

2

Inside the Entrepreneurial Mind: From Ideas to Reality

*Imagination is more important
than knowledge. Knowledge is
limited. Imagination encircles
the world.*

—Albert Einstein

*Creativity is the power to
connect the seemingly
unconnected.*

—William Plomer

LEARNING OBJECTIVES

Upon completion of this chapter, you will be able to:

1. **EXPLAIN** the differences among creativity, innovation, and entrepreneurship.
2. **DESCRIBE** why creativity and innovation are such an integral part of entrepreneurship.
3. **UNDERSTAND** how the two hemispheres of the human brain function and what role they play in creativity.
4. **EXPLAIN** the 10 “mental locks” that limit individual creativity.
5. **UNDERSTAND** how entrepreneurs can enhance their own creativity and that of their employees as well.
6. **DESCRIBE** the steps in the creative process.
7. **DISCUSS** techniques for improving the creative process.
8. **DESCRIBE** the protection of intellectual property involving patents, trademarks, and copyrights.

One of the tenets of entrepreneurship is the ability to create new and useful ideas that solve the problems and challenges people face every day. Entrepreneurs achieve success by creating value in the marketplace when they combine resources in new and different ways to gain a competitive edge over rivals. From Alexander Fleming's pioneering work that resulted in a cure for infections (penicillin) and the founders of the Rocket Chemical Company's fortieth try to create an industrial lubricant (WD-40) to Jeff Bezos's innovative use of the World Wide Web in retailing (Amazon.com) and Ted Turner's unique approach to the availability of television news (CNN), entrepreneurs' ideas have transformed the world.

As you learned in Chapter 1, entrepreneurs can create value in a number of ways—inventing new products and services, developing new technology, discovering new knowledge, improving existing products or services, finding different ways of providing more goods and services with fewer resources, and many others. Indeed, finding new ways of satisfying customers' needs, inventing new products and services, putting together existing ideas in new and different ways, and creating new twists on existing products and services are hallmarks of the entrepreneur!

For instance, while in an exercise class, Linda Turner came up with an idea for practical lingerie for pregnant women. "I was watching a woman who was hugely pregnant holding up her belly and thought, 'There must be something out there to help her.'" Hours of research, interviews with hundreds of pregnant women, and a patent search turned up nothing, and Turner knew she had a business in the making. She needed a prototype, so she bought a jog bra and a heavy girdle and sewed them together to make the first Bellybra. "It was one of the most ridiculous things I'd ever seen," she recalls, "but it worked." A pregnant friend tested Turner's crude prototype and gave it a rave review. Turner applied for a patent and in 1991 licensed her new product idea to Basic Comfort, a small baby products business looking for new ideas. In 2000, Turner and Basic Comfort terminated their licensing agreement, and Turner formed T&J Designs, LLC with partner Cindy Koch to market the doctor-recommended Bellybra.¹

Like many innovators, Turner created a successful business by taking two everyday items that have existed for many years and combining them in a different way.

CREATIVITY, INNOVATION, AND ENTREPRENEURSHIP

A recent study by the Small Business Administration found that small firms produce more economically and technically important innovations than larger firms.² What is the entrepreneurial "secret" for creating value in the marketplace? In reality, the "secret" is no secret at all: It is applying creativity and innovation to solve problems and to exploit opportunities that people face every day. **Creativity** is the ability to develop new ideas and to discover new ways of looking at problems and opportunities. **Innovation** is the ability to apply creative solutions to those problems and opportunities to enhance or to enrich people's lives. Harvard's Theodore Levitt says that creativity is *thinking* new things, and innovation is *doing* new things. In short, entrepreneurs succeed by *thinking and doing* new things or old things in new ways. Simply having a great new idea is not enough; transforming the idea into a tangible product, service, or business venture is the essential next step. Management legend Peter Drucker says "Innovation is the specific instrument of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service."³

Successful entrepreneurs come up with ideas and then find ways to make them work to solve a problem or to fill a need. In a world that is changing faster than most of us ever could have imagined, creativity and innovation are vital to a company's success—and survival. That's true for businesses in every industry—from automakers to tea growers—and for companies of all sizes. However, creativity and innovation are the signature of small, entrepreneurial businesses. Creative thinking has become a core business skill, and entrepreneurs lead the way in developing and applying that skill. In fact, creativity and innovation often lie at the heart of small companies' ability to compete successfully with their larger rivals. Even though they cannot outspend their larger rivals, small companies can create powerful, effective competitive advantages over big companies by "out-creating" and "out-innovating" them! If they fail to do so, entrepreneurs don't stay in business very long. Leadership expert Warren Bennis says, "Today's successful companies live and die according to the quality of their ideas."⁴

A Company Example

1. Explain the differences among creativity, innovation, and entrepreneurship.

creativity—the ability to develop new ideas and to discover new ways of looking at problems and opportunities.

innovation—the ability to apply creative solutions to problems and opportunities to enhance or to enrich people's lives.

Sometimes creativity involves generating something from nothing. However, creativity is more likely to result in elaborating on the present, of putting old things together in new ways, or of taking something away to create something simpler or better. In some cases, a creative idea springs up from the most unexpected places. Edwin Land, one of America's most prolific inventors, credits his three-year-old daughter with the idea of the Polaroid instant camera. On a vacation trip in 1943, she asked why she couldn't see the photograph Land had just taken of her. During the next hour, as he walked around with his family, Land's mind was at work on his daughter's question. Before long, he had worked out the concept of building the camera that launched the era of instant photography. "The camera and the film became clear to me," Land recalls. "In my mind they were so real that I spent several hours describing them." Land's invention—instant photography—was so outlandish that only a child could conceive of it!⁵

More often, creative ideas arise when entrepreneurs look at something old and think something new or different. Legendary Notre Dame football coach Knute Rockne, whose teams dominated college football in the 1920s, got the idea for his constantly shifting backfields while watching a burlesque chorus routine! Rockne's innovations in the backfield (which included the legendary "Four Horsemen") and his emphasis on the forward pass (a legal but largely unused tactic in his era) so befuddled opposing defenses that his teams compiled an impressive 105-12-5 record. Similarly, military tacticians, needing better camouflage designs to protect troops and equipment in World War I, borrowed ideas from the "cubist" art of Picasso and Braque. Their improved camouflage patterns helped the Allies win the war.⁶ More recently, one entrepreneur helped solve a problem that plagued U.S. troops in the deserts of Saudi Arabia and Kuwait during Desert Storm. U.S. military experts discovered that enemy aircraft were able to detect the location of troops and equipment by looking for the repeating patterns in the camouflage used to hide them. The entrepreneur began selling the military a special camouflage whose pattern never repeated. He developed it using technology he was already employing to produce multicolored, multipatterned area rugs (each one unique) for the home market.

Entrepreneurs also create innovations to solve problems they observe, often problems they face themselves.

A Company Example

When Carl Goldberg was involved in an auto accident, he almost lost his beloved 100 pound chocolate Labrador retriever, Maxie, who flew into the windshield on impact. Goldberg decided that he would never put his dog at risk again, and he thought that other pet lovers would want to protect their dogs while on the road. With the help of Maxie's vet, Goldberg spent six years and \$500,000 developing the Ruff Rider canine vehicle restraint system, which is orthopedically and ergonomically correct for dogs. The canine seat belt has three movement settings and comes in nine sizes to accommodate dogs weighing from just six pounds to 200 pounds. Goldberg has patented the device, and Ruff Rider LLC generates sales of more than \$1 million a year!⁷

Entrepreneurship is the result of a disciplined, systematic process of applying creativity and innovation to needs and opportunities in the marketplace. It involves applying focused strategies to new ideas and new insights to create a product or a service that satisfies customers' needs or solves their problems. It is much more than random, disjointed tinkering with a new gadget. Millions of people come up with creative ideas for new or different products and services: most of them, however, never do anything with them. Entrepreneurs are those who connect their creative ideas with the purposeful action and structure of a business. Thus, successful entrepreneurship is a constant process that relies on creativity, innovation, and application in the marketplace.

Innovation must be a constant process because most ideas don't work and most innovations fail. One writer explains, "Trial—and lots of error—is embedded in entrepreneurship."⁸ Karen Anne Zien, cofounder of Polaroid Corporation's Creativity and Innovation Lab, estimates that for every 3,000 new product ideas, four make it to the development stage, two are actually launched, and only one becomes a success in the market. These new products are crucial to companies' success, however. Robert Cooper, a researcher who has analyzed thousands of new product launches, says that, on average, new products account for a whopping 40 percent of companies' sales.⁹ Still, successful entrepreneurs recognize that failure often accompanies innovation, and they are willing to accept their share of failures because they know that failure is merely part of the creative process. Entrepreneurship requires business owners to be bold enough to try their

new ideas, flexible enough to throw aside those that do not work, and wise enough to learn about what will work based on their observations of what did not. We now turn our attention to creativity, the creative process, and methods of enhancing creativity.

CREATIVITY—A NECESSITY FOR SURVIVAL

In this fiercely competitive, fast-paced, global economy, creativity is not only an important source for building a competitive advantage, but it also is a necessity for survival. When developing creative solutions to modern problems, entrepreneurs must go beyond merely using whatever has worked in the past. History is not always a reliable predictor of the future in business. Making the inferential leap from what has worked in the past to what will work today (or in the future) requires entrepreneurs to cast off the limiting assumptions, beliefs, and behaviors and to develop new insights into the relationship between resources, needs, and value. In other words, they must change their perspectives, looking at the world in new and different ways.

Entrepreneurs must always be on guard against traditional assumptions and perspectives about how things ought to be because they are certain killers of creativity. Such self-imposed mental constraints and other paradigms that people tend to build over time push creativity right out the door. A **paradigm** is a preconceived idea of what the world is, what it should be like, and how it should operate. These ideas become so deeply rooted in our minds that they become immovable blocks to creative thinking—even though they may be outdated, obsolete, and no longer relevant. In short, they act as logjams to creativity. Look, for example, at the following illustrations and read the text aloud:

Paris	Once	A Bird
in the	in a	in the
the Spring time	a Lifetime	the Hand

If you're like most people, you didn't notice the extra word in each phrase ("Paris in the the spring time"). Why? Part of the reason is that we see what we expect to see! Past experiences shape the ways in which we perceive the world around us ("We've always done it this way"). That's why children are so creative and curious about new possibilities; society has not yet brainwashed them into an attitude of conformity, nor have they learned to accept *traditional* solutions as the *only* solutions. Retaining their creative "inner child," entrepreneurs are able to throw off the shackles on creativity and see opportunities for creating viable businesses where most people see what they've always seen (or, worse yet, see nothing).

