts agree, however, that the primary characteristics of effective creative problem solvers are their **fluency** and their **flexibility of thought** (Sternberg, 1999). Fluency refers to the number of ideas or concepts produced in a given length of time. Flexibility refers to the diversity of ideas or concepts generated. While most problem solvers consider a few homogeneous alternatives, creative problem solvers consider many heterogeneous alternatives.

The following techniques are designed to help you improve your ability to generate a large number and a wide variety of alternatives when faced with problems, whether they be imagination, improvement, investment, or incubation. They are summarized in Table 3.6.

#### Defer Judgment

Probably the most common method of generating alternatives is the technique of **brainstorming** developed by Osborn (1953). This tool is powerful because most people make quick judgments about each piece of information or each alternative solution they encounter. Brainstorming is designed to help people generate alternative solutions without prematurely evaluating, and hence discarding, them. It is practiced by having a group of people get together and simply begin sharing ideas about a problem—one at a time, with
someone recording the ideas that are suggested. Four main rules govern brainstorming:

1. No evaluation of any kind is permitted as alternatives are being generated. Individual energy is spent on generating ideas, not on defending them.
2. The wildest and most divergent ideas are encouraged. It is easier to tighten alternatives than to loosen them up.
3. The quantity of ideas takes precedence over the quality. Emphasizing quality engenders judgment and evaluation.
4. Participants should build on or modify the ideas of others. Poor ideas that are added to or altered often become good ideas.

The idea of brainstorming is to use it in a group setting so individuals can stimulate ideas in one another. Often, after a rush of alternatives is produced at the outset of a brainstorming session, the quantity of ideas often rapidly subsides. But to stop at that point is an ineffective use of brainstorming. When easily identifiable solutions have been exhausted, that’s when the truly creative alternatives are often produced in brainstorming groups. So keep working. Apply some of the tools described in this chapter for expanding definitions and alternatives. Brainstorming often begins with a flurry of ideas that then diminish. If brainstorming continues and members are encouraged to think past that point, breakthrough ideas often emerge as less common or less familiar alternatives are suggested.

After that phase has unfolded in brainstorming, it is usually best to terminate the process and begin refining and consolidating ideas.

Recent research has found that brainstorming in a group may be less efficient and more time consuming than alternative forms of brainstorming due to free riders, unwitting evaluations, production blocking, and so on. One widely used alternative brainstorming technique is to have individual group members generate ideas on their own then submit them to the group for exploration and evaluation (Finke, Ward, & Smith, 1992). Alternatively, electronic brainstorming in which individuals use chat rooms or their own computer to generate ideas has shown positive results as well (Siau, 1995). What is clear from the research is that generating ideas in the presence of others produces more and better ideas than can be produced alone.

The best way to get a feel for the power of brainstorming groups is to participate in one. Try the following exercise based on an actual problem faced by a group of students and university professors. Spend at least 10 minutes in a small group, brainstorming your ideas.

The business school faculty has become increasingly concerned about the ethics associated with modern business practice. The general reputation of business executives is in the tank. They are seen as greedy, dishonest, and untrustworthy. What could the faculty or the school do to affect this problem?

How do you define the problem? What ideas can you come up with? Generate as many ideas as you can following the rules of brainstorming. After at least 10 minutes, assess the fluency (the number) and flexibility (the variety) of the ideas you generated as a team.

Expand Current Alternatives

Sometimes, brainstorming in a group is not possible or is too costly in terms of the number of people involved and hours required. Managers facing a fast-paced twenty-first-century environment may find brainstorming to be too inefficient. Moreover, people sometimes need an external stimulus or way to break through conceptual blocks to help them generate new ideas. One useful and readily available technique for expanding alternatives is subdivision, or dividing a problem into smaller parts. This is a well-used and proven technique for enlarging the alternative set.

For example, March and Simon (1958, p. 193) suggested that subdivision improves problem solving by increasing the speed with which alternatives can be generated and selected.

The mode of subdivision has an influence on the extent to which planning can proceed simultaneously on the several aspects of the problem. The more detailed the factorization of the problem, the more simultaneous activity is possible, hence, the greater the speed of problem solving.

To see how subdivision helps develop more alternatives and speeds the process of problem solving, consider the problem, common in the creativity literature, of listing alternative uses for a familiar object. For example, in one minute, how many uses can you list for a Ping-Pong ball? Ready . . . go.

The more uses you identify, the greater is your fluency in thinking. The more variety in your list, the greater is your flexibility in thinking. You may have included the following in your list: bob for a fishing line, Christmas ornament, toy for a cat, gearshift knob,
model for a molecular structure, wind gauge when hung from a string, head for a finger puppet, miniature basketball. Your list will be much longer.

Now that you have produced your list, apply the technique of subdivision by identifying the specific characteristics of a Ping-Pong ball. That is, divide it into its component attributes. For example, weight, color, texture, shape, porosity, strength, hardness, chemical properties, and conduction potential are all attributes of Ping-Pong balls that help expand the uses you might think of. By dividing an object mentally into more specific attributes, you can arrive at many more alternative uses (e.g., reflector, holder when cut in half, bug bed, ball for lottery drawing, inhibitor of an electrical current, and so on).

One exercise we have used with students and executives to illustrate this technique is to have them write down as many of their leadership or managerial strengths as they can think of. Most people list 10 or 12 attributes relatively easily. Then we analyze the various aspects of the manager's role, the activities in which managers engage, the challenges that most managers face from inside and outside the organization, and so on. We then ask these same people to write down another list of their strengths as managers. The list is almost always more than twice as long as the first list. By identifying the subcomponents of any problem, far more alternatives can be generated than by considering the problem as a whole. Try this by yourself. Divide your life into the multiple roles you play—student, friend, neighbor, leader, brother or sister, and so on. If you list your strengths associated with each role, your list will be much longer than if you just create a general list of personal strengths.

**Combine Unrelated Attributes**

A third technique focuses on helping problem solvers expand alternatives by forcing the integration of seemingly unrelated elements. Research in creative problem solving has shown that an ability to see common relationships among disparate factors is a major factor differentiating creative from noncreative individuals (Feldman, 1999). Two ways to do this are through morphological synthesis (Koberg & Bagnall, 2003) and the relational algorithm (Crovitz, 1976). (For literature reviews, see Fishke, Ward, & Smith, 1992; and Sanko, 2001.) With morphological synthesis, a four-step procedure is involved. First, the problem is written down. Second, attributes of the problem are listed. Third, alternatives to each attribute are listed. Fourth, different alternatives from the attributes list are combined together.

This seems a bit complicated so let us illustrate the procedure. Suppose you are faced with the problem of an employee who takes an extended lunch break almost every day despite your reminders to be on time. Think of alternative ways to solve this problem. The first solution

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**Table 3.7 Morphological Synthesis**

<table>
<thead>
<tr>
<th>Amount of Time</th>
<th>Start Time</th>
<th>Place</th>
<th>With whom</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 minutes</td>
<td>11:00</td>
<td>Office</td>
<td>Legislature</td>
<td>Weekly</td>
</tr>
<tr>
<td>40 minutes</td>
<td>11:40</td>
<td>Conference Room</td>
<td>Boss</td>
<td>Twice a week</td>
</tr>
<tr>
<td>30 minutes</td>
<td>12:30</td>
<td>Restaurant</td>
<td>Management Team</td>
<td>As per the Day</td>
</tr>
</tbody>
</table>

1. At 11:00 lunch beginning at 12:00 in the conference room with the boss once a week.
2. At 11:40 lunch beginning at 11:40 in the conference room with the boss twice a week.
3. At 12:30 lunch beginning at 12:30 in the conference room with the management team every other day.
4. At 11:00 lunch beginning at 11:30 in the office on alternate days.
that comes to mind for most people is to sit down and have a talk with (or threaten) the employee. If that doesn't work, most of us would reduce the person's pay, demote or transfer him or her, or just fire the person. However, look at what other alternatives can be generated by using morphological synthesis (see Table 3.7).

