

**THE CASE FOR BRINGING THE TOOLS OF CREATIVITY
INTO THE FIELD OF QUALITY MANAGEMENT
(Accepted for Publication in the ASQ Journal: *Quality Progress*)**

“If you think you are going to be successful running your business in the next ten years the way you did in the last ten years, you’re out of your mind. To succeed, you have to disturb the present.”

Roberto Goizueta, CEO, Coca-Cola

“It will not suffice to have customers that are merely satisfied. A satisfied customer may switch... It is necessary to innovate, to predict needs of the customer, give him more.”

W. Edwards Deming

“Every organization needs one core competence: innovation.”

Peter Drucker

“When you come to a fork in the road, take it.”

Yogi Berra

Today’s business leaders face an imperative for change that, for most, is unprecedented in their careers. Leaders know that their organizations cannot continue to be what they have always been. In these times of change, innovation and creative thinking have become essential competencies.

While creativity and innovation are essential to business success, the quality management literature is virtually silent on these topics. Few books in the field even contain a glossary entry for creativity. Those that do, typically only point out the need for creativity without addressing the how-to—they provide exhortation, but no method.

The field of quality management has always grown through continuous learning and the acquisition of tools from other fields. There is a vast literature on creativity and innovation that offers many useful tools. It is time for us to learn these methods and to mainstream them into the practice of quality management.

THE NEED FOR CREATIVITY IN THE PURSUIT OF QUALITY

Why should organizations today be concerned with fostering creativity and innovation? The business research on successful and failed companies identifies five key reasons (for a more thorough review of this research, see Plsek 1997):

- ▲ *Superior long-term financial performance is associated with innovation.* The companies that are most successful at building wealth for their shareholders over the long term stress innovation as a corporate value (Plsek 1997, Fisher 1995, Higgins 1995).
- ▲ *Customers are increasingly demanding innovation.* Because customers experience new ideas and new technologies on a daily basis, they have come to expect innovation in all the goods and services they use. Deming (1993) cites the need for innovation in saying that it is not sufficient anymore to simply have happy, loyal customers.
- ▲ *Competitors are getting increasingly better at copying past innovations.* Last year's innovations are quickly reverse-engineered and replicated. Patents offer little guarantee of exclusivity (von Hippel 1988). Continuous innovation is needed to stay ahead in the marketplace (Utterbeck 1994).
- ▲ *New technologies enable innovation.* Bower and Christensen's (1995) research on business success and failure in technology-intensive industries illustrates a simple principle: If we don't exploit innovative technology our competitors will, and they will take the market with them.
- ▲ *What used to work, doesn't anymore.* Increasing complexity and interconnectedness require that we take fresh looks at old problems. (Senge 1990, Stacey 1996)

From this research, we can see that the disciplines of creative thinking and quality management have much in common, and that there is much to be gained by exploring

the overlap. Quality management is fundamentally related to the success of an organization—and so is innovation and creative thinking. Customer needs drive both the pursuit of quality and the pursuit of innovation. A focus on quality is essential for beating the competition in the marketplace, and so is a focus on innovation. The tools of quality management help us solve problems and redesign processes in order to improve customer satisfaction and reduce waste; the tools of creativity can also help us accomplish these goals. And, finally, recall that quality guru W. Edwards Deming (1993, pg. 61) called for more “joy in work” to aid the pursuit of higher levels of quality; creative thinking is one way of building that joy. Quality managers should, therefore, be taking the lead in bringing the tools of creativity and innovation into their organizations.

DILEMMAS FACING LEADERS WHO WANT MORE CREATIVITY

While the need for creative thinking is great, leaders face several dilemmas in attempting to stimulate organizational creativity. Many people (including leaders) are reluctant to even try to be creative because they believe they lack the “creative gift.” However, as I will show in the next section, the research from the field of cognitive science indicates that this is simply not true. If you can think... you can think creatively (Plsek 1997, 1994, Perkins 1981, Sternberg 1988, de Bono 1992, Weisberg 1993).