Many years ago, during an international chess competition, Frank Marshall made what has become known as one of the most beautiful—and one of the most creative—moves ever made on a chessboard. In a crucial game in which he was evenly matched with a Russian master player, Marshall found his queen under serious attack. Marshall had several avenues of escape available for his queen. Knowing that the queen is one of the most important offensive players on the chessboard, spectators assumed that Marshall would make a conventional move and push his queen to safety.

Using all the time available to him to consider his options, Marshall picked up his queen—and paused—and put it down on the most *illogical* square of all—a square from which the queen could easily be captured by any one of three hostile pieces. Marshall had done the unthinkable! He had sacrificed his queen, a move typically made only under the most desperate of circumstances. All the spectators—even Marshall's opponent—groaned in dismay. Then the Russian, and finally the crowd, realized that Marshall's move was, in reality, a brilliant one. No matter how the Russian opponent took the queen, he would eventually be in a losing position. Seeing the inevitable outcome, the Russian conceded the game. Marshall had won the match in a rare and daring fashion: He had won by sacrificing his queen!¹⁰

What lesson does this story hold for entrepreneurs? By suspending conventional thinking long enough to even consider the possibility of such a move, Marshall was able to throw off the usual paradigms constraining most chess players. He had looked beyond the traditional and orthodox strategies of the game and was willing to take the risk of trying an unusual tactic to win. The result: He won. Although not every creative business opportunity that entrepreneurs take will be successful, many who, like Frank Marshall, are willing to go beyond conventional wisdom will be rewarded for their efforts. Successful entrepreneurs, those who are constantly pushing technological and economic boundaries forward, must ask: "Is it time to sacrifice the queen?"

Learning Objective

2. Describe why creativity and innovation are such an integral part of entrepreneurship.

paradigm—a preconceived idea of what the world is, what it should be like, and how it should operate.





Merely generating one successful creative solution to address a problem or a need usually is not good enough to keep an entrepreneurial enterprise successful in the long run, however. Success—even survival—in this fiercely competitive, global environment requires entrepreneurs to tap their creativity (and that of their employees) constantly. Entrepreneurs can be sure that if they have developed a unique, creative solution to solve a problem or to fill a need, a competitor (perhaps one or six times zones away) is hard at work developing an even more creative solution to render theirs obsolete. This extremely rapid and accelerating rate of change has created an environment in which staying in a leadership position requires constant creativity, innovation, and entrepreneurship. A company that has achieved a leadership position in an industry but then stands still creatively is soon toppled from its number-one perch.

Can Creativity Be Taught?

For many years, conventional wisdom held that a person was either creative (i.e., imaginative, free-spirited, entrepreneurial) or not (i.e., logical, narrow-minded, rigid). Today we know better. Research shows that *anyone* can learn to be creative. "Every person can be taught techniques and behaviors that help them generate more ideas," says Joyce Wycoff, author of several books on creativity.¹¹ The problem is that in most organizations, employees have never been expected to be creative. Also, many businesses fail to foster an environment that encourages creativity among employees. Restricted by their traditional thinking patterns, most people never tap into their pools of innate creativity, and the company becomes stagnant. Creative exercises such as the one illustrated in Figure 2.1 can help adults reconnect with the natural creativity they exhibited so willingly as children.

FIGURE 2.1 How Creative Are You? Can you recognize the well-known phrases these symbols represent?

Sources: Tery Stickels, "Frame Games," *USA Weekend*, January 3–5, 2003, p. 14; January 14–16, 2000; January 21–23, 2000; June 22–24, 2001; June 29–July 1, 2001; July 6–8, 2001; April 29, 2001; May 18–20, 2001; January 17–19, 2003; July 28–30, 2000; September 9, 2001; November 29–December 1, 2002; Gavin DeBecker, "Thinking Caps," *USA Weekend*, July 30–August 1, 1999; April 9–11, 1999; February 5–7, 1999; June 4–6, 1999; June 11–13, 1999; July 2–4, 1999; January 22–24, 1999; January 15–17, 1999; August 6–8, 1999.

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Entrepreneurs and the people who work for them can learn to think creatively, and they must for their companies' sake! "Innovation and creativity are not just for artists," says Wycoff. "These are skills with a direct, bottom-line payoff."¹²

For instance, Mary Naylor, owner of **Capitol Concierge**, a company that provides concierge services in office building lobbies, looks to an unusual source for new ideas about how to promote her business: junk mail. "I collect junk mail and keep it in a box I call 'Mary's Ideas,'" says Naylor. "I get inspiration from things most people throw away. When I want to kick start my creative processes, I go to my box and see what's new."¹³

Before entrepreneurs can draw on their own creative capacity or stimulate creativity in their own organizations, they need to understand creative thinking.

CREATIVE THINKING

Research into the operation of the human brain shows that each hemisphere of the brain processes information differently and that one side of the brain tends to be dominant over the other. The human brain develops asymmetrically, and each hemisphere tends to specialize in certain functions. The left-brain is guided by linear, vertical thinking (from one logical conclusion to the next) whereas the right-brain relies on kaleidoscopic, lateral thinking (considering a problem from all sides and jumping into it at different points). The left-brain handles language, logic, and symbols; the right-brain takes care of the body's emotional, intuitive, and spatial functions. The left-brain processes information in a step-by-step fashion, but the right-brain processes it intuitively—all at once, relying heavily on images.

Left-brain vertical thinking is narrowly focused and systematic, proceeding in a highly logical fashion from one point to the next. Right-brain lateral thinking, on the other hand, is somewhat unconventional, unsystematic, and unstructured, much like the image of a kaleidoscope, whirling around to form one pattern after another. It is this right-brain-driven, lateral thinking that lies at the heart of the creative process. Those who have learned to develop their right-brain thinking skills tend to:

- always ask the question, "Is there a better way?"
- challenge custom, routine, and tradition.
- be reflective, often staring out windows, deep in thought. (How many traditional managers would stifle creativity by snapping these people out of their "daydreams," chastising them for "loafing," and admonishing them to "get back to work"?)
- be prolific thinkers. They know that generating lots of ideas increases the likelihood of coming up with a few highly creative ideas.
- play mental games, trying to see an issue from different perspectives.
- realize that there may be more than one "right answer."
- see mistakes and failures as mere "pit stops" on the way to success.
- see problems as springboards for new ideas.
- relate seemingly unrelated ideas to a problem to generate innovative solutions.
- have "helicopter skills," the ability to rise above the daily routine to see an issue from a broader perspective and then swooping back down to focus on an area in need of change.

Stanford Ovshinsky, now 80, has used right-brain thinking to generate the ideas that have led him to earn an amazing 274 patents. Ovshinsky, who skipped college to become a toolmaker and machinist, used his firsthand knowledge of machinery to earn his first patent in the 1940s for a high-speed, automated machine tool he designed. His curiosity led him to study neurophysiology, from which he branched into a field known as disordered materials physics. In 1960, he founded a company, **Energy Conversion Devices**, that has produced low-cost solar-powered batteries, a rechargeable battery that powers hybrid electric cars, rewritable CDs and DVDs, and many other important inventions. Most of his patents and his company's products derive from Ovshinsky's ability to translate his knowledge of unstructured elements and superconductivity into useful products that produce clean energy. "Most people think in two dimensions," says a long-time colleague. "Stan thinks not only in three dimensions but also in different colors."¹⁴

A Company Example

Learning Objective

1. Understand how the two hemispheres of the human brain function and what role they play in creativity.

A Company Example

Although each hemisphere of the brain tends to dominate in its particular functions, the two halves normally cooperate, with each part contributing its special abilities to accomplish those tasks better suited to its mode of information processing. Sometimes, however, the two hemispheres may even compete with each other, or one half may choose not to participate. Some researchers have suggested that each half of the brain has the capacity to keep information from the other! The result, literally, is that "the left hand doesn't know what the right hand is doing." Perhaps the most important characteristic of this split-brain phenomenon is that an individual can learn to control which side of the brain is dominant in a given situation. In other words, a person can learn to "turn down" the dominant left hemisphere (focusing on logic and linear thinking) and "turn up" the right hemisphere (focusing on intuition and unstructured thinking) when a situation requiring creativity arises.¹⁵ To get a little practice at this "shift," try the visual exercises presented in Figure 2.2. When viewed from one perspective, the picture in the middle portrays an attractive young lady with a feather in her hair and a boa around her shoulders. Once you shift your perspective, however, you will see an old woman with a large nose wearing a scarf on her head! This change in the image seen is the result of a shift from one hemisphere in the viewer's brain to the other. With practice, a person can learn to control this mental shift, tapping the pool of creativity that lies hidden within the right side of the brain. This ability has tremendous power to unleash the creative capacity of entrepreneurs. The need to develop this creative ability means that exploring inner space (the space within our brains)—not outer space—becomes the challenge of the century.

Entrepreneurship requires both left- and right-brain thinking. Right-brain thinking draws on the power of divergent reasoning, which is the ability to create a multitude of original, diverse ideas. Left-brain thinking counts on convergent reasoning, the ability to evaluate multiple ideas and choose the best solution to a given problem. Entrepreneurs need to rely on right-brain thinking to generate innovative product, service, or business ideas. Then they must use left-brain thinking to judge the market potential of the ideas they generate. Successful entrepreneurs have learned to coordinate the complementary functions of each hemisphere of the brain, using their brains' full creative power. Otherwise, entrepreneurs, who rarely can be accused of being "halfhearted" about their business ideas, run the risk of becoming "half-headed."

How can entrepreneurs learn to tap their innate creativity more readily? The first step is to break down the barriers to creativity that most of us have erected over the years. We now turn our attention to these barriers and some suggested techniques for tearing them down.

YOU Be the Consultant . . .

The Spirit of Entrepreneurship in the Olympics

Entrepreneurs aren't the only ones who use creativity to create competitive advantages for themselves. Throughout history, Olympic athletes have pushed back the frontiers of their sports by developing new techniques, improved training methods, and innovative solutions to existing problems. Two of the best examples of applying creativity to their sports were figure skater Sonja Henie and high jumper Dick Fosbury. Although their sports are at different extremes of the Olympic spectrum, both of these athletes relied on the creative process to throw off the paradigms that bound the other athletes competing in these sports.