You can see how many more alternatives come to mind when you force together attributes that aren't obviously connected. The matrix of attributes can create a very long list of possible solutions. In more complicated problems—for example, how to improve quality, how to better serve customers, how to improve the reward system, how to land a great job—the potential number of alternatives is even greater, and, hence, more creativity is required to analyze them.

The second technique for combining unrelated attributes in problem solving, the relational algorithm, involves applying connecting words that force a relationship between two elements in a problem. For example, the following is a list of some words that connect other words together. They are called "relational" words:

- about
- across
- against
- cut
- as
- round
- before
- so
- by
- from
- to
- near
- up
- where
- through
- for
- over
- between
- though
- under
- now
- on
- if
- till
- under
- on
- with

To illustrate the use of this technique, suppose you are faced with the following problem: Our customers are dissatisfied with our service. The two major subjects in this problem are customers and service. They are connected by the phrase are dissatisfied with. With the relational algorithm technique, the relational words in the problem statement are removed and replaced with other relational words to see if new ideas for alternative solutions can be identified. For example, consider the following connections where new relational words are used:

- Customers among service (e.g., customers interact with service personnel).
- Customers as service (e.g., customers deliver service to other customers).
- Customers and service (e.g., customers and service personnel work collaboratively together).
- Customers for service (e.g., customer focus groups can help improve service).
- Service near customers (e.g., change the location of the service to be nearer customers).
- Service before customers (e.g., prepare personalized service before the customer arrives).
- Service through customers (e.g., use customers to provide additional service).
- Service when customers (e.g., provide timely service when customers want it).

By connecting the two elements of the problem in different ways, new possibilities for problem solution can be formulated.

### International Caveats

The perspective taken in this chapter has a clear bias toward Western culture. It focuses on analytical and creative problem solving as methods for addressing specific issues. Enhancing creativity has a specific purpose, and that is to solve certain kinds of problems better. Creativity in Eastern cultures, on the other hand, is often defined differently. Creativity is focused less on creating solutions than on uncovering enlightenment, one's true self, or the achievement of wholeness or self-actualization (Chu, 1970; Kuo, 1996). It is aimed at getting in touch with the unconscious (Maduro, 1976). In both the East and the West, however, creativity is viewed positively: Gods of creativity are worshipped in West African cultures (Olokun) and among Hindus (Vishvakarma), for example (Ben-Amos, 1986; Wonder & Blake, 1992), and creativity is often viewed in mystical or religious terms rather than managerial or practical terms.

In fostering creative problem solving in international settings or with individuals from different countries, Trompenaars and Hampden-Turner's (1987, 2004) model is useful for understanding the caveats that must be kept in mind. Countries differ, for example, in their orientation toward internal control (Canada, United States, United Kingdom) versus external control (Japan, China, Czech Republic). In internal cultures, the environment is assumed to be changeable, so creativity focuses on attacking problems directly. In external cultures, because individuals assume less control of the environment, creativity focuses less on problem resolution and more on achieving insight or oneness with nature. Changing the environment is not the usual objective.
Similarly, cultures emphasizing a specific orientation (Sweden, Denmark, United Kingdom, France) are more likely to challenge the status quo and seek new ways to address problems than cultures emphasizing a diffuse culture (China, Nigeria, India, Singapore) in which loyalty, wholeness, and long-term relationships are more likely to inhibit individual creative effort. This is similar to the differences that are likely in countries emphasizing universalism (Korea, Venezuela, China, India) as opposed to particularism (Switzerland, United States, Sweden, United Kingdom, Germany). Cultures emphasizing universalism tend to focus on generalizable outcomes and consistent rules or procedures. Particularistic cultures are more inclined to search for unique aberrations from the norm, thus having more of a tendency toward creative solution finding. Managers encouraging conceptual blockbusting and creative problem solving, in other words, will find some individuals more inclined toward the rule-oriented procedures of analytical problem solving and less inclined toward the playfulness and experimentation associated with creative problem solving than others.

Hints for Applying Problem-Solving Techniques

Not every problem is amenable to these techniques and tools for conceptual blockbusting, of course, nor is every individual equally inclined or skilled. Our intent in presenting these six suggestions is to help you expand the number of options available to you for defining problems and generating additional alternatives. They are most useful with problems that are not straightforward, are complex or ambiguous, or are imprecise in their definitions. All of us have enormous creative potential, but the stresses and pressures of daily life, coupled with the inertia of conceptual habits, tend to submerge that potential. These hints are ways to help unlock it again.

Reading about techniques or having a desire to be creative is not, alone, enough to make you a skillful creative problem solver; of course. Although research has confirmed the effectiveness of these techniques for improving creative problem solving, they depend on application and practice as well as an environment that is conducive to creativity. Here are six practical hints that will help facilitate your own ability to apply these techniques effectively and improve your creative problem solving ability.

1. Give yourself some relaxation time. The more intense your work, the more your need for complete breaks. Break out of your routine sometimes. This frees up your mind and gives room for new thoughts.

2. Find a place (physical space) where you can think. It should be a place where interruptions are eliminated, at least for a time. Reserve your best time for thinking.

3. Talk to other people about ideas. Isolation produces far fewer ideas than does conversation. Make a list of people who stimulate you to think. Spend some time with them.

4. Ask other people for their suggestions about your problems. Find out what others think about them. Don't be embarrassed to share your problems, but don't become dependent on others to solve them for you.

5. Read a lot. Read at least one thing regularly that is outside your field of expertise. Keep track of new thoughts from your reading.

6. Protect yourself from idea-killers. Don't spend time with "black holes"—that is, people who absorb all of your energy and light but give nothing in return. Don't let yourself or others negatively evaluate your ideas too soon.

You'll find these hints useful not only for enhancing creative problem solving but for analytical problem solving as well. Figure 3.10 summarizes the two problem-solving processes—analytical and creative—and the factors you should consider when determining how to approach each type of problem. In brief, when you encounter a problem that is straightforward—that is, outcomes are predictable, sufficient information is available, and means-ends connections are clear—analytical problem-solving techniques are most appropriate. You should apply the four distinct, sequential steps. On the other hand, when the problem is not straightforward—that is, information is ambiguous or unavailable and alternative solutions are not apparent—you should apply creative problem-solving techniques in order to improve problem definition and alternative generation.

Fostering Creativity in Others

Unlocking your own creative potential is important but insufficient, of course, to make you a successful manager. A major challenge is to help unlock it in other people as well. Fostering creativity among those with whom you work is at least as great a challenge as increasing your own creativity. In this last section of the
chapter, we briefly discuss some principles that will help you better accomplish the task of fostering creativity.