Another dilemma is the erroneous assumption that creative thinking requires an atmosphere of frivolity. As a result, serious leaders facing serious organizational issues are reluctant to ask for the creative ideas they desperately need because to do so might be seen as making light of the situation. Again, I will show that while creative thinking sessions often result in an upbeat feeling, they should be a serious endeavor; rooted in a sound theory of how the mind works.

Another problem is that many people (again, even leaders) are unaware of the variety of tools they can use to generate creative ideas. I will describe several simple tools that go beyond brainstorming to direct our creativity when and where we chose.

Finally, there is an obvious tension between the need for creative thinking and an organization's affinity or aversion to risk. In the final section of this article, I will offer some advice regarding leaders' roles in establishing an organizational culture that nurtures new ideas.

MENTAL MECHANICS OF CREATIVE THINKING

Though we might understand the need for creative thinking, knowing how to do it on demand is another matter.

The problem is that while we all have the ability to think in new patterns, our minds are optimized to think with existing patterns. As illustrated in figure 1, our minds take in inputs from the world through the sub-processes of perception, and then retrieve patterns from memory (i.e., our past experiences) to make sense of these inputs.

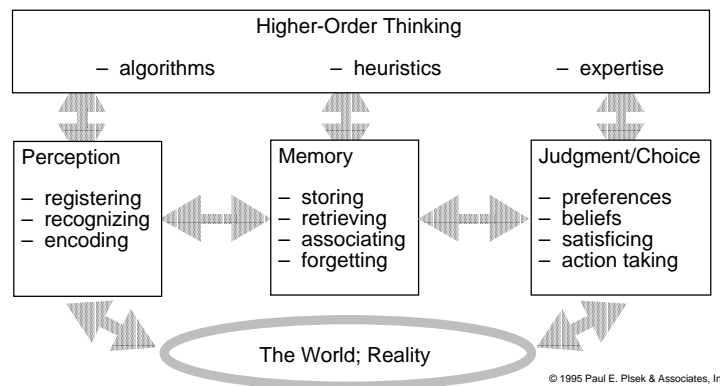


Figure 1. A high level model of the mechanics of mind.

Edward de Bono (1969, 1992) supplies the useful model depicted in figure 2 for explaining the mental mechanics of perception and memory. de Bono suggests that we think of the mind as a landscape consisting of high ground (shaded areas in figure 2), valleys formed between the high ground, and streams where the run-off water collects at the low points of the valleys. In this model, the flow of thought in the mind is analogous to the flow of water. The wide valleys represents the processes of perception. The perception process of *registering* creates a mental impulse which we can

depict on this model as a drop of falling rainwater. Perception is channeled towards existing patterns in memory in the same way that a drop of rainwater falling anywhere in a valley is channeled into the stream at the bottom of that valley. de Bono's model is appealing because it corresponds directly to common phrases for mental activity such as "stream of thought" and "mental ruts."

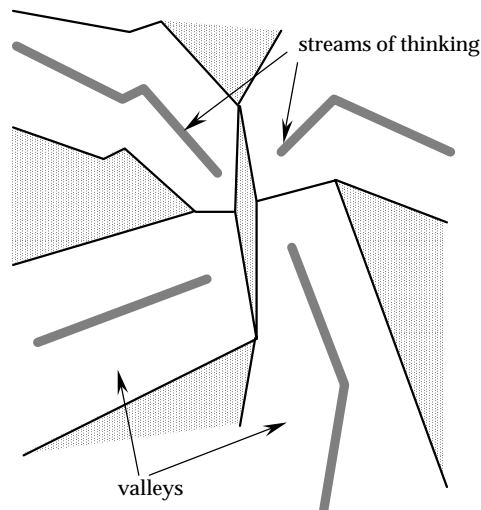


Figure 2. Edward de Bono's River and Topography Model of the Mechanics of Mind

In this model, memory is a mental rut. When we learn, we carve another rut (valley) into our mental landscape. The more frequently we access that memory, the deeper the rut (like soil erosion). The deeper the rut, the steeper the walls of the valley, the more quickly we access that stream of thought, and the more automatic is our thinking. This explains why habits are so hard to break. Habits lead to frequent access of the same mental patterns; deep ruts, and steep valleys that are difficult to escape.