Before Sonja Henie came along, figure skating routines were exactly that—routine. In competitions, skaters performed a series of precise moves that emphasized accuracy

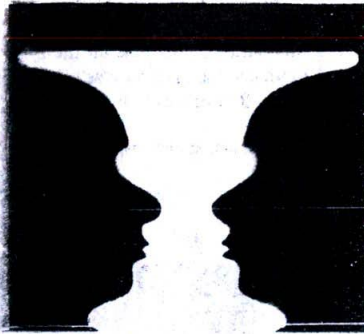
and control. But when the young Norwegian glided onto the ice, skating changed forever. Bringing the beauty and movement of ballet to the skating rink, Henie transformed the sport into the graceful combination of motion, music, and muscle that it remains today. From 1927 to 1936, Henie dominated ice skating by creatively blending her graceful ballet skills with her strength on the ice. She won 10 straight world championships, eight European titles, and a record three Olympic gold medals. Trained in both dance and ballet as a child, Henie cast aside the existing paradigms of what ice skating was as she recognized the possibilities of transferring dance movements onto the ice.

After winning her last world championship in 1936, Henie used her dance and skating skills to get into show business. She became an international star in movies and in traveling ice shows that gave her the freedom to use her creative genius on the ice. Even her glamorous and daring costumes proved to be an exciting innovation in ice skating as they emphasized the grace and flow of her movements. Later generations of ice skaters would push the sport even farther. Tenely Albright (1956 Olympics) and Peggy Fleming (1968

(continued on page 42)

FIGURE 2.2 What do you see?

Source: *Entrepreneurship and New Venture Formation* by Zimmerer and Scarborough, © 1995. Reprinted by permission of Prentice Hall, Inc., Upper Saddle River, NJ.



A. Which do you see? The goblet or the famous twins?



B. Describe the lady you see in this drawing. How old is she, how attractive, what kind of covering on her head etc.?



C. In these patches of black and white, do you see the face of Christ?

Olympics) introduced spins, twirls, and leaps. More recently, Tara Lipinsky, Kristi Yamaguchi, Nancy Kerrigan, Katarina Witt, and others have injected an element of gymnastics to ice skating, performing triple jumps and double and triple Axels. Yet every one of these champions owes a debt of gratitude to Sonja Henie, the daring young skater who had the creativity and the courage to make innovations on the ice.

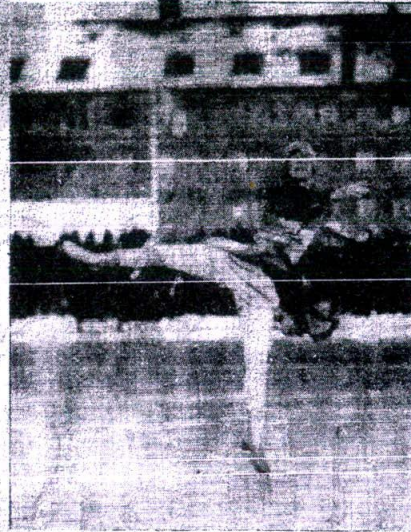
Until 1968, much like ice skating, the sport of high jumping had changed little since its origins in ancient Greece. Athletes sprinted toward the bar and then leaped forward and upward, rolling over the bar face down. In the 1968 Olympics in Mexico City, Dick Fosbury revolutionized the sport with his innovative style of high jumping. He approached the bar at a different angle and then curved his body over the bar face up, kicking his legs over the end of the jump. Based on the principles of biomechanics, the "Fosbury Flop," as the style became known, transfers the weight of the jumper over the bar in stages. It also requires less energy and is more efficient. The result of Fosbury's innovation? An Olympic gold medal, a new world high jump record (Fosbury broke the old record by 6 cm), and the satisfaction of creating a new style of high jumping used by athletes across the world even today.

Sonja Henie and Dick Fosbury became champions by applying creativity and innovation to the sports they loved so much. Similarly, entrepreneurs can become "champions" in their industries by using their creative spirits to come up with new ideas, better products and services, and innovative techniques. Successful entrepreneurs rely on their ability to see the same things everyone else sees and to dream what no one else dreams.

1. What is a paradigm? How does a paradigm stifle creativity?

2. Work with a small group of your classmates to identify a local business that is bound by a paradigm. What impact is this paradigm having on the business? Identify the paradigm and then generate as many creative suggestions as you can in 20 minutes that would change this paradigm.

3. What can entrepreneurs do to throw off existing paradigms?



Sonja Henie was an early innovator in figure skating, which enabled her to dominate the sport for many years.

Source: "Innovations of the Olympic Games," *Fortune*, January 27, 1992, pp. 28–29. Photo courtesy of Corbis Bettmann, © Bettmann/Corbis.

4. Understand the 10 "mental locks" that limit individual creativity.

BARRIERS TO CREATIVITY

The number of potential barriers to creativity is virtually limitless—time pressures, unsupportive management, pessimistic co-workers, overly rigid company policies, and countless others. Perhaps the most difficult hurdles to overcome, however, are those that individuals impose on themselves. In his book *A Whack on the Side of the Head*, Roger von Oech identifies 10 "mental locks" that limit individual creativity:¹⁶

1. *Searching for the one "right" answer.* Deeply ingrained in most educational systems is the assumption that there is one "right" answer to a problem. The average student who has completed four years of college has taken more than 2,600 tests, so it is not unusual for this one-correct-answer syndrome to become an inherent part of our thinking. In reality, however, most problems are ambiguous. Depending on the questions one asks, there may be (and usually are) several "right" answers.

A Company Example

When representatives from Jacksonville, Florida, made a proposal to the National Football League (NFL) to host the Super Bowl in 2005, they knew that they had to overcome one major disadvantage: a lack of high-end hotel space, always a key factor in the NFL's bid requirements. The team's approach was based on the assumption that there was more than one right answer to providing upscale hotel space, and they came up with an innovative solution: They would dock cruise ships along the St. Johns River that would serve as floating hotels, putting guests within easy walking distance of the football stadium! Shortly after the meeting, NFL officials named Jacksonville the host city for the 2005 Super Bowl, making it the smallest city ever to host the big game.¹⁷

2. *Focusing on "being logical."* Logic is a valuable part of the creative process, especially when evaluating ideas and implementing them. However, in the early imaginative phases of the process, logical thinking can restrict creativity. Focusing too much effort on being logical also discourages the use of one of the mind's most powerful creations: intuition. Von Oech advises us to "think something different" and to use nonlogical thinking freely, especially in the imaginative phase of the creative process. Intuition, which is based on the accumulated knowledge and experiences a person encounters over the course of a lifetime and resides in the subconscious, can be unlocked. It is a crucial part of the creative process because using it often requires one to tear down long-standing assumptions that limit creativity and innovation.

Dan Murphy is an entrepreneur who challenges traditional assumptions, and his efforts may revolutionize agriculture across the world. Murphy is using seawater rather than fresh water to irrigate commercial crops in arid areas where fresh water is scarce! For instance, in Mexico's Baja Peninsula, Murphy's company, Saline Seed, is raising salicornia (a succulent sprout that sells for as much as \$1 an ounce in some areas!), the world's first commercial crop to be grown in soil irrigated by seawater. Murphy, who spent years involved in sea agriculture, reasoned that because all life derived from seawater, plants retain some genetic memory of salt water. Murphy's idea was to "train" plants over several generations to drink seawater. Starting with salicornia, Murphy's company has branched out into other types of plants and is now developing seawater-tolerant ornamental shrubs and grasses that would be ideal for golf courses, farmers, and residential developments.¹⁸

3. *Blindly following the rules.* We learn at a very early age not to "color outside the lines," and we spend the rest of our lives blindly obeying such rules. Sometimes creativity depends on our ability to break the existing rules so that we can see new ways of doing things. Consider, for example, the top row of letters on a standard typewriter or computer keyboard:

QWERTYUIOP

In the 1870s, Sholes & Company, a leading manufacturer of typewriters, began receiving numerous customer complaints about its typewriter keys sticking together when typists' fingers were practiced enough to go really fast. Company engineers came up with an incredibly creative solution to eliminate the problem of sticking keys. They designed a less efficient keyboard configuration, placing the letters *O* and *I* (the third and sixth most commonly used letters of the alphabet) so that the weakest fingers (the ring and little fingers) would strike them. By slowing down typists with this inefficient keyboard, the engineers solved the sticking keys problem. Today, despite the fact that computer technology has eliminated all danger of sticking keys, this same inefficient keyboard configuration remains the industry standard!

4. *Constantly being practical.* Imagining impractical answers to "what if" questions can be powerful stepping-stones to creative ideas. Suspending practicality for a while frees the mind to consider creative solutions that otherwise might never arise. Whenever Thomas Edison hired an assistant to work in his creative laboratory, he would tell the new employee, "Walk through town and list 20 things that interest you." When the worker returned, Edison would ask him to split the list into two columns. Then he would say, "Randomly combine objects from column A and column B and come up with as many inventions as you can." Edison's methods for stimulating creativity in his lab proved to be successful; he holds the distinction of being the only person to have earned a patent every year for 65 consecutive years!¹⁹
5. *Viewing play as frivolous.* A playful attitude is fundamental to creative thinking. There is a close relationship between the "haha" of humor and the "aha" of discovery. Play gives us the opportunity to reinvent reality and to reformulate established ways of doing things. Children learn when they play, and so can entrepreneurs. Watch children playing and you will see them invent new games, create new ways of looking at old things, and learn what works (and what doesn't) in their games.

Entrepreneurs can benefit from playing in the same way that children do. They, too, can learn to try new approaches and discover what works and what doesn't. Creativity results when entrepreneurs take what they have learned at play, evaluate it, corroborate it with other knowledge, and put it into practice. For instance, a group of fund-raisers was discussing the arrangements for an upcoming annual fund-raising banquet (which had been the organization's primary

source of income for many years). Lamenting the declining turnout over the past several years and the multitude of other organizations that were using banquets as a source of revenue, one officer jokingly said, "Maybe we should have a 'nonbanquet,' where people pay not to tie up several hours, eat rubber chicken, and listen to some dull speaker talk about a topic they'd rather not hear about." The other officers laughed at the idea initially and then began throwing in humorous ideas of their own. The group mustered the courage to try out this creative solution, and their "nonbanquet" was a tremendous success. It raised more money than the organization had ever raised before, and no one had to attend!