**MANAGEMENT PRINCIPLES**

Neither Percy Spencer nor Spence Silver could have succeeded in his creative ideas had there not been a support system present that fostered creative problem solving. In each case, certain characteristics were present in their organizations, fostered by managers around them, which made their innovations possible. In this section we will not discuss the macro-organizational issues associated with innovation (e.g., organization design, strategic orientation, and human resource systems). Excellent discussions of these factors are reviewed in sources such as Amabile (1988), DeGraff and Lawrence (2002), McMillan (1985), Tichy (1983), Tushman and Anderson (1997), and Van de Ven (1997). Instead, we’ll focus on activities in which individual managers can engage that foster creativity. Table 3.8 summarizes three management principles that help engender creative problem solving among others.
Table 3.8 Three Principles for Fostering Creativity

<table>
<thead>
<tr>
<th>PRINCIPLE</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pull people apart; put people together</td>
<td>• Let individuals work alone as well as with teams and task forces.</td>
</tr>
<tr>
<td></td>
<td>• Encourage minority reports and legitimize &quot;devil's advocate&quot; roles.</td>
</tr>
<tr>
<td></td>
<td>• Encourage heterogeneous membership in teams.</td>
</tr>
<tr>
<td></td>
<td>• Separate competing groups or subgroups.</td>
</tr>
<tr>
<td>2. Monitor and prod.</td>
<td>• Talk to customers.</td>
</tr>
<tr>
<td></td>
<td>• Identify customer expectations both in advance and after the sale.</td>
</tr>
<tr>
<td></td>
<td>• Hold people accountable.</td>
</tr>
<tr>
<td></td>
<td>• Use &quot;sharp-pointed&quot; prods.</td>
</tr>
<tr>
<td>3. Reward multiple roles.</td>
<td>• Idea champion</td>
</tr>
<tr>
<td></td>
<td>• Sponsor and mentor</td>
</tr>
<tr>
<td></td>
<td>• Orchestrator and facilitator</td>
</tr>
<tr>
<td></td>
<td>• Rule breaker</td>
</tr>
</tbody>
</table>

Pull People Apart; Put People Together

Percy Spencer’s magnetron project involved a consumer product cloistered away from Raytheon’s main-line business of missiles and other defense contract work. Spencer Silver’s new glue resulted when a polymer adhesive task force was separated from 3M’s normal activities. The Macintosh computer was developed by a task force taken outside the company and given space and time to work on an innovative computer. Many new ideas come from individuals being given time and resources and allowed to work apart from the normal activities of the organization. Establishing bullpens, practice fields, or sandlots is as good a way to develop new skills in business as it has proven to be in athletics. Because most businesses are designed to produce the 10,000th part correctly or to service the 10,000th customer efficiently, they do not function well at producing the first part. That is why pulling people apart is often necessary to foster innovation and creativity. This principle is the same as providing autonomy and discretion for other people to pursue their own ideas.

On the other hand, forming teams (putting people together) is almost always more productive than having people work by themselves. Such teams should be characterized by certain attributes, though. For example, Nemeth (1986) found that creativity increased markedly when minority influences were present in the team, for example, when “devil’s advocate” roles were legitimized, when a formal minority report was always included in final recommendations, and when individuals assigned to work on a team had divergent backgrounds or views. “Those exposed to minority views are stimulated to attend to more aspects of the situation, they think in more divergent ways, and they are more likely to detect novel solutions or come to new decisions” (Nemeth, 1986, p. 25). Nemeth found that those positive benefits occur in groups even when the divergent or minority views are wrong. Similarly, Janis (1971) found that narrow-mindedness in groups (dubbed groupthink) was best overcome by establishing competing groups working on the same problem, participation in groups by outsiders, assigning a role of critical evaluator in the group, and having groups made up of cross-functional participants. The most productive groups are those characterized by fluid roles, lots of interaction among members, and flat power structures. On the other hand, too much diversity, too much disagreement, and too much fluidity can sidetrack groups, so devil’s advocates must be aware of when to line up and support the decision of the group. Their role is to help groups rethink quick decisions or solutions that have not been considered carefully enough, not to avoid making group decisions or solving problems.

You can help foster creativity among people you manage, therefore, by pulling people apart (e.g., giving them a bullpen, providing them with autonomy, encouraging individual initiative) as well as putting people together (e.g., putting them in teams, enabling minority influence, and fostering heterogeneity).
Monitor and Prod

Neither Percy Spencer nor Spence Silver was allowed to work on their projects without accountability. Both men eventually had to report on the results they accomplished with their experimentation and imagination. At 3M, for example, people are expected to allocate 15 percent of their time away from company business to work on new, creative ideas. They can even appropriate company materials and resources to work on them. However, individuals are always held accountable for their decisions. They need to show results for their “play time.”

Holding people accountable for outcomes, in fact, is an important motivator for improved performance. Two innovators in the entertainment industry captured this principle with these remarks: “The ultimate inspiration is the deadline. That’s when you have to do what needs to be done. The fact that twice a year the creative talent of this country is working until midnight to get something ready for a trade show is very good for the economy. Without this kind of pressure, things would turn to mashed potatoes” (von Oech, 1986, p. 119). One way Woody Morcott, former CEO at Dana Corporation, held people accountable for creativity was to require that each person in the company submit at least two suggestions for improvement each month. At least 70 percent of the new ideas had to be implemented. Woody admitted that he stole the idea during a visit to a Japanese company where he noticed workers huddled around a table scribbling notes on how some ideas for improvement might work. At Dana, this requirement is part of every person’s job assignment. Rewards are associated with such ideas as well. A plant in Chihuahua, Mexico, for example, rewards employees with $1.89 for every idea submitted and another $1.89 if the idea is used. “We drill into people that they are responsible for keeping the plant competitive through innovation,” Morcott said (personal communication).

In addition to accountability, creativity is stimulated by what Gene Goodson at Johnson Controls called “sharp-pointed prods.” After taking over the automotive group at that company, Goodson found that he could stimulate creative problem solving by issuing certain mandates that demanded new approaches to old tasks. One such mandate was, “There will be no more forklift trucks allowed in any of our plants.” At first hearing, that mandate sounded absolutely outrageous. Think about it. You have a plant with tens of thousands of square feet of floor space. The loading docks are on one side of the building, and many tons of heavy raw materials are unloaded weekly and moved from the loading docks to work stations throughout the entire facility. The only way it can be done is with forklifts. Eliminating forklift trucks would ruin the plant, right?

Wrong. This sharp-pointed prod demanded that individuals working in the plant find ways to move the work stations closer to the raw materials, to move the unloading of the raw materials closer to the work stations, or to change the size and amounts of material being unloaded. The innovations that resulted from eliminating forklifts saved the company millions of dollars in materials handling and wasted time; dramatically improved quality, productivity, and efficiency; and made it possible for Johnson Controls to capture some business from their Japanese competitors.

One of the best methods for generating useful prods is to regularly monitor customer preferences, expectations, and evaluations. Many of the most creative ideas have come from customers, the recipients of goods and services. Identifying their preferences in advance and monitoring their evaluations of products or services later are good ways to get creative ideas and to foster imagination, improvement, investment, and incubation. All employees should be in regular contact with their own customers, asking questions and monitoring performance.

By customers, we don’t mean just the end users of a business product or service. In fact, all of us have customers, whether we are students in school, members of a family, players on a basketball team, or neighbors in an apartment complex. Customers are simply those we serve or for whom we are trying to produce something. Students, for example, can count their instructors, class members, and potential employers as customers whom they serve. A priori and post hoc monitoring of their expectations and evaluations is an important way to help foster new ideas for problem solving. This monitoring is best done through one-on-one meetings, but it can also be done through follow-up calls, surveys, customer complaint cards, suggestion systems, and so on.

In summary, you can foster creativity by holding people accountable for new ideas and by stimulating them with periodic prods. The most useful prods generally come from customers.

Reward Multiple Roles

The success of Post-It Notes at 3M is more than a story of the creativity of Spence Silver. It also illustrates the necessity of people playing multiple roles in enabling creativity and the importance of recognizing and rewarding those who play such roles. Without a number of people playing...
multiple roles, Spence Silver's glue would probably still be on a shelf somewhere.