This mental channeling mechanism gives us many useful human abilities that we take for granted. For example, it enables a good troubleshooter to quickly zero-in on a problem in a piece of equipment based on an initial review of the situation. The troubleshooter has seen the pattern of failure before and, therefore, has a good idea of the underlying breakdown. We call this natural mental ability "experience." The mental mechanism is the same whether we are preparing a budget or just trying to get

out of bed in the morning. We use the past experiences stored in our memory as a guide for how to proceed forward.

While this self-organizing, channeling system is great for doing the repetitive tasks of daily life, it is clearly not optimal when we want creative ideas. By definition, a creative idea is an original, novel thought (at least, it is novel in the setting in which it is being applied). For example, the zip-lock storage bag was a novel idea when it was first introduced. Who had ever heard of putting a zipper on a plastic bag?! Food storage bags are supposed to be closed by tying or using a metal twist; aren't they? The zip-lock bag did not match any existing valley in the minds of people at that time.

This mental channelling system also explains why creative ideas are almost always greeted with laughter when we first express them. Koestler (1964), de Bono (1992) and others note the similarity between the mental processes associated with humor and those associated with the serious production of innovative ideas. A good joke works because the set up takes us down one mental path, while the punch line jumps to another path; unexpected, but logical in hindsight. The body's reaction to this mental jump is laughter. [SET AS A FOOTNOTE: My favorite comic, Steven Wright, says in his trademark dead-pan voice: "I used to work in the factory where they make fire hydrants...But I quit." He pauses, like a good comic always does, to let your mind settle in a mental valley. The factory where they make fire hydrants is big, dirty, has employees in soiled work clothes, and so on. The logical reasons why someone might quit would include: hard labor, workplace safety concerns, and low pay. Your mind only needs a millisecond or two to retrieve these patterns. It is automatic. Wright delivers the punch line: "They wouldn't let you park anywhere near the place!" The audience reaction? Laughter. A good joke depends on the mind's natural tendency to try to make sense of things by retrieving past patterns. After letting your mind settle into a comfortable mental valley, the comedian delivers the "punch line" which brings you to another, surprising valley. The punch line is funny because it takes something that is logically true in one context (you cannot park near a fire hydrant on a city street) and applies it to another context (employee parking at the fire hydrant factory). Humor, therefore, depends on the same

connecting and rearranging of knowledge that is characteristic of all creative thought. Laughter is the body's way of signaling a novel, creative connection in the mind.]

Similarly, the connection of a zipper from the mental valley of clothing and a plastic bag from the mental valley of food storage generates a natural reaction of laughter the first time you hear it. This explains why creative thinking sessions are often fun affairs; we are making new mental connections. Therefore—and this is the key point—laughter plays a *serious* role in an organization's efforts to be innovative. It is a sign that we have made the kind of novel mental connection that is essential for creative thought. Rather than dismissing ideas that make us laugh the first time we hear them in a meeting, we should realize that the modern theory of mind tells us that laughter is an essential outcome of the creative process we are trying to execute.

The bottom line is that creative thinking requires that we think in a new *direction*; away from or beyond our current mental valleys (tying or twisting a food storage bag closed) towards some new patterns (a zipper!). Creative thinking involves slowing down and redirecting our perception processes, instead of letting them flow automatically into the usual mental valleys. It involves connecting to and exploring mental valleys that we do not normally access in the context we find ourselves at the moment; and watching for laughter as an after-the-fact indication that a novel mental connection has occurred.