6. *Becoming overly specialized.* Defining a problem as one of "marketing" or "production," or some other area of specialty limits the ability to see how it might be related to other issues. Creative thinkers tend to be "explorers," searching for ideas outside their areas of specialty. The idea for the roll-on deodorant stick came from the ballpoint pen. The famous Mr. Potato Head toy was invented by a father sitting with his family at the dinner table and noting how much fun his children had playing with their food. Velcro was invented by a man who, while hiking one day to take a break from work, had to stop to peel sticky cockleburrs from his clothing. As he picked them off, he noticed how their hooked spines caught on and held tightly to the cloth. As he resumed his hike, he began to think about the possibilities of using a similar design to fasten objects together. Thus was born Velcro!
7. *Avoiding ambiguity.* Ambiguity can be a powerful creative stimulus; it encourages us to "think something different." Being excessively detailed in an imaginative situation tends to stifle creativity. Ambiguity, however, requires us to consider at least two different, often contradictory notions at the same time, which is a direct channel to creativity. Ambiguous situations force us to stretch our minds beyond their normal boundaries and to consider creative options we might otherwise ignore. Although ambiguity is not a desired element when entrepreneurs are evaluating and implementing ideas, it is a valuable tool when they are searching for creative ideas and solutions. Entrepreneurs are famous for asking a question and then going beyond the first answer to explore other possible answers. The result is that they often find business opportunities by creating ambiguous situations.

A Company Example

Copreneurs Tom and Sally Fegley, owners of Tom and Sally's Handmade Chocolates, considered the possibility of other answers to the question "What uses exist for chocolate sauce?" Although most people see chocolate sauce merely as a topping for ice cream or other desserts, their friend Larry (whom they have nicknamed 'Dirty Larry') came up with a different idea. The Fegleys were trying to come up with an innovative recipe that would keep their string of awards at a local, fund-raising event devoted to celebrating chocolate, the Brown-Out. Their fun-loving friend suggested they shoot for the Most Decadent Award. "I'll go naked," he said. "You paint melted chocolate all over my body, and you'll win!" Although the Fegleys declined Larry's offer, his suggestion got them thinking. Before long, Tom had whipped up a batch of chocolate dessert topping, labeled it "Chocolate Body Paint," and included the following directions on the bottle: "Heat to 98.6 degrees, apply liberally, and let your imagination run wild." Today Chocolate Body Paint is the Fegley's best-selling product, and it has won awards and has been featured in publications ranging from the Wall Street Journal to Playboy magazine. "Never judge an idea by its source," advises Sally.²⁰

8. *Fearing looking foolish.* Creative thinking is no place for conformity! New ideas rarely are born in a conforming environment. People tend toward conformity because they don't want to look foolish. The fool's job is to whack at the habits and rules that keep us thinking in the same old ways. In that sense, entrepreneurs are top-notch "fools." They are constantly questioning and challenging accepted ways of doing things and the assumptions that go with them. Noted entrepreneurship theorist Joseph Schumpeter wrote that entrepreneurs perform a vital function—"creative destruction"—in which they rethink conventional assumptions and discard those that are no longer useful. According to Schumpeter, "The function of entrepreneurs is to reform or revolutionize the pattern of production by exploiting an invention or, more generally, an untried technological possibility for producing a new commodity or producing an old one in a new way, by opening up a new source of supply of materials or a new outlet for products, by reorganizing an industry or so on."²¹ In short, entrepreneurs look at old ways of doing things and ask, "Is there a better way?" By destroying the old, they create the new.

One way entrepreneurs often engage in creative destruction is by reversing their thinking. For example, one agricultural entrepreneur had been trying to solve a common problem that

automatic picking machines have when picking the fruit from apple trees. The machines, which are quite efficient at picking apples growing on the outer limbs of the trees, often miss or damage the fruit growing on the inner limbs. For years, he worked to develop a machine with the dexterity to pick apples in both locations but to no avail. Finally, this entrepreneur reversed his thinking and began to focus his efforts, not on the picking machine but *on the apple tree!* Working with horticulturists, he was able to develop a new breed of tree whose fruit grew only on the outer limbs, where standard picking machines could easily get to it! By reversing his thinking, he solved the problem and created a new business opportunity.

9. *Fearing mistakes and failure.* Creative people realize that trying something new often leads to failure; however, they do not see failure as an end. It represents a learning experience on the way to success. As you learned in Chapter 1, failure is an important part of the creative process; it signals entrepreneurs when to change their course of action. Entrepreneurship is all about the opportunity to fail! Many entrepreneurs failed numerous times before they succeeded. Despite their initial setbacks, they were able to set aside the fear of failure and kept trying.

The key, of course, is to see failure for what it really is: a chance to learn how to succeed. Entrepreneurs who willingly risk failure and learn from it when it occurs have the best chance of succeeding at whatever they try. Charles F. Kettering, a famous inventor of lighting and ignition systems in automobiles, among other things, explains, "You fail because your ideas aren't right, but you should learn to fail intelligently. When you fail, find out *why* you failed and each time it will bring you nearer to the goal."²² Successful entrepreneurs equate failure with innovation rather than with defeat.

10. *Believing that "I'm not creative."* Some people limit themselves because they believe creativity belongs only to the Einsteins, Beethovens, and da Vincis of the world. Unfortunately, this belief often becomes a self-fulfilling prophecy. A person who believes he is not creative will, in all likelihood, behave that way and will make that belief come true. Successful entrepreneurs recognize that thinking "I'm not creative" is merely an excuse for inaction. *Everyone* has within him or her the potential to be creative; not everyone will tap that potential, however. Successful entrepreneurs find a way to unleash their creative powers on problems and opportunities.

By avoiding these 10 mental locks, entrepreneurs can unleash their own creativity and the creativity of those around them as well. Successful entrepreneurs are willing to take some risks, explore new ideas, play a little, ask "what if?" and learn to appreciate ambiguity. By doing so, they develop the skills, attitudes, and motivation that make them much more creative—one of the keys to entrepreneurial success. Table 2.1 lists some questions designed to spur imagination.

HOW TO ENHANCE CREATIVITY

Enhancing Organizational Creativity

Creativity doesn't just happen in organizations; entrepreneurs must establish an environment in which creativity can flourish—for themselves and for their workers. New ideas are fragile creations, but the right company culture can encourage people to develop and cultivate them. Ensuring that workers have the freedom and the incentive to be creative is one of the best ways to achieve innovation. "Developing a corporate culture that both fosters and rewards creativity . . . is critical because companies must be able to churn out innovations at a fast pace since technology has shortened product life cycles," says Geoff Yang, successful entrepreneur and venture capitalist.²³ Entrepreneurs can stimulate their own creativity and encourage it among workers by:

Embracing diversity. One of the best ways to cultivate a culture of creativity is to hire a diverse workforce. When people solve problems or come up with ideas, they do so within the framework of their own experience. Hiring people from different backgrounds, cultural experiences, hobbies, and interests provides a company with a crucial raw material needed for creativity.

Expecting creativity. Employees tend to rise—or fall—to the level of expectations entrepreneurs have of them. One of the best ways to communicate the expectation of creativity is to give employees permission to be creative. At one small company that manufactures industrial equipment, the owner put a "brainstorming board" in a break area. Anyone facing a sticky problem simply posts it on a brightly colored piece of paper on the board. Other workers are invited to share ideas and suggestions by writing them on white pieces of paper and posting

5. Understand how entrepreneurs can enhance their own creativity and that of their employees as well.

TABLE 2.1

Questions to Spur the Imagination

Sources: Adapted from Leigh Buchanan, Thea Singer, Christopher Caggiano, Ilan Mochari, and Tahl Raz, "If You Come, They Will Build It," *Inc.*, August 2002, p. 70; Creativity Web, "Question Summary,0" www.ozonail.com.au/caveman/Creative/Techniques/osb_quest.html; *Bits & Pieces*, February 1990, p. 20; *Bits & Pieces*, April 29, 1993, "Creativity Quiz," *In Business*, November/December 1991, p. 18; Doug Hall, *Jump Start Your Brain* (New York: Warner Books, 1995), pp. 86-87; Christine Canabou, "Imagine That," *Fast Company*, January 2001, p. 56.

People learn at an early age to pursue answers to questions. Creative people, however, understand that good questions are extremely valuable in the quest for creativity. Some of the greatest breakthroughs in history came as a result of creative people asking thought-provoking questions. Bill Bowerman, contemplating a design for the soles of running shoes over a breakfast of waffles, asked, "What would happen if I poured rubber into my waffle iron?" He did, and that's how Nike shoes came to be. (Bowerman's rubber-coated waffle iron is on display in the Nike Town superstore and museum in Chicago.) Albert Einstein, creator of the theory of relativity, asked, "What would a light wave look like to someone keeping pace with it?" Masura Ibuka, who created the Sony Walkman, asked, "Why can't we remove the recording function and speaker and put headphones on the recorder?" William Riblich, CEO of Foster-Miller Inc., a company that develops production equipment for businesses, says his company routinely asks, "In what other ways can we use this particular technology?" Answering that question enabled Foster-Miller to adapt a metallurgical heat-treating technology for use in a candy manufacturing process.

The following questions can help spur your imagination:

- | | |
|---|---|
| 1. Is there a new way to do it? | 8. What if you do just the opposite? |
| 2. Can you borrow or adapt it? | 9. Can you combine ideas? |
| 3. Can you give it a new twist? | 10. Can you put it to other uses? |
| 4. Do you merely need more of the same? | 11. What else could we make from this? |
| 5. Less of the same? | 12. Are there other markets for it? |
| 6. Is there a substitute? | 13. Can you reverse it? |
| 7. Can you rearrange the parts? | 14. What idea seems impossible but, if executed, would revolutionize your business? |

them around the problem. The board has generated many creative solutions that otherwise would not have come up.

Expecting and tolerating failure. Creative ideas will produce failures as well as successes. People who never fail are not being creative. Creativity requires taking chances, and managers must remove employees' fear of failure. The surest way to quash creativity throughout an organization is to punish employees who try something new and fail.

Encouraging curiosity. Entrepreneurs and their employees constantly should ask "what if" questions and take a "maybe we could . . ." attitude. Doing so allows them to break out of assumptions that limit creativity.

Viewing problems as challenges. Every problem offers the opportunity for innovation. Entrepreneurs who allow employees to dump all of their problems on their desks to be "fixed" do nothing to develop creativity within those employees.

Providing creativity training. Almost everyone has the capacity to be creative, but developing that capacity requires training. One writer claims, "What separates the average person from Edison, Picasso, or even Shakespeare isn't creative capacity—it's the ability to tap that capacity by encouraging creative impulses and then acting upon them."²⁴ Training accomplished through books, seminars, workshops, and professional meetings can help everyone learn to tap their creative capacity.