Four crucial roles for enabling creativity in others include the idea champion (the person who comes up with creative problem solutions), the sponsor or mentor (the person who helps provide the resources, environment, and encouragement for the idea champion to work on his idea), the orchestrator or facilitator (the person who brings together cross-functional groups and necessary political support to facilitate implementation of creative ideas), and the rule breaker (the person who goes beyond organizational boundaries and barriers to ensure success of the creative solution). Each of these roles is present in most important innovations in organizations, and all are illustrated by the Post-It Note example.

This story has four major parts.

1. Spence Silver, while fooling around with chemical configurations that the academic literature indicated wouldn't stick, invented a glue that wouldn't stick. Silver spent years giving presentations to any audience at 3M that would listen, trying to pawn off his glue on some division that could find a practical application for it. But nobody was interested.

2. Henry Courtney and Roger Merrill developed a coating substance that allowed the glue to stick to one surface but not to others. This made it possible to produce a permanently temporary glue, that is, one that would peel off easily when pulled but would otherwise hang on forever.

3. Art Fry found a problem that fit Spence Silver's solution. He found an application for the glue as a "better bookmark" and as a note pad. No equipment existed at 3M to coat only a part of a piece of paper with the glue. Fry therefore carried 3M equipment and tools home to his own basement, where he designed and made his own machine to manufacture the forerunner of Post-It Notes. Because the working machine became too large to get out of his basement, he blasted a hole in the wall to get his equipment back to 3M. He then brought together engineers, designers, production managers, and machinists to demonstrate the prototype machine and generate enthusiasm for manufacturing the product.

4. Geoffrey Nicholson and Joseph Ramsey began marketing the product inside 3M. They also submitted the product to the standard 3M market tests. The product failed miserably. No one wanted to pay $1.00 for a pad of scratch paper. But when Nicholson and Ramsey broke 3M rules by personally visiting test market sites and giving away free samples, the consuming public became addicted to the product.

In this scenario, Spence Silver was both a rule breaker and an idea champion. Art Fry was also an idea champion, but more importantly, he orchestrated the coming together of the various groups needed to get the innovation off the ground. Henry Courtney and Roger Merrill helped sponsor Silver's innovation by providing him with the coating substance that would allow his idea to work. Geoff Nicholson and Joe Ramsey were both rule breakers and sponsors in their bid to get the product accepted by the public. In each case, not only did all these people play unique roles, but they did so with tremendous enthusiasm and zeal. They were confident of their ideas and willing to put their time and resources on the line as advocates. They fostered support among a variety of constituencies, both within their own areas of expertise as well as among outside groups. Most organizations are inclined to give in to those who are sure of themselves, persistent in their efforts, and savvy enough to make converts of others.

Not everyone can be an idea champion. But when managers reward and recognize those who sponsor and orchestrate the ideas of others, creativity increases in organizations. Teams form, supporters replace competitors, and innovation thrives. Facilitating multiple role development is the job of the managers who want to foster creativity. Figure 3.11 summarizes this process.

Summary

In the twenty-first century, almost no manager or organization can afford to stand still, to reply on past practices, and to avoid innovation. In a fast-paced environment in which the half-life of knowledge is about three years and the half-life of almost any technology is counted in weeks and months instead of years, creative problem solving is increasingly a prerequisite for success. The digital revolution makes the rapid production of new ideas almost mandatory. This is not to negate the importance of analytical problem solving, of course. The quality revolution of the 1980s and 1990s taught us important lessons about carefully prescribed, sequential, and analytic problem-solving processes. Error rates, response times, and missed deadlines dropped dramatically when analytical problem solving was institutionalized in manufacturing and service companies.

In this chapter we have discussed a well-developed model for solving problems. It consists of four separate
SKILL 3. CASES INVOLVING PROBLEM SOLVING

Admiral Kimmel’s Failure at Pearl Harbor

In the summer of 1941, as relations between the United States and Japan were rapidly deteriorating, Admiral Kimmel, Commander in Chief of the Pacific Fleet, received many warnings concerning the imminence of war. During this period he worked out a plan in collaboration with his staff at Pearl Harbor that gave priority to training key personnel and supplying basic equipment to U.S. outposts in the Far East. The plan took account of the possibility of a long, hard war with Japan and the difficulties of mobilizing scarce resources in manpower and material. At that time, Admiral Kimmel and his staff were keenly aware of the risks of being unprepared for war with Japan, as well as the high costs and risks involved in preparing for war. They appear to have been relatively optimistic about being able to develop a satisfactory military plan and about having sufficient time in which to implement it. In short, all the conditions were present for vigilance, and it seems likely that this coping pattern characterized their planning activity.

But, during the late fall of 1941, as warnings became increasingly more ominous, a different pattern of coping behavior emerged. Admiral Kimmel and his staff continued to cling to the policy to which they had committed themselves, discounting each fresh warning and failing to note that more and more signs were pointing to Pearl Harbor as a possible target for a surprise air attack. They repeatedly renewed their decision to continue using the available resources primarily for training green sailors and soldiers and for supplying bases close to Japan, rather than instituting an adequate alert that would give priority to defending Pearl Harbor against enemy attack.

Knowing that neither their own sector nor the rest of the U.S. military organization was ready for a shooting war, they clung to an unwarranted set of rationalizations. The Japanese, they thought, would not launch an attack against any American possession; and if by some remote chance they decided to do so, it certainly wouldn’t be at Pearl Harbor. Admiral Kimmel and his staff acknowledged that Japan could launch a surprise attack in any direction, but remained convinced that it would not be launched in their direction. They saw no reason to change their course. Therefore, they continued to give peacetime weekend leave to the majority of the naval forces in Hawaii and allowed the many warships in the Pacific Fleet to remain anchored at Pearl Harbor, as sitting ducks. Kimmel regularly discussed each warning with members of his staff. At times he became emotionally aroused and obtained reassurance from the members of his in-group. He shared with them a number of rationalizations that bolstered his decision to ignore the warnings. On November 27, 1941, for example, he received an explicit “war warning” from the chief of naval operations in Washington, which stirred up his concern but did not impel him to take any new protective action. This message was intended as a strong follow-up to an earlier warning, which Kimmel had received only three days earlier, stating that war with Japan was imminent and that “a surprise aggressive movement in any direction, including attack on Philippines or Guam, is a possibility.” The new warning asserted that “an aggressive move by Japan is expected within the next few days” and instructed Kimmel to “execute appropriate defensive deployment” preparatory to carrying out the naval war plan.

The threat conveyed by this warning was evidently strong enough to induce Kimmel to engage in prolonged discussion with his staff about what should be done.
But their vigilance seems to have been confined to paying careful attention to the way the warning was worded. During the meeting, members of the staff pointed out to Kimmel that Hawaii was not specifically mentioned as a possible target in either of the two war warnings, whereas other places—the Philippines, Malaya, and other remote areas—were explicitly named. Kimmel went along with the interpretation that the ambiguities they had detected in the wording must have meant that Pearl Harbor was not supposed to be regarded as a likely target, even though the message seemed to be saying that it was. The defensive quality that entered into this judgment is revealed by the fact that Kimmel made no effort to use his available channels of communication in Washington to find out what really had been meant. He ended up agreeing with the members of his advisory group that there was no chance of a surprise air attack on Hawaii at that particular time.