Therefore, when we need a creative idea, it does little good to tell ourselves and others to just “think harder,” simply “suspend judgment,” or merely “be playful.” While it is indeed helpful to think hard, suspend judgment, and be playful during creative thinking, these simple suggestions fall short by failing to provide a new *direction* for our thinking. We may find that we are only able to come up with small variations on the mental patterns we already have. And, by definition, if our ideas are simply variations on existing mental patterns, they will not be novel.

While perception and memory mechanisms define our thoughts, judgment and choice are the mental processes that stand between our thoughts and actions (refer back to figure 1). Our automatic judgment processes are also channeled towards existing patterns from the past. Research shows that we automatically work to preserve our beliefs, justify our past choices, and avoid taking risks (Perkins 1981, Sternberg 1988, Plsek 1994, 1997). While we all like to think that we are rational, logical thinkers, research further shows that pure rationality is not possible. So, our judgment processes are also mental patterns, but flavored with emotions. Creative thinking involves temporarily, but purposefully, suspending these judgments, abandoning the need to justify our past patterns, and risking the expression of new ideas to see where they take us.

It is important to note that creative thinking does not require that we throw away critical judgment and logical thinking. How could we possibly get to the concrete implementation of our ideas required to reap the rewards of innovation without critical judgment? Rather, we simply need to hold judgment off a little longer than we are accustomed to when using our automatic mental processes. We can do it. But we must direct our mind to do it.

Directed creativity is creative thinking for serious people; it is creativity guided by theory. Our modern understanding of the mechanics of mind leads naturally to several suggestions about how to be creative on demand. The box “Mechanics of Mind: Implications For Directed Creativity” summarizes the practical, but theory-based, steps that we can take to overcome our automatic mental processes and cultivate our creative thinking abilities.

THREE BASIC PRINCIPLES FOR DIRECTED CREATIVITY

Just as there are tools that bring the theory and principles of quality management into practical application, there are literally hundreds of tools that help us implement the general advice above in directed creativity. (See, for example, de Bono 1992,

Higgins 1994, and Plsek 1997.) While there are many methods, they are all based on three simple principles: *attention*, *escape*, and *movement*. (Plsek 1995, 1997)

Mechanics of Mind: Implications For Directed Creativity

Tuning Your Perception

Make it a habit to purposely pause and notice things; what works and why.

To perceive freshly when you are stuck, try: defining the current reality, drawing a picture of it, making a slow motion mental movie, explaining it to someone and listening to yourself, imagining the situation as it might be seen by someone else, etc.

Using Your Memory

Use your perception process to create a store of ideas and concepts in memory.

Try to come up with an original idea by making novel associations among what you already know.

Search for patterns in memory and be attentive to laughter and surprises.

Recognize that your streams of thought are not inherently correct or incorrect, they are simply what you think now based primarily on what you have learned in the past.

Look for different mental associations by listening to other's streams of thought.

Slow down, or back up, in your thinking to identify the intermediate concepts that make up your stream of thought.

Use novel analogies to search for new mental associations (e.g., if hospital nurses were hotel guests, how would we remind them when it was time to do something?).

Using Your Judgment

Be aware of the danger of both premature judgment and justification.

Never think that you have arrived at the end of your thinking on a matter; as practical, push yourself to generate more than one good option so that you will not feel so compelled to justify.

Try avoiding the blinders of emotion, judgment, and justification by setting the issue aside for a while and coming back to it later.

Actively seek out the rationality in other's points of view.

Don't be afraid to try something and then tinker with it.

For example, imagine a quality improvement team in a doctor's office working to reduce waiting time for patients. Creative thinking about this problem could begin by paying *attention* to the fact that we have come to accept "waiting" as a given. We could *escape* this paradigm by asking, "What would we do if they passed a law making it illegal for a patient to wait more than 30 seconds once they entered the doctor's office?" If we can turn off the mental processes of judgment that causes us to reject this question out of hand, we can proceed on to creative *movement* in our thinking. For example, if

they passed such a law, we could issue patients a magnetic card that they could swipe through a card reader in the parking lot. This would alert the office staff. A nurse could then get the patient's records, greet the patient at the door, and escort him or her immediately to an exam room to begin the visit. A wait-less doctor's office! A clear quality improvement with important implications for customer satisfaction.