Providing support. Entrepreneurs must give employees the tools and the resources they need to be creative. One of the most valuable resources is time. Advanced Tissue Sciences, a company that makes products to replace or repair damaged tissue and organs and has appeared on *Inc.* magazine's list of the 500 fastest-growing firms, allows employees to spend up to 20 percent of their time working on "pet projects" that they find exciting and believe have potential. "That keeps their energy and their enthusiasm alive," says founder Gail Naughton.²⁵ Entrepreneurs should remember that creativity often requires nonwork phases, and allowing employees time to "daydream" is an important part of the process.

Developing a procedure for capturing ideas. Workers in every organization come up with creative ideas; however, not every organization is prepared to capture those ideas. The unfortunate

result is that ideas that may have vaulted a company ahead or made people's lives better simply evaporate. George Calhoun, chairperson of Isco International, a company that makes wireless communications products, routinely sends employees to work with customers all over the globe, knowing that they will come back with insights and ideas they might never have had. The company captures those ideas in "trip reports" that employees make upon their return.²⁶

Rewarding creativity. Entrepreneurs can encourage creativity by rewarding it when it occurs. Financial rewards can be effective motivators of creative behavior, but nonmonetary rewards such as praise, recognition, and celebration can be more powerful incentives.

Digital Communications Corporation. a small company that develops advanced wireless technologies, recognizes employees who develop patentable inventions with stock options, cash awards, and honors at an Inventors' Dinner. The reward system works; within two years after implementing it, the number of patent applications Digital Communications filed increased by a factor of five!²⁷

Modeling creative behavior. Creativity is "caught" as much as it is "taught." Companies that excel at innovation find that the passion for creativity starts at the top. Entrepreneurs who set examples of creative behavior, take chances, and challenge the status quo will soon find their employees doing the same. Table 2.2 describes 10 "secrets" for leading innovation in an organization.

Building a creative environment takes time, but the payoffs can be phenomenal. 3M, a company that is famous for cultivating a creative environment, estimates that 70 percent of its annual sales come from creative ideas that originated from its workforce. As one creativity consultant explains, "For your employees to be more creative, you have to create an environment that values their creativity."²⁸

A Company Example

TABLE 2.2

10 "Secrets" for Leading Creativity

Source: Katherine Catlin, "10 Secrets to Leading Innovation," *Entrepreneur*, September 2002, p. 72. Reprinted with permission of Entrepreneur Media, Inc., www.entrepreneur.com.

Leaders at innovative companies know that their roles in stimulating creativity and establishing a culture that embraces and encourages creativity are vital. Katherine Catlin, founder of a consulting firm specializing in leadership and innovation, has identified the following characteristics exhibited by leaders of innovation.

1. **They think.** These leaders invest time in thinking because they recognize the power of their own creativity and the ideas it generates.
2. **They are visionaries.** These people are totally focused on the values, vision, and mission of their companies and express them through their companies' products and services as well as through its culture. They are able to communicate to others exactly what they want to accomplish.
3. **They listen to customers.** They recognize that customers or potential customers can be a valuable source of new ideas for product or service development and improvement, sales techniques, and market positioning.
4. **They understand how to manage ideas.** As they search for new ideas and creative solutions, these managers look to a variety of sources—customers, employees, the board of directors, and even their own dreams.
5. **They are people centered.** These leaders hire people for their creative abilities and then place them in a setting that enables that creativity to blossom. They see their employees and their employees' ideas as an important part of their companies' competitive edge.
6. **They maintain a culture of "change."** These leaders do not simply manage change; they embrace it. They seek out change, recognizing that there is a constant need to improve.
7. **They maximize team synergy, balance, and focus.** Realizing that teamwork fosters creativity and innovation, these leaders bring together people from diverse backgrounds into teams to maximize their companies' creative output.
8. **They hold themselves and others accountable for extremely high standards of performance.** These leaders demand results of the highest quality from themselves and their employees and are unwilling to settle for anything less.
9. **They refuse to take "no" for an answer.** These leaders persist in the face of adversity even when others say it cannot be done.
10. **They love what they do and have fun doing it.** These leaders' passion for their work is contagious, empowering everyone in the organization to accomplish everything they possibly can.

Enhancing Individual Creativity

Just as entrepreneurs can cultivate an environment of creativity in their organizations by using the techniques described previously, they also can enhance their own creativity by using the following techniques:

Allow yourself to be creative. As we have seen, one of the biggest obstacles to creativity occurs when a person believes that he or she is not creative. Giving yourself the permission to be creative is the first step toward establishing a pattern of creative thinking.

Give your mind fresh input every day. To be creative, your mind needs stimulation. Do something different each day—listen to a new radio station, take a walk through a park or a shopping center, or pick up a magazine you never read.

A Company Example

When Janet Harris Lange, founder of Agenda Dynamics Inc., a meeting and event management company, needs a fresh idea for an upcoming event, she makes an effort to expose her mind to new stimuli. In the past, she has walked through a second-hand thrift shop, shopped in a dime store, talked with children, and put on funny hats to generate creative ideas for her clients' events, something that is vital to her company's success. "To be better than the competition, I have to employ creative thinking," she says.²⁹

Recognize the creative power of mistakes. Innovations sometimes are the result of serendipity, finding something while looking for something else, and sometimes they arise as a result of mistakes. Creative people recognize that even their errors may lead to new ideas, products, and services. Charles Goodyear worked for five years trying to combine rubber with a variety of chemicals to prevent it from being too soft in hot weather and too brittle in cold weather. One cold night in 1839, Goodyear was combining rubber, sulfur, and white lead when he accidentally spilled some of the mixture on a work stove. The substances melted together to form a new compound that had just the properties Goodyear was looking for! Goodyear named the process he discovered accidentally "vulcanization," and today practically every product made from rubber depends on it.³⁰

Keep a journal handy to record your thoughts and ideas. Creative ideas are too valuable to waste so always keep a journal nearby to record them as soon as you get them. Patrick McNaughton invented the neon blackboards that restaurants use to advertise their specials. In addition to the neon blackboard, McNaughton has invented more than 30 new products, many of which are sold through the company that he and his sister, Jamie, own. McNaughton credits much of his creative success to the fact that he writes down every idea he gets and keeps it in a special folder. "There's no such thing as a crazy idea," he insists.³¹

Listen to other people. No rule of creativity says that an idea has to be your own! Sometimes the best business ideas come from someone else, but entrepreneurs are the ones to act on them.

A Company Example

J. S. Fletcher and Kathy Newburn decided to launch their business, YourNovel.com, a business that writes customized romance novels, after a friend mentioned the idea as a passing comment. Since launching their business more than a decade ago, the couple (who decided to marry after they started their business together) has written 10 novels under the pseudonym Fletcher Newburn. Customers go to the company's Web site, fill out a questionnaire that gathers all of the necessary information, pick the setting (which ranges from a dude ranch on the open plains to the mountains of North Carolina), and select the type of novel they want ("mild" or "wild").³²

Kathy Newburn and J.S. Fletcher got the idea for YourNovel.com from a friend's passing comment at a party.

Courtesy of YourNovel.com, Inc.



YOU Be the Consultant . . .

The Creative Side of Entrepreneurship

When St. Petersburg, one of the most splendid, harmonious cities in Europe, was being laid out early in the eighteenth century, many large boulders brought by a glacier from Finland had to be removed. One particularly large rock was in the path of one of the principal avenues that had been planned, and bids were solicited for its removal. The bids submitted were very high. This was understandable, because at that time modern equipment did not exist and there were no high-powered explosives. As officials pondered what to do, a peasant presented himself and offered to get rid of the boulder for a much lower price than those submitted by other bidders. Since they had nothing to lose, officials gave the job to the peasant.

The next morning he showed up with a crowd of other peasants carrying shovels. They began digging a huge hole next to the rock. They propped up the rock with timbers to prevent it from rolling into the hole. When the hole was deep enough, the timber props were removed and the rock dropped into the hole below the street level. Then they covered it with dirt and carted the excess dirt away.

It's an early example of what creative thinking can do to solve a problem. The unsuccessful bidders only thought about moving the rock from one place to another on the city's surface. The peasant looked at the problem from another angle. He considered another dimension—up and down. He couldn't lift it up, so he put it underground!

Managers at the Cleveland Museum used a similar kind of creative thinking to ensure the success of a dazzling exhibit of ancient Egyptian treasures. Taking a different marketing approach, museum managers held a

free private showing for the city's taxi drivers. Some of the museum's snooty, blue-blooded patrons scoffed at the idea and dismissed it as an exercise in foolishness. After all, they said, taxi drivers aren't known for their polish or their culture. But the museum managers persisted. Impress the cab drivers, they reasoned, and the "cabbies" would be more likely to recommend the new exhibit to their customers, who would, in turn, flock to the museum. That's exactly what happened. During the exhibit's run in Cleveland, the museum enjoyed shoulder-to-shoulder attendance, thanks to talkative cab drivers and creative museum managers!

The principal at one Oregon middle school used creativity to solve a maintenance problem. Girls would put on lipstick in the bathrooms and then press their lips to the mirror, leaving dozens of sticky lip prints that the maintenance crew had to scrub off. The principal invited all of the girls to the bathroom, where she explained the problem and the time and cost associated with cleaning the mirrors every day. She then asked the maintenance man to demonstrate how difficult it was to scrub off the lipstick. He took out a long-handled squeegee, dipped it in a toilet, and proceeded to clean the mirror with it. Since then, no lip prints have appeared on the mirrors in the girls' bathrooms!

1. Contact a local small business owner and ask about a problem that his or her company is facing. Work with a small team of your classmates and use the type of creative thinking described here to generate potential solutions to the problem. Remember to think creatively!

Sources: Bernard Percy and Marina Leight, "Side by Sick" *Converge*, April–May 2002, p. 11; Charles R. Davey, "Odball Ideas Aren't So Odd," *Industry Week*, August 3, 1992, p. 7; *Bits & Pieces*, October 15, 1992, pp. 8–10.

Talk to a child. As we grow older, we learn to conform to society's expectations about many things, including creative solutions to problems. Children place very few limitations on their thinking; as a result, their creativity is practically boundless. (Remember all of the games you and your fiends invented when you were young?)

Keep a toy box in your office. Your box might include silly objects such as wax lips, a yoyo, a Slinky, fortune cookie sayings, feathers, a top, a compass, or a host of other items. When you are stumped, pick an item at random from the toy box and think about how it relates to your problem.