Since he judged Pearl Harbor not to be vulnerable, Kimmel decided that the limited-alert condition that had been instituted months earlier would be sufficient. He assumed, however, that all U.S. Army units in Hawaii had gone on full alert in response to this war warning; so that antiaircraft and radar units under army control would be fully activated. But, again, reflecting his defensive lack of interest in carrying out tasks that required acknowledging the threat, Kimmel failed to inquire of Army headquarters exactly what was being done. As a result, he did not discover until after the disaster on December 7 that the Army, too, was on only limited alert, designed exclusively to protect military installations against local sabotage.

On December 3, 1941, Kimmel engaged in intensive discussion with two members of his staff upon receiving a fresh warning from naval headquarters in Washington stating that U.S. cryptographers had decoded a secret message from Tokyo to all diplomatic missions in the United States and other countries, ordering them to destroy their secret codes. Kimmel realized that this type of order could mean that Japan was making last-minute preparations before launching an attack against the United States. Again, he and his advisors devoted considerable attention to the exact wording of this new, worrisome warning. They made much of the fact that the dispatch said “most” of the codes but not “all.” They concluded that the destruction of the codes should be interpreted as a routine precautionary measure and not as a sign that Japan was planning to attack an American possession. Again, no effort was made to find out from Washington how the intelligence units there interpreted the message. But the lengthy discussions and the close attention paid to the wording of these messages imply that they did succeed in at least temporarily inducing decisional conflict.

By December 6, 1941, the day before the attack, Kimmel was aware of a large accumulation of extremely ominous signs. In addition to receiving the official war warnings during the preceding week, he had received a private letter three days earlier from Admiral Stark in Washington stating that both President Roosevelt and Secretary of State Hull now thought that the Japanese were getting ready to launch a surprise attack. Then on December 6, Kimmel received another message from Admiral Stark containing emergency war orders pertaining to the destruction of secret and confidential documents in American bases on outlying Pacific islands. On that same day, the FBI in Hawaii informed Kimmel that the local Japanese consulate had been burning its papers for the last two days. Furthermore, Kimmel’s chief naval intelligence officer had reported to him that day, as he had on the preceding days, that despite fresh efforts to pick up Japanese naval signal calls, the whereabouts of all six of Japan’s aircraft carriers still remained a mystery. (U.S. Naval Combat Intelligence had lost track of the Japanese aircraft carriers in mid-November, when they started to move toward Hawaii for the planned attack on Pearl Harbor.)

Although the various warning signs, taken together, clearly indicated that Japan was getting ready to launch an attack against the United States, they remained...
ambiguous as to exactly where the attack was likely to be. There was also considerable "noise" mixed in with the warning signals, including intelligence reports that huge Japanese naval forces were moving toward Malaya. But, inexplicably, there was a poverty of imagination on the part of Kimmel and his staff with regard to considering the possibility that Pearl Harbor itself might be one of the targets of a Japanese attack.

The accumulated warnings, however, were sufficiently impressive to Kimmel to generate considerable concern. On the afternoon of December 6, as he was pondering alternative courses of action, he openly expressed his anxiety to two of his staff officers. He told them he was worried about the safety of the fleet at Pearl Harbor in view of all the disturbing indications that Japan was getting ready for a massive attack somewhere. One member of the staff immediately reassured him that "the Japanese could not possibly be able to proceed in force against Pearl Harbor when they had so much strength concentrated in their Asiatic operations." Another told him that the limited-alert condition he had ordered many weeks earlier would certainly be sufficient and nothing more was needed. "We finally decided," Kimmel subsequently recalled, "that what we had [already] done was still good and we would stick to it." At the end of the discussion, Kimmel "put his worries aside" and went off to a dinner party.

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Discussion Questions
1. Identify the conceptual blocks that are illustrated in this case.
2. Outline the problem-solving steps followed by Kimmel and his advisors. What steps in analytical problem solving were skipped or short-circuited?
3. If you were Admiral Kimmel's advisor, knowing what you know about problem solving, what would you have suggested to help his problem-solving processes? What kinds of conceptual blockbusters could have been useful to Kimmel?
4. What do you learn from this case that would help you advise Microsoft in its anticompetitive case with the federal government, or advise Barnes & Noble.com to help it displace Amazon.com, or advise American Greetings to become the dominant player in the greeting card business? What practical hints, in other words, do you derive from this classic case of analytical problem solving gone awry?

Creativity at Apple

In his annual speech in Paris in 2003, Steven Jobs, the lionized CEO of Apple Computer, Inc., proudly described Apple in these terms: "Innovate. That's what we do." And innovate they have. Jobs and his colleagues, Steve Wozniak and Mike Markkula, invented the personal computer market in 1977 with the introduction of the Apple II. In 1980, Apple was the number one vendor of personal computers in the world. Apple's success, in fact, helped spawn what became known as Silicon Valley in California, the mother lode of high technology invention and production for the next three decades.

Apple has always been a trailblazing company whose innovative products are almost universally acknowledged as easier to use, more powerful, and more elegant than those of its rivals. In the last ten years, Apple has been granted 1,500 patents, half as many as Microsoft, a company 145 times the size of Apple. Dell Computer, by contrast, has been granted half as many patents as Apple. Apple has invented, moreover, more businesses than just the personal computer. In 1984, Apple created the
first computer network with its Macintosh machines, whereas Windows-based PC's didn't network until the mid-1990s. A decade ago, Apple introduced the first handheld, pen-based computing device known as the Newton and followed that up with a wireless mouse, ambient-lit keyboards for working in the dark, and the fastest computer on the market in 2005. In 2005, Apple also introduced the first legal, digital music store for downloading songs—iTunes—along with its compatible technology, iPods. In other words, Apple has been at the forefront of product and technological innovation for almost 30 years. Apple has been, hands down, the most innovative company in its industry and one of the most innovative companies on the planet.

Here's the problem. Today, Apple commands just two percent of the $180 billion worldwide market for PCs. Apple's rivals have followed its creative leads and snatched profits and market share from Apple with astonishing effectiveness. From its number one position two decades ago, Apple currently ranks as the ninth largest PC firm—behind name-brand firms such as Dell, Hewlett-Packard, and IBM, but embarrassingly, also behind no-name firms such as Acer and Legend. These clone-makers, from Taiwan and China respectively, have invented no new products.

Moreover, whereas Apple was once among the most profitable companies in the PC industry, its operating profits have shrunk from 20 percent in 1981 to 0.4 percent in 2004, one-tenth the industry average. Its chief competitor in software—Microsoft—sold $2.6 billion in software in the most recent quarter compared to $177 million for Apple.

What could possibly be wrong? If one takes seriously the messages being declared loudly and prominently in the business press and in the broader global society today, innovation and creativity are the keys to success. "Change or die." "Innovate or get passed over." "Be creative to be successful." A key tenet upon which progressive, market-based, capitalistic societies are based is the idea of creative destruction. That is, without creativity and innovation, individuals and organizations become casualties of the second law of thermodynamics—they disintegrate, wither, disorganize, and die. New products are needed to keep consumers happy. Obsolescence is ubiquitous. Innovation and creativity, consequently, are touted as being at the very heart of success. For more evidence, just skim over the more than 49,000 book titles when you log onto Amazon and search using the key word "innovation."

On the other hand, consider some of the most innovative companies in recent American history. Xerox Corporation's famed Palo Alto Research Center gave the world laser printing, the Ethernet, Windows-type software, graphical user interfacing, and the mouse, yet it is notorious for not having made any money at all. Polaroid introduced the idea of instant images, yet it filed for bankruptcy in 2001. The Internet boom in the late 1990s was an explosion of what is now considered to be worthless innovation. And, Enron may have been the most innovative financial company ever.