A large health maintenance organization (HMO) that I work with has calculated that if the square footage currently associated with their waiting areas was converted to exam room space, there would be more than enough exam rooms to make this idea a reality. With patients in private exam rooms, the HMO aims to pipe in patient-specific educational videos to help patients better understand their conditions and treatments. This is another creative improvement idea that comes from paying *attention* to what patients currently do while waiting—read magazines—and noting that magazines contain information. (*Escape*) What other information, besides our current crop of magazines, could be useful to patients? (*Movement*) Health information, of course!

The key point is that we can use the three basic principles of attention, escape, and movement whenever we need to be creative on demand.

TOOLS THAT SUPPORT CREATIVE THINKING

The three principles suggest that there are potentially an infinite number of ways to direct ourselves towards creative thoughts. Anything that helps us pay attention in a different way, escape our current mental patterns, and keep moving in our thoughts will support our efforts at directed creativity. To illustrate, consider the five techniques from the creative thinking literature described below.

Random word. Several creativity experts suggest a simple technique that seems odd when you first hear it, but can be seen as essential when one understands how our minds tend to stay stuck in mental valleys (de Bono 1992, Plsek 1997). Select a noun at random from a list, book, or dictionary. Now work to find some connection between

the concepts associated with that random word and your topic of interest. Jot down every idea, without judgment. Repeat with additional words selected at random.

The random word tool works from the insight that creative ideas are simply novel connections of existing concepts that are currently in different valleys in the mind. The topic of interest is one mental valley; the randomly selected noun simply brings forth concepts from another mental valley for possible creative association.

For example, (*attention*) consider a team chartered to redesign information flow in a manufacturing plant. (*Escape*) The random word selected is “umbrella.”

(*Movement*) If you think of “information flow” and “umbrella” simultaneously, what ideas come to mind?

Umbrellas can be deployed and taken down quickly... Our information system needs to be flexible enough to allow us to set up special studies rapidly...

Umbrellas are basically a portable substitute for a more permanent roof... So, rather than dedicated terminals on the factory floor, maybe we should give everyone a hand-held device that they can quickly plug into a jack at a work station wherever they are... Photographers use umbrellas to reflect light onto a subject... We should explore ways to acquire data via optical scanners rather than manual entry... What about using video links to do some quality checks?.. Building on the previous idea, maybe there is a way to give everyone a hand-held light-pen bar-code reader for accessing the system... And so on.

Break the “rules.” The doctor’s office example illustrated this tool. We begin by focusing on the situation at hand and compiling a list of “rules” or “givens” in the situation. In a doctor’s office, waiting has traditionally been accepted as a given; along with old magazines in the waiting room. Now take each of the rules or givens and purposefully escape them. We can do this several ways: pass a law against it, imagine that the opposite is true, or simply drop it as a constraint for the moment.

Element (or scene) modification. A variation on the above tool is the Element Modification tool. Visualize the situation of interest and compile a list of everything you see (*attention*). For example, in the street view of a retail store we see doors, display windows, a sign, and so on. Now take these elements and look for creative substitutes that still fulfill the purpose (*escape and movement*). Instead of doors, customers might enter by sliding down a pole (this would be great for a children's store). Instead of display windows, build large video screens into the sides of the building to display an ever-changing array of merchandise. We can also consider elements taken together. For example, put doors in the display windows and let happy, curious customers become a part of the displays as a way to attract the interest of other customers.