Read books on stimulating creativity or take a class on creativity. Creative thinking is a technique that anyone can learn. Understanding and applying the principles of creativity can improve dramatically anyone's ability to develop new and innovative ideas.

Take some time off. Relaxation is vital to the creative process. Getting away from a problem gives the mind time to reflect on it. It is often during this time, while the subconscious works on a problem, that the mind generates many creative solutions. One creativity expert claims that fishing is the ideal activity for stimulating creativity. "Your brain is on high alert in case a fish is around," he says, "but your brain is completely relaxed. This combination is the time when you have the 'Aha!' moment."³³

THE CREATIVE PROCESS

Although creative ideas may appear to strike as suddenly as a bolt of lightning, they are actually the result of the creative process, which involves seven steps:

1. preparation
2. investigation
3. transformation
4. incubation
5. illumination
6. verification
7. implementation

Step 1. Preparation. This step involves getting the mind ready for creative thinking. Preparation might include a formal education, on-the-job training, work experience, and taking advantage of other learning opportunities. This training provides a foundation on which to build creativity and innovation. As one writer explains, "Creativity favors the prepared mind."³⁴ For example, Dr. Hamel Navia, a scientist at tiny Vertex Pharmaceuticals, recently developed a promising new drug to fight the AIDS virus. His preparation included earning an advanced degree in the field of medicine and learning to use computers to create 3-D images of the protein molecules he was studying.³⁵ How can you prepare your mind for creative thinking?

- Adopt the attitude of a lifelong student. Realize that educating yourself is a neverending process. Look at every situation you encounter as an opportunity to learn.

A Company Example

Ravi Vaidyanathan, a research scientist at *Orbital Research Inc.*, a small high-tech firm based in Cleveland, began studying the reflexes of the cockroach after observing its uncanny ability to escape an approaching shoe. Vaidyanathan used what he learned from the insect to create a neural network called BioAVERT based on a mathematical algorithm for the company that promises to improve the navigation systems in cars, ships, airplanes, and other methods of transportation. "By mimicking a cockroach," he says, "we're able to come up with a neural network for very fast responses."³⁶

- Read . . . a lot . . . and not just in your field of expertise. Many innovations come from blending ideas and concepts from different fields in science, engineering, business, and the arts. Reading books, magazines, and papers covering a wide variety of subject matter is a great way to stimulate your creativity.
- Clip articles of interest to you and create a file for them. Over time, you will build a customized encyclopedia of information from which to draw ideas and inspiration.
- Take time to discuss your ideas with other people, including those who know little about the topic as well as experts in the field. Sometimes the apparently simple questions an "unknowledgeable" person asks lead to new discoveries and to new approaches to an old problem.

A Company Example

Dave Wiggins, president of *American Wilderness Experience, Inc.*, an adventure travel company, gets valuable ideas from his wife, Carol, a network of business advisors, and his employees. The idea for the company's most popular trip, snowmobiling in Yellowstone National Park, came from one of the company's guides. "I find it extremely helpful to get different perspectives from people I respect and trust," says Wiggins.³⁷

- Join professional or trade associations and attend the meetings. There you have the chance to brainstorm with others who have similar interests. Learning how other people have solved a particular problem may give you fresh insight into solving it.
- Invest time in studying other countries and their cultures; then travel there. Our global economy offers incredible business opportunities for entrepreneurs with the necessary knowledge and experience to recognize them. One entrepreneur began a lucrative business exporting a variety of consumer products to Latvia after he accompanied his daughter there on a missionary trip. He claims that he never would have seen the opportunity had he not traveled to Latvia with his daughter.

- Develop listening skills. It's amazing what you can learn if you take the time to listen to other people—especially those who are older and have more experience. Try to learn something from everyone you meet.

Step 2. Investigation. This step requires developing a solid understanding of the problem, situation, or decision at hand. To create new ideas and concepts in a particular field, an individual first must study the problem and understand its basic components. Creative thinking comes about when people make careful observations of the world around them and then investigate the way things work (or fail to work). For example, Dr. Navia and another scientist at Vertex had spent several years conducting research on viruses and on a protein that blocks a virus enzyme called protease. His exploration of the various ways to block this enzyme paved the way for his discovery.

*For Joe Moya and Joe Raia, cofounders of Joe Designer Inc., the creative process is the key to their company's success. Joe Designer has created and developed a myriad of award-winning designs for companies ranging from Betty Crocker to Kodak. Raia explains the importance of the investigation phase as he and Moya prepare their creative team for an assignment. "We familiarize ourselves with market trends, the past history of the product," he says. "We research by flipping through magazines. We pin articles, photos, everything upon the walls and familiarize the whole team with what the history is and what we want to achieve."*³⁸

Step 3. Transformation. Transformation involves viewing the similarities and the differences in the information collected. This phase requires two types of thinking: convergent and divergent. **Convergent thinking** is the ability to see the similarities and the connections among various data and events.

A Company Example

convergent thinking—the ability to see similarities and the connections among various data and events.

*While working for Dow Chemical Company, Mike Biddle was disturbed by the difficulties of recycling and reusing the high-tech plastics he and his team developed for the aerospace industry. When he left Dow in 1992, Biddle decided to start MBA Polymers Inc., a research and development company that focuses on recycling the plastic from consumer durables such as computers, monitors, televisions, and other common products. Traditional plastics recycling equipment was not durable enough to handle the job. The first barrier Biddle and former Dow co-worker Trip Allen had to overcome was finding a way to separate the plastic components from other materials such as glass, metal, and paper. Using convergent thinking, Biddle and Allen searched for similarities in the equipment used by other industries such as mining, agriculture, and food processing, where sorting and separating materials is an important part of the process. Creative thinking led them to adapt a machine that was used to shred nail-filled wooden pallets to separate metals from the plastic; they used a piece of farm equipment that separated wheat from chaff to remove paper labels from the plastic mix. They modified a mining machine that extracted minerals from rocks to separate different grades of plastic. The founders' ability to use convergent thinking allows MBA Polymers to produce recycled plastic that is 20 to 25 percent cheaper than virgin plastic. The company now churns out more than 500,000 pounds of recycled plastic each month.*³⁹

A Company Example

divergent thinking—the ability to see differences among various data and events.

Divergent thinking is the ability to see the differences among various data and events. While developing his AIDS-fighting drug, Dr. Navia studied the work of other scientists whose attempts at developing an enzyme-blocking drug had failed. He was able to see the similarities and differences between his research and others' research and to build on their successes while avoiding their failures.

How can you increase your ability to transform the information collected into a purposeful idea?

- Evaluate the parts of the situation several times, trying to grasp the "big picture." Getting bogged down in the details of a situation too early in the creative process can diminish creativity. Look for patterns that emerge.
- Rearrange the elements of the situation. By looking at the components of an issue in a different order or from a different perspective, you may be able to see the similarities and the differences among them more readily. Rearranging them also may help uncover a familiar pattern that had been masked by an unfamiliar structure.

- Before locking into one particular approach to a situation, remember that several approaches might be successful. If one approach produces a dead end, don't hesitate to jump quickly to another. Considering several approaches to a problem or opportunity simultaneously would be like rolling a bowling ball down each of several lanes in quick succession. The more balls you roll down the lanes, the greater is the probability of hitting at least one strike. Resist the temptation to make snap judgments on how to tackle a problem or opportunity. The first approach may not be the best one.

Step 4. Incubation. The subconscious needs time to reflect on the information collected. To an observer, this phase of the creative process would be quite boring; it looks as though nothing is happening! In fact, during this phase, it may appear that the creative person is *loafing*. Incubation occurs while the individual is away from the problem, often engaging in some totally unrelated activity. Dr. Navia's creative powers were working at a subconscious level even when he was away from his work and not even thinking about his research on AIDS-fighting drugs.

How can you enhance the incubation phase of the creative process, letting ideas marinate in your mind?

- Walk away from the situation. Often doing something totally unrelated to it will give your subconscious mind the chance to work on the problem or opportunity. One expert suggests that the "three h's"—bath, bed, and bus—are conducive to creativity. "I do some of my best thinking in my hot tub at home," says American Wilderness Experience's Dave Wiggins. "I sit there, look at the stars, and come up with some pretty good ideas."⁴⁰
- Take the time to daydream. Although it may *look* as if you're doing nothing, daydreaming is an important part of the creative process. That's when your mind is most free from paradigms and other self-imposed restrictions on creativity. Feel free to let your mind wander, and it may just stumble onto a creative solution.
- Relax—and play—regularly. Perhaps the worst thing you can do for creativity is to work on a problem or opportunity constantly. Soon enough, fatigue walks in and creativity walks out! Great ideas often are incubated on the golf course, on the basketball court, in the garden, or in the hammock.
- Dream about the problem or opportunity. Although you may not be able to dream on command, thinking about an issue just before you drift off to sleep can be an effective way to encourage your mind to work on it while you sleep, a process called lucid dreaming. When he gets in bed, prolific inventor, serial entrepreneur, and author Ray Kurzweil focuses on a particular problem, sometimes imagining that he is giving a speech about his success at solving it. "This has the purpose of seeding your subconscious to influence your dreams," he explains. Often, while he is asleep, ideas and potential solutions to the problem drift into his dreams. When he begins to awaken but is still in that netherland of semi-sleep, Kurzweil merges the logic of conscious thought with the content of his dreams. The process often produces astonishing insights that Kurzweil says he otherwise might have missed.⁴¹
- Work on the problem or opportunity in a different environment—somewhere other than the office. Take your work outside on a beautiful fall day or sit on a bench in a mall. The change of scenery will likely stimulate your creativity.

Step 5. Illumination. This phase of the creative process occurs at some point during the incubation stage when a spontaneous breakthrough causes "the lightbulb to go on." It may take place after five minutes—or five years. In the illumination stage, all of the previous stages come together to produce the "Eureka factor"—the creation of the innovative idea. In one study of 200 scientists, 80 percent said that at least once a solution to a problem had "just popped into their heads"—usually when they were away from the problem.⁴² For Dr. Navia, the illumination stage occurred one day while he was reading a scientific journal. As he read, Dr. Navia says he was struck with a "hallucination" of a novel way to block protease.