On the other hand, Amazon, Southwest Airlines, eBay, Wal-Mart, and Dell are examples of incredibly successful companies, but did not invent any new products or technologies. They are acknowledged as innovative and creative companies, but they don't hold a candle to Apple. Instead of new products, they have invented new processes, new ways to deliver products, new distribution channels, new marketing approaches. It is well known that Henry Ford didn't invent the automobile. He simply invented a new way to assemble a car at a cost affordable to his own workers. The guy who invented the automobile hardly made a dime.

The trouble is, creativity as applied to business processes—manufacturing methods, sales and marketing, employee incentive systems, or leadership development—are usually seen as humdrum, nitty gritty, uncool, plodding, unimaginative, and boring. Creative people and creative companies that capture headlines are usually those that come up with great new product ideas or splashy features. But, look at the list of
Fortune 500 companies and judge how many are product champions versus process champions. Decide for yourself which is the driver of economic growth: good innovation or good management.

Source: Adapted from Hawn, 2004.

Discussion Questions:
1. Consider the four approaches to creativity. What approach(es) has Apple relied upon? What alternatives have other firms in the industry pursued? What other alternatives could Apple implement?

2. Assume you were a consultant to the CEO at Apple. What advice would you give on how Apple could capitalize on its creativity? How can Apple make money based on its own inclination to pursue creativity in certain ways?

3. What are the major obstacles and conceptual blocks that face Apple right now? What do employees need to watch out for?

4. What tools for fostering creative problem solving are applicable to Apple, and which would not be workable? Which ones do you think are used the most there?
EXERCISES FOR APPLYING CONCEPTUAL BLOCKBUSTING

The purpose of this exercise is to have you practice problem solving—both analytical and creative. Two actual scenarios are provided below. Both present real problems faced by real managers. They are very likely the same kinds of problems faced by your own business school and by many of your local businesses. Your assignment in each case is to identify a solution to the problem. You will approach the problem in two ways: first using analytical problem solving techniques; second, using creative problem-solving techniques. The first approach—analytical problem solving—you should accomplish by yourself. The second approach—creative problem solving—you should accomplish in a team. Your task is to apply the principles of problem solving to come up with realistic, cost-efficient, and effective solutions to these problems. Consider each scenario separately. You should take no more than ten minutes to complete the analytical problem-solving assignment. Then take twenty minutes to complete the creative problem-solving assignment.

Individual Assignment—Analytical Problem Solving (10 minutes)

1. After reading the first case, write down a specific problem definition. What precisely worded problem are you going to solve? Complete the sentence: The problem I am going to solve is ...

2. Now identify at least four or five alternative solutions. What ideas do you have for resolving this problem? Complete this sentence: Possible ways to resolve this problem are ...

3. Next, evaluate the alternatives you have proposed. Make sure you don't evaluate each alternative before proposing your complete set. Evaluate your set of alternatives on the basis of these criteria: Will this alternative solve the problem you have defined? Is this alternative realistic in terms of being cost-effective? Can this solution be implemented in a short time frame?
4. Now write down your proposed solution to the problem. Be specific about what should be done and when. Be prepared to share that solution with other team members.

Team Assignment—Creative Problem Solving
(20 minutes)

1. Now form a team of four or five people. Each team member should share his or her own definition of the problem. It is unlikely that they will all be the same, so make sure you keep track of them. Now add at least three more plausible definitions of the problem. In doing so, use at least two techniques for expanding problem definition discussed in the text. Each problem definition should differ from the others in what the problem is, not just a statement of different causes of the problem.

2. Now examine each of the definitions you have proposed. Select one that the entire team can agree upon. Since it is unlikely that you can solve multiple problems at once, select just one problem definition that you will work on.

3. Share the four or five proposed solutions that you generated on your own, even if they don’t relate to the specific problem your team has defined. Keep track of all the different alternatives proposed by team members. After all team members have shared their alternatives, generate at least five additional alternative solutions to the problem you have agreed upon. Use at least two of the techniques for expanding alternatives discussed in the text.

4. Of all the alternatives your team proposed, select the five that you consider to be the most creative and having the highest probability of success.

5. Select one team member from each team to serve as a judging panel. This panel is charged with selecting the team with the most creative and potentially successful alternatives to the problem. Team members cannot vote for their own team.

6. Each team now shares their five alternatives with the class. The judging panel selects the winner.
Moving Up in the Rankings

Business schools seem to have lost the ability to evaluate their own quality and effectiveness. With the emergence of rankings of business schools in the popular press, the role of judging quality seems to have been captured by publications such as *Business Week*, *U.S. News and World Report*, and the *Financial Times*. The accreditation association for business schools, AACSB, mainly assesses the extent to which a school is accreditable or not, a 0–1 distinction, so a wide range in quality exists among accredited business schools. More refined distinctions have been made in the popular press by identifying the highest rated 50, the first, second, or third tier, or the top 20. Each publication relies on slightly different criteria in their rankings, but a substantial portion of each ranking rests on name recognition, visibility, or public acclaim. In some of the polls, more than 50 percent of the weighting is placed on the reputation or notoriety of the school. This is problematic, of course, because reputation can be deceiving. One recent poll ranked the Harvard and Stanford undergraduate business programs among the top three in the country, even though neither school has an undergraduate business program. Princeton’s law school has been ranked in the top five in several polls, even though, you guessed it, no such law school exists.

Other criteria sometimes considered in various ranking services include student selectivity, percent of students placed in jobs, starting salaries of graduates, tuition costs compared to graduates’ earnings, publications of the faculty, student satisfaction, recruiter satisfaction, and so on. By and large, however, name recognition is the single most crucial factor. It helps predict the number of student applicants, the ability to hire prominent faculty members, fund-raising opportunities, corporate partnerships, and so on.

Many business schools have responded to this pressure to become better known by creating advertising campaigns, circulating internal publications to other business schools and media outlets, and hiring additional staff to market the school. Most business school deans receive an average of 20 publications a week from other business schools, for example, and an editor at *Business Week* reported receiving more than 100 per week. Some deans begrudge the fact that these resources are being spent on activities other than improving the educational experience for students and faculty. Given constrained resources and tuition increases that outstrip the consumer price index every year, spending money on one activity precludes it from being spent on others. On the other hand, most deans acknowledge that this is the way the game must be played.

As part of a strategy to increase visibility, one business school hired world-renowned architect Frank O. Gehry to design a new business school building. Photographs of models of the building are reproduced below. It is a $70 million building that houses all the educational activities of the school. Currently this particular school does not appear in the top 20 on the major rankings lists. However, like about 75 other business schools in the world, it would very much like to reach that level. That is, the school would like to displace another school currently listed in the top 20. One problem with this new landmark building is that...
it is so unusual, so avant-garde, that it is not even recognized as a building. Upon seeing a photograph for the first time, some people don't even know what they're looking at. On the other hand, it presents an opportunity to leapfrog other schools listed higher in the rankings if the institution is creative in its approach. The challenge, of course, is that no one is sure exactly how to make this happen.

Keith Dunn and McGuffey's Restaurant

Keith Dunn knew exactly what to expect. He knew how his employees felt about him. That's why he had sent them the questionnaire in the first place. He needed a shot of confidence, a feeling that his employees were behind him as he struggled to build McGuffey's Restaurants, Inc., beyond two restaurants and $4 million in annual sales.

Gathering up the anonymous questionnaires, Dunn returned to his tiny corporate office in Asheville, North Carolina. With one of his partners by his side, he ripped open the first envelope as eagerly as a Broadway producer checking the reviews on opening night. His eyes zoomed directly to the question where employees were asked to rate the three owners' performance on a scale of 1 to 10.