Be someone else. Another way to escape our existing mental patterns would be to approach the issue as if we were someone with a completely different experience set. To illustrate, suppose that a design team was looking for innovative ideas in the area of user interfaces for kitchen appliances; what Kano (1984) would call “surprising quality.” How would a child approach the problem? Big buttons... pictures rather than words... lots of auditory feedback whenever you push a button... and so on. These ideas might be very useful in a line of kitchen appliances for senior citizens or the visually impaired. How would a man from Mars approach the task? A computer console... mental telepathy... voice commands... The voice command idea is worth exploring further. A type of mental telepathy might also be possible through the use of infrared sensors that pick up commands from a remote control, or that respond to hand gestures. We could go on by choosing to be other people, other occupations—even animals. The point is to assume temporarily a set of thought patterns that are not your own for the purpose of generating novel mental connections. (Note that this is the basic creative process behind benchmarking. Here, we are simply doing it with our imaginations. Real discussions with others would add to the exercise.)

Concept fan. When the topic of interest involves a process, a concept fan can yield multiple creative possibilities. Of course, since our quality management experience has enhanced our ability to see most work-related topics as processes; this technique has wide potential. (Concept fans can also be used to design products or services, but we will only talk about process-design here.)

To develop a concept fan, begin with a high-level flowchart of the traditional, or current process. For example, consider the inflow of clients in an accounting firm. The left side of figure 3 shows the current high-level process flow. Now (*attention*) step back from this current process and identify the underlying concepts behind the various steps. As indicated in figure 3, the reception step in the accounting firm involves three basic concepts: we must somehow recognize the presence of the client, we want to show hospitality, and we want to provide a place for clients to wait while we get ready.

Creative possibilities emerge when we note (*escape*) that the current way we do things is only one way of achieving the underlying concepts. (*Movement*) Are there other ways? Alternative approaches to each concept are listed in the third column of the concept fan in figure 3. For example, we could...

- ▲ Install motion detectors and closed circuit cameras in the hallway. A beep-tone would alert the receptionist that someone is coming. By looking at the camera and the appointment schedule, the receptionist could typically figure out who it is that is coming (at least narrow it down) and what meeting room they are to be escorted to. The receptionist mouse-clicks on the appointment schedule, sending an electronic message to the principle accountant and a back-up person to get ready for the appointment. Meanwhile, the receptionist goes out to greet the client at the door and escorts them directly to the designated meeting room. The receptionist stays with the client, serving coffee or tea, or just chatting, until someone arrives to begin the meeting.

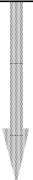
- ▲ Instead of motion detectors and cameras, use the valet parking idea as the “front end” to the process above. The valet gets the person’s name and radios this information ahead to us so we can get ready to greet the client.

The concept fan can be thought of as a “creative flowchart.” It can be an extremely useful tool in process and product redesign. Importantly, it is a natural extension of the analytical process-thinking that is fundamental to quality management. The explicit identification of the basic concepts behind what we do (*attention*), followed by purposeful generation of alternative from the storehouse of ideas that we all carry in our minds but never thought of using in work (*escape and movement*), provides the bridge between analytical and creative thinking.

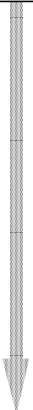
Figure 3. The beginnings of a concept fan for the process of client intake in an accounting firm.

**High-Level
Process Flow**

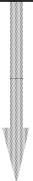
**Client
Arrival**



Reception



Meeting



And so on...

Concept(s)

Ideas

getting client & accountant together

- client comes to us (current)
- we go to client
- meet somewhere else
- telephone
- video conference
- fax
- on-line hook up
- client sends a representative
- meet through a middle-person

recognizing arrival

- client "checks in" (current)
- closed circuit camera in the hallway
- give client a code number to use to gain access to parking or building
- valet parking attendant with radio to alert us

showing hospitality

- greet and offer coffee at check (current)
- someone greets client as they get out of car or enter building
- bring client back to meeting room immediately and serve coffee or tea there—no waiting room

providing a place for clients to wait

- sit in reception area (current)
- let them wait in meeting room
- never make them wait, have a back-up person
- schedule downtime between appointments to reduce likelihood of us not being ready

gathering information

deliver service

making decisions

cultivate relationship

These five tools are but a few of the many methods that support directed creativity. The table “Some Tools for Directed Creativity” provides a synopsis of eleven tools. The Resources for Further Study provided at the end of this article cover many more.