Although the creative process itself may last for months or even years, the suddenness with which the illumination step occurs can be deceiving. For example:

One night, Kent Murphy, an electrical engineer, began dreaming about what it would be like to be a photon of light. "I was riding a ray of light moving through the fiber," he recalls about his dream. Murphy, who holds 30 patents, used the insight from his dream to invent a fiber-optic gauge that monitors on a real-time basis the structural wear in airplanes.⁴³ Barry

Kemp says that the idea for the TV series *Coach* popped into his head—characters, plot line, and all—at 3 o'clock in the morning. He got up and scribbled seven pages of notes that became the foundation for the successful sit-com. A professor of mathematical sciences came up with an important new theory to explain how gravity works in the rotation of spiral galaxies, a problem that has perplexed physicists and astronomers for decades, while gazing at a ceiling fan in a restaurant. Like a point on the blade of a ceiling fan, he thought (he was daydreaming at the time), the speed of a star in a spinning galaxy is slower if it lies closer to the axis. He developed an equation to test his theory and then compared its results to various measurements of galactic rotation. The results were consistent with reality, and the theory worked!⁴⁴

Step 6. Verification. Validating the idea as accurate and useful, for entrepreneurs, may include conducting experiments, running simulations, test marketing a product or service, establishing small-scale pilot programs, building prototypes, and many other activities designed to verify that the new idea will work and is practical to implement. The goal is to subject the innovative idea to the test of cold, hard reality. At this phase, appropriate questions to ask include:

- Is it *really* a better solution to a particular problem or opportunity? Sometimes an idea that appears to have a bright future in the lab or on paper dims considerably when put to the test of reality.
- Will it work?
- Is there a need for it?
- If so, what is the best application of this idea in the marketplace?
- Does this product or service idea fit into our core competencies?
- How much will it cost to produce or to provide?
- Can we sell it at a reasonable price that will produce adequate sales, profit, and return on investment for our business?

Ramtron International Corporation, a maker of memory chips, uses a “product justification form” to collect information from the idea generator as well as from other departments in the company so it can verify the potential of each idea.⁴⁵ To test the value of his new drug formulation, Dr. Navia used powerful computers at Vertex Pharmaceuticals to build 3-D Tinkertoy-like models of the HIV virus and then simulated his new drug’s ability to block the protease enzyme. Subsequent testing of the drug verified its safety. “I was convinced that I had an insight that no one else had,” he recalls.⁴⁶

Step 7. Implementation. The focus of this step is to transform the idea into reality. Plenty of people come up with creative ideas for promising new products or services, but most never take them beyond the idea stage. What sets entrepreneurs apart is that they *act* on their ideas. An entrepreneur’s philosophy is “ready, aim, fire,” not “ready, aim, aim, aim, aim . . .”

NCT Group, a small company, had developed a system that sent mirror images of sound waves through ceramic tiles to cancel out noise. One day, an engineer wondered what would happen if he sent music instead of “anti-noise” through the tiles. He connected a radio to the unit, and from the flat tiles came the sound of the Beatles! The company took the engineer’s discovery and developed 2-inch-thick, wall-mounted speakers that produce high-quality audio for the consumer market! Another small business, Cygnus Inc., had created a patch that was designed to deliver drugs through the wearer’s skin. While taking apart a patch one day, a researcher realized that not only did it deliver drugs, but it also absorbed material from the body. Cygnus transformed the discovery into a line of watchlike devices that monitor the glucose levels of diabetic patients.⁴⁷

A Company Example

The key to both companies’ success was their ability to take a creative idea for a useful new product and turn it into a reality. As one creativity expert explains, “Becoming more creative is really just a matter of paying attention to that endless flow of ideas you generate, and learning to capture and act upon the new that’s within you.”⁴⁸

For Dr. Navia and Vertex Pharmaceuticals, the implementation phase required testing the drug’s ability to fight the deadly virus in humans. If it proved to be effective, Vertex would complete the process by bringing the drug to market. In this final phase of testing, Navia was so certain that he was on the verge of a major breakthrough in fighting AIDS that he couldn’t sleep at night. Unfortunately, the final critical series of tests proved that Dr. Navia’s flash of

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Reinventing the Wheel

Brian Le Gette and Ron Wilson have built a highly successful company, Big Bang Products, by focusing their creativity on everyday products that most people never think about: sunglasses, gloves, beach chairs, stadium seats, and others. It all started, however, when Le Gette and Wilson, both trained as engineers, became friends while studying at Wharton Business School. They decided that they could come up with a better design for earmuffs, one that would enable them to keep their ears warm without looking like dorks. In their first year of business school, Le Gette and Wilson designed an expandable, collapsible, fleece-covered ear warmer that wrapped around the back of the wearer's head rather than over the top. Their design was lighter, less bulky, and looked much better than traditional earmuffs. "We thought the engineering would be relatively simple," says Wilson. But to make it so it stayed on people's heads was complex. On a shopping spree at Wal-Mart, the duo bought a variety of plastic items they could cut apart and reglue or rivet together to make a crude prototype.

Le Gette and Wilson decided that their design had market potential, so in 1993 they charged \$7,500 of start-up expenses on their credit cards and launched Big Bang Products. By the fall of 1994, they were selling their distinctive earmuffs to fellow students on the University of Pennsylvania's main thoroughfare. Then came a big break. Two of their classmates had landed internships at shopping network QVC and convinced Le Gette and Wilson to pitch their earmuffs on television. The first 5,000 earmuffs sold out in just eight-and-a-half minutes. By 1997, they had sold more than 600,000 earmuffs on QVC!

Later that year, they raised \$2 million in capital, hired five employees, and turned their attention to innovating

other mundane products including a radio-controlled toy hang glider, a stadium seat filled with self-inflating foam, and a pop-open beach mat, all of which they sold on QVC. The duo gained a reputation for getting products from the idea stage to market with incredible speed. The beach mat, for instance, went from prototype to market in just eight weeks! "Innovation is the easy part," says Le Gette. "The difficult part is choosing the right innovation."

Big Bang Products now has annual sales of more than \$35 million and is growing rapidly. In addition to QVC, the company's products are sold through retailers such as Nordstrom, REI, Target, Eddie Bauer, and others. Le Gette and Wilson now focus their attention on a narrower line of products, those with the greatest market potential, but they remain true to their original business concept: innovating everyday products. One of their latest innovations is a pair of gloves equipped with "exhale heating technology," a small port the wearer blows into to warm his or her hands. The company is working with the Department of Defense about the gloves' potential military applications. The company's sunglasses have pivoting temples that fold in from the lenses, making them less likely to get scratched and easier to put into a pocket. "We have an inexhaustible desire to question the things that most people think have already been answered," says Le Gette. "And that's how we succeed at reinventing the wheel."

1. What is Big Bang Products' competitive edge in the marketplace?
2. Try the company's approach yourself. Work with a team of your classmates to select an everyday product and brainstorm ways it could be improved.
3. How would you determine the market potential of your new and improved design?

Sources: Adapted from Donna Fenn, "The B-School Boys," *Inc.*, September 2002, p. 78; Big Bang Products, www.bigbangproducts.com/aboutus/history/history.asp#.

creativity was, as he now says, "completely, totally, and absolutely incorrect." Although his intuition proved to be wrong this time, Dr. Navia's research into fighting AIDS continues. Much of the current work at Vertex is based on Dr. Navia's original idea. Although it proved to be incorrect, his idea has served a valuable purpose: generating new ideas. "We are now applying a powerful technology in HIV research that wasn't used before, one inspired by a hunch," he says.⁴⁹

TECHNIQUES FOR IMPROVING THE CREATIVE PROCESS

Teams of people working together usually can generate more and more creative ideas. Three techniques that are especially useful for improving the quality of creative ideas from teams are brainstorming, mind-mapping, and rapid prototyping.

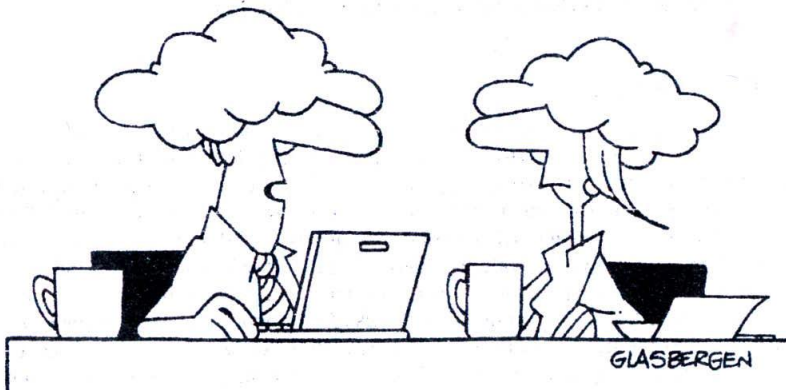
7. Discuss techniques for improving the creative process.

Brainstorming

Brainstorming is a process in which a small group of people interact with very little structure with the goal of producing a large *quantity* of novel and imaginative ideas. The goal is to create an open, uninhibited atmosphere that allows members of the group to “freewheel” ideas. Participants should suggest any ideas that come to mind *without evaluating or criticizing them*. As group members interact, each idea sparks the thinking of others, and the spawning of ideas becomes contagious. For a brainstorming session to be successful, entrepreneurs should follow these guidelines:

- Keep the group small—five to eight members. If possible, include people with different backgrounds and perspectives. At Joe Design Inc., every employee in the small firm takes part in brainstorming sessions. “We bring in everybody from the bookkeeper to the office manager because they see things completely differently than we do,” says Raia.⁵⁰
- Company rank and department affiliation are irrelevant. Every member of the brainstorming team is on equal ground.
- Have a well-defined problem for the group to address, but don’t reveal it ahead of time. Otherwise, participants will discuss their ideas, criticize them, and engage in other creativity-limiting activities. Stating the problem in the form of a “why,” “how,” or “what” question often helps.
- Limit the session to 40 to 60 minutes. Beyond that, participants grow weary and creativity flags.
- Appoint someone (preferably not a brainstorming participant) to the job of recorder. The recorder should write all ideas on a flip chart or board so that everyone can see them.
- Use a seating pattern that encourages communication and interaction (e.g., circular or U-shaped arrangements).
- Throw logic out the window. The best brainstorming sessions are playful and anything but logical.
- Encourage *all* ideas from the team, even wild and extreme ones. Not only can ideas that initially seem crazy get the group’s creative juices flowing, but they also can spread creativity like wildfire. In addition, the group often can polish some of these wild ideas into practical, creative solutions.
- Establish a goal of *quantity* of ideas over *quality* of ideas. There will be plenty of time later to evaluate the ideas generated. At Ideo Inc., a Silicon Valley design firm, brainstorming teams shoot for at least 150 ideas in a 30- to 45-minute session.⁵¹ When chemist Linus Pauling received his second Nobel Prize, someone asked him how he came up with so many great ideas. Pauling replied simply, “I come up with lots of ideas.”⁵²
- *Forbid* evaluation or criticism of any idea during the brainstorming session. No idea is a bad idea. Criticism slams the brakes on the creative process instantly!