A zero. The employee had scrawled in a big, fat zero. "Find out whose handwriting this is," he told his partner, Richard Laibson.

He ripped open another: zero again. And another. A two. "We'll fire those people," Dunn said to Laibson coldly. Another zero.

A one.

"Oh, go work for somebody else, you jerk!" Dunn shouted.

Over the next day, though, Dunn's anger subsided. "You think, I've done all this for these people and they think I'm a total jerk who doesn't care about them," he says. "Finally, you have to look in the mirror and think, 'Maybe they're right.'"

For Dunn, that realization was absolutely shattering. He had started the company three years earlier out of frustration over all the abuse he had suffered while working at big restaurant chains. If Dunn had one overriding mission at McGuffey's, it was to prove that restaurants didn't have to mistreat their employees.

He thought he had succeeded. Until he opened those surveys, he had believed that McGuffey's was a place where employees felt valued, involved, and appreciated. "I had no idea we were treating people so badly," he says. Somewhere along the way, in the day-to-day running of the business, he had lost his connection with them and left behind the employee-oriented company he thought he was running.

Dunn's 13-year odyssey through some big restaurant chains left him feeling as limp as a cheeseburger after a day under the heat lamps. Ponderosa in Georgia. Bennigan's in Florida and Tennessee. TGI Friday's in Texas, Tennessee, and Indiana. Within one six-month period at Friday's, he got two promotions, two bonuses, and two raises; then his boss left, and he got fired. That did it. Dunn was fed up with big chains.

At the age of 29, he returned to Atlanta, where he had attended Emory University as an undergraduate and where he began waiting tables at a local restaurant.

There he met David Lynn, the general manager of the restaurant, a similarly jaded 29-year-old who, by his own admission, had "begun to lose faith." Lynn and Dunn started hatching plans to open their own place, where employees would enjoy working as much as customers enjoyed eating. They planned to target the smaller markets that the chains ignored. With financing from a friend, they opened McGuffey's.

True to their people-oriented goals, the partners tried to make employees feel more appreciated than they themselves had felt at the chains. They gave them a free drink and...
a meal at the end of every shift, let them give away appetizers and desserts, and provided them a week of paid vacation each year.

A special camaraderie developed among the employees. After all, they worked in an industry in which a turnover rate of 250 percent was something to aspire to. The night before McGuffey’s opened, some 75 employees encircled the ficus tree next to the bar, joined hands, and prayed silently for two minutes. “The tree had a special energy,” says Dunn.

Maybe so. By the third night of operation, the 230-seat McGuffey’s had a waiting list. The dining room was so crowded that after three months the owners decided to add a 58-seat patio. Then they had to rearrange the kitchen to handle the volume. In its first three and a half months, McGuffey’s racked up sales of about $415,000, ending the year just over $110,000 in the red, mostly because the partners paid back the bulk of their $162,000 debt right away.

Word of the restaurant’s success reached Hendersonville, North Carolina, a town of 30,000 about 20 miles away. The managing agent of a mall even stopped by to recruit the partners. They made some audacious requests, asking him to spend $300,000 on renovations, including the addition of a patio and upgraded equipment. The agent agreed. With almost no market research, they opened the second McGuffey’s 18 months later. The first, in Asheville, was still roaring, having broken the $2 million mark in sales its first year, with a marginal loss of just over $16,000.

By midsummer, the 200-seat Hendersonville restaurant was hauling in $35,000 a week. “Gee, you guys must be getting rich,” the partners heard all around town. “When are you going to buy your own jets?” “Everyone was telling us we could do no wrong,” says Dunn. The Asheville restaurant, though, was developing some problems. Right after the Hendersonville McGuffey’s opened, sales at Asheville fell 15 percent. But the partners shrugged it off; some Asheville customers lived closer to Hendersonville, so one restaurant was probably pulling some of the other’s customers. Either way, the customers were still there. “We’re just spreading our market a little thinner,” says Dunn to his partners. When Asheville had lost another 10 percent and Hendersonville 5 percent, Dunn blamed the fact that the drinking age had been raised to 21 in Asheville, cutting into liquor sales.

By the end of that year, the company recorded nearly $3.5 million in sales, with nominal losses of about $95,000. But the adulation and the expectation of big money and fancy cars were beginning to cloud the real reason they had started the business. “McGuffey’s was born purely out of frustration,” says Dunn. Now, the frustration was gone. “You get pulled in so many directions that you just lose touch,” says Laibson.

What the partners forgot, in the warm flush of success, were their roots. “Success breeds ego,” says Dunn, “and ego breeds contempt.” He would come back from trade shows or real-estate meetings all pumped up. “Isn’t this exciting?” he’d ask an employee. “We’re going to open a new restaurant next year.” When the employee stared back blankly, Dunn felt resentful. “I didn’t understand why they weren’t thrilled,” he says. He didn’t see that while his world was constantly growing and expanding, his employees’ world was sliding downhill. They were still busing tables or cooking burgers and thinking, “Forget the new restaurant; you haven’t said hello to me in months; and by the way, why don’t you fix the tea machine?”

“I just got too good, and too busy, to do orientation,” he says. So he decided to tape orientation sessions for new employees, to make a film just like the one he had been subjected to when he worked at Bennigan’s. On tape, Dunn told new employees one of his favorite stories, the one about the customer who walks into a chain restaurant and finds himself asking questions of a hostess sign because he can’t find a human. The moral: “McGuffey’s will never be so impersonal as to make people talk to a sign.” A film maybe, but never a sign.
Since Dunn wasn’t around the restaurants all that much, he didn’t notice that employees were leaving in droves. Even the departure of Tom Valdez, the kitchen manager in Asheville, wasn’t enough to take the shine off his “glowing ego,” as he calls it.

Valdez had worked as Dunn’s kitchen manager at TGI Friday’s. When the Hendersonville McGuffey’s was opening up, Dunn recruited him as kitchen manager. A few months later, Valdez marched into Dunn’s office and announced that he was heading back to Indianapolis. “There’s too much b.s. around here,” he blurted out. “You don’t care about your people.” Dunn was shocked. “As soon as we get this next restaurant opened, we’ll make things the way they used to be,” he replied. But Valdez wouldn’t budge. “Keith,” he said bitterly, “you are turning out to be like all the other companies.” Dunn shrugged. “We’re a big company, and we’ve got to do big-company things,” he replied.

Valdez walked out, slamming the door. Dunn still didn’t understand that he had begun imitating the very companies that he had so loathed. He stopped wanting to rebel against them; under the intense pressure of growing a company, he just wanted to master their tried-and-true methods. “I was allowing the company to become like the companies we hated because I thought it was inevitable,” he says.

Three months later, McGuffey’s two top managers announced that they were moving to the West Coast to start their own company. Dunn beamed, “Our employees learn so much,” he would boast, “that they are ready to start their own restaurants.”

Before they left, Dunn sat down with them in the classroom at Hendersonville. “So,” he asked casually, “how do you think we could run the place better?” Three hours later, he was still listening. “The McGuffey’s we fell in love with just doesn’t exist anymore,” one of them concluded sadly.

Dunn was outraged. How could his employees be so ungrateful? Couldn’t they see how everybody was sharing the success? Who had given them health insurance as soon as the partners could afford it? Who had given them dental insurance this year? And who—not that anyone would appreciate it—planned to set up profit sharing next year?