Anything we do to help us pay attention in new ways, escape current patterns of thought, and keep up mental movement to produce novel connections will aid us in directing our creativity onto the topics of interest in our organizations. Creativity is not “magic,” nor a “zap from out of the blue.” With an understanding of some basic theory of mind and the principles of directed creativity, anyone can learn to think creatively when the situation calls for it.

Methods such as these belong in the toolkit of quality management because they clearly can contribute to the problem solving, design, customer needs analysis, and process improvement activities that quality practitioners engage in routinely. I am not suggesting that we abandon our analytical methods. Rather, I am suggesting that we *supplement* our toolkit with methods that can help us when we need new ideas, or have come to a stuck point in our analytical thinking. What we need is the ability to be analytical when the situation calls for it, and creative when the situation calls for that. *Both* sets of skills are critical for success in the management of quality. (Provost and Sproul 1996, Plsek 1997)

Table: Some Tools for DirectedCreativity™

<i>Tool</i>	<i>Synopsis</i>
Break the Rules	List assumptions, rules, obvious, or taken for granted aspects of current situation. Temporarily escape these (e.g., pass a law against them) and free associate to generate novel ideas.
Be Someone Else	List other people, occupations, animals, etc. and then imagine what insights or approaches they would bring to your situation.
Element (or Scene) Modification	Focus on a scene in the current situation. List the elements in that scene; the more mundane the better. Then systematically modify or substitute those elements to see what imaginative insights you get.
Random Word	Select a noun at random. Apply to your current situation whatever mental picture you get from thinking about that noun.
Concept Fan	Begin with a high-level flowchart of a current process. Identify the concepts that underlie each step on the flowchart. Some steps may have multiple concepts. Now generate alternative ways to achieve each of these concepts. List these next to each concept.
Morphological Analysis	Construct multiple creative scenarios by combining several ideas from lists previously generated (e.g., from a concept fan). You can do this purposefully, or by selecting ideas at random and forcing a coherent connection.
Purpose Hierarchy	Write down a statement of the problem, opportunity, or creative challenge that you are facing. Now ask, “why are we interested in this anyway? what’s the purpose or point behind it?” Identify several such purpose statements by repeatedly asking these questions. Arrange these in a rational order; for example from large to small, strategic to operational, crass to noble, whatever seems to fit your situation. Finally, use each of these statements of purpose as a starting point to generate creative alternatives for accomplishing that purpose. Step back from the list and see what insight you get into your original problem or creative challenge.
Word Play	Write down a statement of the problem, opportunity, or creative challenge that you are facing. (You might go on to construct a purpose hierarchy.) Circle key words in your statement. Now select two key words at random and combine them; it is OK if they do not seem to go together. Apply to your current situation whatever mental picture you get from thinking on these randomly selected word pairs. Another type of creative word play involves substituting synonyms and opposites from a thesaurus for the key words. Again, apply to your current situation whatever mental picture you get from thinking on these synonyms and opposites.
Analogies	Adapt concepts, approaches, and ideas from another setting into your context. You can identify an analogy by: (1) directly searching for an analogous situation, (2) randomly selecting a setting and forcing yourself to see some analogy, (3) taking a physical or mental excursion to another place looking for insights (e.g., a shopping mall, a zoo), or (4) using the Be Someone Else tool described above.
Cinematics	Shoot a video, take photographs, act out a role play, mentally imagine, or actually visit the current scene. Explore the scene in slow motion and stop action. Discuss what is going on with others. You are looking for things you have not noticed before about the problem, and for novel mental connections.
Reversals	Identify things that you are used to thinking of in one direction only; e.g., we always want to decrease costs and raise satisfaction, doctors care for patients not the other way around. Temporarily reverse the direction and ask “what if...?” Generate several responses to this question. Then practice mental movement from these thoughts to see what insights you gain into the current situation.