Sales at both restaurants were still dwindling. This time, there were no changes in the liquor laws or new restaurants to blame. With employees feeling ignored, resentful, and abandoned, the rest rooms didn’t get scrubbed as thoroughly, the food didn’t arrive quite as piping hot, the servers didn’t smile so often. But the owners, wrapped up in themselves, couldn’t see it. They were mystified. “It began to seem like what made our company great had somehow gotten lost,” says Laibson.

Shaken by all the recent defections, Dunn needed a boost of confidence. So he sent out the one-page survey, which asked employees to rate the owners’ performance. He was crushed by the results. Out of curiosity, Dunn later turned to an assistant and asked a favor. Can you calculate our turnover rate? Came the reply: “220 percent, sir.”

Keith Dunn figured he would consult the management gurus through their books, tapes, and speeches. “You want people-oriented management?” he thought. “Fine. I’ll give it to you.”

Dunn and Laibson had spent a few months visiting 23 of the best restaurants in the Southeast. Driving for hours, they’d listen to tapes on management, stop them at key points, and ask, “Why don’t we do something like this?” At night, they read management books, underlining significant passages, looking for answers.

“They were all saying that people is where it’s at,” says Dunn. “We’ve got to start thinking of our people as an asset,” they decided. “And we’ve got to increase the value of that asset.” Dunn was excited by the prospect of forming McGuffey’s into the shape of a reverse pyramid, with employees on top. Keeping employees, he now knew, meant keeping employees involved.

He heard one consultant suggest that smart companies keep managers involved by tying their compensation to their performance. McGuffey’s had been handing managers goals every quarter; if they hit half the goals, they pocketed half their bonus. Sound reasonable?
No, preached the consultant, you can’t reward managers for a halfhearted job. It has to be all or nothing. “From now on,” Dunn told his managers firmly, “there’s no halfway.”

Dunn also launched a contest for employees. Competition, he had read, was a good way of keeping employees motivated.

So the CUDA (Customer Undeniably Deserves Attention) contest was born. At Hendersonville and Asheville, he divided the employees into six teams. The winning team would win $1,000, based on talking to customers, keeping the restaurant clean, and collecting special tokens for extra work beyond the call of duty.

Employees came in every morning, donned their colors, and dug in for battle. Within a few weeks, two teams pulled out in front. Managers also seemed revitalized. To Dunn, it seemed like they would do anything, anything, to keep their food costs down, their sales up, their profit margins in line. This was just what all the high-priced consultants had promised.

But after about six months, only one store’s managers seemed capable of winning those all-or-nothing bonuses. At managers’ meetings and reviews, Dunn started hearing grumblings. “How come your labor costs are so out of whack?” he’d ask. “Heck, I can’t win the bonus anyway,” a manager would answer, “so why try?” “Look, Keith,” another would say, “I haven’t seen a bonus in so long, I’ve forgotten what they look like.” Some managers wanted the bonus so badly that they worked understaffed, didn’t fix equipment, and ran short on supplies.

The CUDA contest deteriorated into jealousy and malaise. Three teams lagged far behind after the first month of so. Within those teams people were bickering and complaining all the time: “We can’t win, so what’s the use?” The contest, Dunn couldn’t help but notice, seemed to be having a reverse effect than the one he had intended. “Some people were really killing themselves,” he says. About 12, to be exact. The other 100-plus were utterly demoralized.

Dunn was angry. These were the same employees who, after all, had claimed he wasn’t doing enough for them. But OK, he wanted to hear what they had to say. “Get feedback,” the management gurus preached; “find out what your employees think.” Dunn announced that the owners would hold informal rap sessions once a month. “This is your time to talk,” Dunn told the employees who showed up—all three of them. That’s how it was most times, with three to five employees in attendance, and the owners dragging others away from their jobs in the kitchen. Nothing was sinking in, and Dunn knew it. He now was clear about what didn’t work. He just needed to become clear about what would work.

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Creative Problem-Solving Practice

In a team of colleagues, apply as many of the creative problem-solving tools as you can in developing alternative solutions to any of the following problems. Different teams may take different problems and then report their solutions to the entire class. You may substitute a current pressing issue you are facing instead of one of these problems if you choose. Try consciously to break through your conceptual blocks and apply the hints that can help you expand your problem definition and the alternatives you consider to be relevant. Keep in mind the four different approaches to creativity.

Problem 1: Consumers now have access to hundreds of television channels and thousands of shows on demand. The average person is lost. Without major advertising dollars, many networks, not to mention many programs, simply get ignored. How could you address this problem?
Problem 2: At least 20 different rankings of schools appear periodically in the modern press. Students are attracted to schools that receive high rankings, and resources tend to flow to the top schools more than to the bottom schools. What could be done to affect the rankings of your own school?

Problem 3: In the last five years, Virgin Atlantic Airlines has been growing at double digit rates while most U.S. based airlines have struggled to make any money at all. What could the U.S. airline industry do to turn itself around?

Problem 4: The newspaper industry has been slowly declining over the past several decades. People rely less and less on newspapers to obtain the news. What be done to reverse this trend?

Have a team of observers watch the analytical and creative problem-solving process as it unfolds. Use the Observers' forms at the end of the chapter to provide feedback to the individuals and the teams on the basis of how well they applied the analytical and creative problem solving techniques.
SKILL

ACTIVITIES FOR SOLVING PROBLEMS CREATIVELY

Suggested Assignments

1. Teach someone else how to solve problems creatively. Explain the guidelines and give examples from your own experience. Record your experience in your journal.

2. Think of a problem that is important to you right now for which there is not an obvious solution. It may relate to your family, your classroom experiences, your work situation, or some interpersonal relationship. Use the principles and techniques discussed in the chapter to work out a creative solution to that problem. Spend the time it takes to do a good job, even if several days are required. Describe the experience in your journal.

3. Help direct a group (your family, roommates, social club, church, etc.) in a carefully crafted analytical problem-solving process—or a creative problem-solving exercise—using techniques discussed in the chapter. Record your experience in your journal.

4. Write a letter to your dean or a CEO of a firm identifying solutions to some perplexing problem facing his or her organization right now. Write about an issue that you care about. Be sure to offer suggested solutions. This will require that you apply in advance the principles of problem solving discussed in the chapter.

Application Plan and Evaluation

The intent of this exercise is to help you apply this cluster of skills in a real-life, out-of-class setting. Now that you have become familiar with the behavioral guidelines that form the basis of effective skill performance, you will improve most by trying out those guidelines in an everyday context. Unlike a classroom activity, in which feedback is immediate and others can assist you with their evaluations, this skill application activity is one you must accomplish and evaluate on your own. There are two parts to this activity. Part 1 helps prepare you to apply...
the skill. Part 2 helps you evaluate and improve on your experience. Be sure to write down answers to each item. Don’t short-circuit the process by skipping steps.

Part 1. Planning

1. Write down the two or three aspects of this skill that are most important to you. These may be areas of weakness, areas you most want to improve, or areas that are most salient to a problem you face right now. Identify the specific aspects of this skill that you want to apply.

2. Now identify the setting or the situation in which you will apply this skill. Establish a plan for performance by actually writing down a description of the situation. Who else will be involved? When will you do it? Where will it be done?

   Circumstances:
   Who else?
   When?
   Where?

3. Identify the specific behaviors in which you will engage to apply this skill. Operationalize your skill performance.

4. What are the indicators of successful performance? How will you know you have been effective? What will indicate you have performed competently?

Part 2. Evaluation

5. After you have completed your implementation, record the results. What happened? How successful were you? What was the effect on others?

6. How can you improve? What modifications can you make next time? What will you do differently in a similar situation in the future?

7. Looking back on your whole skill practice and application experience, what have you learned? What has been surprising? In what ways might this experience help you in the long term?