WHAT LEADERS CAN DO TO STIMULATE CREATIVITY AND INTEGRATE IT INTO QUALITY SYSTEMS IN ORGANIZATIONS

We have seen that creative thinking is a mental ability that everyone possesses. But, if creative thinking is as straightforward as it seems, why isn't innovation more commonplace? The answer lies in realizing that innovation is a risky proposition. Even if the traditional approach is poor, at least we know that it is not disastrous. Who can give us such assurances about a new, creative idea? There is simply no way to know until we try.

Affinity or aversion to risk is an element of our cognitive processes of judgment and choice. Our orientation toward risk is both an individual personality trait and a product of the organizational culture within which we work. Establishing a climate where taking a risk is rewarded is, therefore, one of the chief challenges for leaders who desire higher levels of creativity in their organizations. (For a comprehensive look at the organizational barriers to creativity, see Adams 1974, and Ryan and Oestreich 1991.)

One way that leaders can signal that risk taking is desired is to establish a *creative focus list* for the organization. This is a list of topic areas for creative thinking that is widely publicized and clearly endorsed by senior leaders. The focus list is compiled by completing the sentence, "We need creative ideas in the area of..." For example, such a list might ask members of a hospital to focus their thinking for a pre-defined time (say, two months) on: waiting rooms, meetings, children as customers, reducing wastage of food, and so on. Creative ideas in these areas are submitted to a senior manager, who commits to implement as many of them as practical. Such a system could be easily integrated into the annual quality plans and improvement priorities list already maintained in many organization that practice quality management.

Another mechanism for establishing an organizational culture that values innovation, is to set up a pool of resources for pilot testing of creative ideas. For example, industrial giant 3M offers seed money and time away from other job

responsibilities for employees to develop their creative ideas. Organizations should, of course, establish groundrules about the allocation of such funds, but these guidelines should not be too restrictive. Remember, the goal is to increase risk taking; if the guidelines are too strict, few will bother to apply for fear of being rejected. Again, leaders could easily integrate this allocation of resources and commissioning of activities into current quality improvement structures.

A final suggestion for stimulating a creative culture involves increasing the risk associated with *not* taking a risk. If you have an organizational system that provides performance feedback to individuals, make “trying out new ideas” a criteria in that system. The feedback should *not* focus on whether the ideas were successful in the traditional sense; this will only reduce risk-taking by driving people to try only those ideas that they are reasonably sure will work (in other words, those ideas that are close to the established patterns). Rather, while success is desirable, the focus of the performance feedback should be on the number of ideas tested and the resultant learning from those trials. These factors could be incorporated into the “balanced scorecards” that many quality management practitioners have helped construct to indicate the overall health of the organization.

These are but a few suggestions for action by senior leaders. Stimulating creativity in an organization is an appropriate topic, itself, for creative thinking.

CONCLUSION

If quality is related to continuously exceeding customers’ expectations in a competitive marketplace, then creative thinking and the ability to innovate are key competencies for advocates of quality as we face the future. The goals of success and satisfying customer needs are shared by both the creativity and quality disciplines. There are serious potential consequences in not understanding the mechanisms of

creativity and innovation. And, in the end, it will be personally and organizationally rewarding to learn about something new.

The invitation to add new tools to the kit of quality management will not be taken as threatening by those who understand history. The history of quality management is rich with acquisitions of methods from the fields of statistics, engineering, operations research, organizational development, market research, psychology, and others. For example, affinity diagrams were developed by an anthropologist, and Joseph Juran borrowed ideas from the field of economics when he described the “Pareto Principle.” The field of quality management has a strong heritage of using techniques that work, regardless of their origins. Quality managers should be working now to supplement their traditional analytical, leadership, change management, and group process skills with new skills for directed creativity. The theory, tools, and methods of creative thinking can help us to be even more effective in the future.

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RESOURCES FOR FURTHER STUDY

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