Brainstorming—a process in which a small group of people interact with very little structure with the goal of producing a large quantity of novel and imaginative ideas.



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**“Sometimes you get a brainstorm,
sometimes you just get the clouds.”**

- Encourage participants to use “idea hitch-hiking,” building new ideas on those already suggested. Often some of the best solutions are those that are piggybacked on others.

Brainstorming is a powerful tool; teams of workers using brainstorming will produce a greater quantity of ideas and higher-quality ideas than individuals working alone on the same problem. Several software packages, including IdeaFisher Pro, ThoughtPath, and Inspiration, are designed to guide both individuals and teams of people through the brainstorming process.

Mind-Mapping

Another useful tool for jump-starting creativity is mind-mapping, an extension of brainstorming. One strength of mind-mapping is that it reflects the way the brain actually works. Rather than throwing out ideas in a linear fashion, the brain jumps from one idea to another. In many creative sessions ideas are rushing out so fast that many are lost if a person attempts to shove them into a linear outline. Creativity suffers. **Mind-mapping** is a graphical technique that encourages thinking on both sides of the brain, visually displays the various relationships among ideas, and improves the ability to view a problem from many sides.

The mind-mapping process works this way:

- Start by writing down or sketching a picture symbolizing the problem or area of focus in the center of a large blank page. Tony Buzan, originator of the mind-mapping technique, suggests using ledger paper or covering an entire wall with butcher paper to establish a wide open attitude toward creativity.
- Write down every idea that comes into your mind, connecting each idea to the central picture or words with a line. Use key words and symbols to record ideas in shorthand. Work as quickly as possible for no more than 20 minutes, doing your best to capture the tide of ideas that flows from your brain. Just as in brainstorming, do not judge the quality of your ideas; just get them onto the paper. Build new ideas on the backs of existing ones. If you see a connection between a new idea and one already on the paper, connect them with a line. If not, simply connect the idea to the center symbol. You will organize your ideas later in the process.
- When the flow of ideas slows to a trickle, stop! Don't try to force creativity.
- Allow your mind to rest for a few minutes and then begin to integrate the ideas on the page into a mind map. Use colored pens and markers to connect ideas with similar themes or to group ideas into related clusters. As you organize your thoughts, look for new connections among your ideas. Sometimes the brain needs time to process the ideas in a mind map. (Recall the incubation stage of the creative process.) Walking away from the mind map and the problem for a few minutes or a few hours may lead to several new ideas or to new relationships among ideas. One entrepreneur created the format for his company's business plan with a mind map rather than with a traditional linear outline. When he finished, he not only knew what he should include in his plan but he also had a clear picture of the order in which to sequence the elements.

Rapid Prototyping

Generating creative ideas is a critical step in the process of taking an idea for a product or a service successfully to the market. However, entrepreneurs find that most of their ideas won't work, and that's where rapid prototyping plays an important part in the creative process. The premise behind **rapid prototyping** is that transforming an idea into an actual model will point out flaws in the original idea and will lead to improvements in its design. “If a picture is worth a thousand words, a prototype is worth ten thousand,” says Steve Vassallo of Ideo Inc.⁵³

The three principles of rapid prototyping are the three R's: rough, rapid, and right. Models do not have to be perfect; in fact, in the early phases of developing an idea, perfecting a model usually is a waste of time. The key is to make the model good enough to determine what works and what does not. Doing so allows an entrepreneur to develop prototypes rapidly, moving closer to a successful design with each iteration. The final R, *right*, means building lots of small models that focus on solving particular problems with an idea. “You're not trying to build a complete model,” says Vassallo. “You're just focusing on a small section of it.”⁵⁴

mind-mapping—a graphical technique that encourages thinking on both sides of the brain, visually displays the various relationships among ideas, and improves the ability to view a problem from many sides.

rapid prototyping—the process of creating a model of an idea, enabling an entrepreneur to discover flaws in the idea to make improvements in the design.

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Evaluating Ideas for Their Market Potential

Legend has it that in 1899, Charles H. Duell, U.S. Commissioner of Patents, advised President McKinley to close the U.S. Patent Office because "everything that can be invented has been invented." Duell was way off the mark, of course; the U.S. Patent and Trademark Office has issued more than 7 million patents since 1899. However, does a great idea that earns a patent mean that the inventor has the foundation for a successful business?

Not necessarily. Alden McMurtys, a Connecticut tinkerer, in 1911 rushed to the U.S. Patent Office with his immortal design for the bubble-hat. It used a hidden gas canister to send soap bubbles out of a hat—perfect, Mr. McMurtys thought, for showstopping chorus numbers. It never became a commercial success. Other patents that demonstrate Americans' creative if not always marketable ideas include the underwater airplane, protective glasses for chickens, a 12-foot-long TV remote control, bird diapers, and a dog-shaped vacuum cleaner.

How can an entrepreneur evaluate the market potential of a new product or service idea? The following questions can help any entrepreneur or inventor assess the profit potential of a creative idea:

- What benefits does the product or service offer customers? Is there a real need for it?
- Have you pinpointed the exact problems or difficulties your idea aims to solve? Have you considered the problems or difficulties it might create?
- On a scale of 1 to 10, how difficult will it be to execute the idea and sell it commercially?
- Does the product or service have natural sales appeal? Can customers afford it? Will they buy it? Why?
- What existing products or services would compete with your idea? Is your product or service superior to these competing products or services? If so, in what way?
- On a scale of 1 to 10, how easily can potential customers understand the benefits of your new product or service idea? Are they obvious?
- On a scale of 1 to 10, how complex is the product or service? If it is a product, can you make a prototype of it yourself?
- On a scale of 1 to 10, how complex is the distribution or delivery system necessary to get the product or service into customers' hands?
- How unique is your product or service? How easily can other companies imitate your idea?
- How much will it cost to produce or provide the product or service? To distribute it?

To evaluate creative ideas for their commercial potential, Mail Boxes Etc. relies on a set of 20 criteria, each weighted to reflect its importance, and a scoring scale of minus 2 to plus 2. By multiplying an idea's score on each criteria by the criteria's weight, managers calculate a total score that gives them a sense of an idea's market potential. Michael Michalko, author of *Cracking Creativity: The Secrets of Creative Geniuses*, suggests using the PMI (plus, minus, interesting) technique. "First, list all of the positive (plus) aspects of the idea," he says. "Then list all of the negative (minus) aspects of the idea. Last, list everything that's interesting [about it], but you're not sure if it's a plus or a minus." Evaluating an idea in this way will lead to one of three results. "You'll decide it's a bad idea, you'll decide it's a good idea, or you'll recycle it into something else," says Michalko.

Try your hand at this process. Assume the role of consultant and help Randi Altschul evaluate the market potential of her business idea. One day, Randi was trying to use her malfunctioning cellular phone in her car when she became so frustrated that she was tempted to throw the expensive phone out the window. That's when the idea of a disposable cellular phone came to her. Using her background in inventing board games, Randi worked with engineers to design an ultrathin (the equivalent of three credit cards), inexpensive phone whose circuitry is printed in conductive ink. The 2-inch by 3-inch phone gives users 60 minutes of calling time (outgoing calls only) and a hands-free attachment, all for an estimated average price of \$20 (and a \$2 to \$3 rebate for returning the phone instead of tossing it). Randi and partner Lee Volte are working through their company, Dieceland Technologies, to apply the same technology used in the cell phone to create a paper laptop computer that they expect to serve as an Internet access device that will sell for \$20.

1. Use the resources on the World Wide Web and your library to explore the prospects for Randi Altschul's cell phone.

2. Use the information you collect to answer as many of the questions listed here as possible. Conduct a PMI (plus, minus, interesting) analysis for Randi's idea.

Sources: Adapted from Mary Bellis, "Disposable Cell Phone—Phone Card Phone," *Inventors*, inventors.about.com/librag/weekly/aa22801b.htm; Joshua Hyatt, "Inside an Inventive Mind," *FSB*, March 2002, p. 26; Jane Bahls, "Got a Winner?" *Business Start-Ups*, March 1999, pp. 6–7; Patricia L. Fry, "Inventor's Workshop," *Business Start-Ups*, August 1997, pp. 34–37; Peter Carbonara, "What Do You Do with a Great Idea?" *Business Start-Ups*, August/September, pp. 28–58; Michael W. Miller, "It Seemed Like a Good Idea," *Wall Street Journal*, May 24, 1993, p. R24; Don Debelak, "Ready or Not?" *Business Start-Ups*, January 1998, pp. 62–65; Karen Axelson, "Imagine That!" *Business Start-Ups*, April 1998, p. 96; Susan Greco, "Where Great Ideas Come From," *Inc.*, April 1998, pp. 76–86; Ross McDonald, "Patent Office Gold," *Kiplinger's Personal Finance Magazine*, June 2002, p. 124; Michael S. Malone, "The Smother of Invention," *Forbes ASAP*, June 24, 2002, pp. 32–40.

8. Describe the protection of intellectual property rights involving patents, trademarks, and copyrights.

patent—a grant from the federal government's Patent and Trademark Office to the inventor of a product, giving the exclusive right to make, use, or sell the invention in this country for 20 years from the date of filing the patent application.

PROTECTING YOUR IDEAS

Once entrepreneurs come up with an innovative idea for a product or service that has market potential, their immediate concern should be to protect it from unauthorized use. Entrepreneurs must understand how to put patents, trademarks, and copyrights to work for them.

Patents

A **patent** is a grant from the federal government's Patent and Trademark Office (PTO) to the inventor of a product, giving the exclusive right to make, use, or sell the invention in this country for 20 years from the date of filing the patent application. The purpose of giving an inventor a 20-year monopoly over a product is to stimulate creativity and innovation. After 20 years, the patent expires and cannot be renewed. Most patents are granted for new product inventions, but *design patents*, extending for 14 years beyond the date the patent is issued, are given to inventors who make new, original, and ornamental changes in the design of existing products that enhance their sales. Inventors who develop a new plant can obtain a *plant patent*, provided they can reproduce the plant asexually (e.g., by grafting or cross-breeding rather than planting seeds). To be patented, a device must be new (but not necessarily better!), not obvious to a person of ordinary skill or knowledge in the related field, and useful. A device *cannot* be patented if it has been publicized in print anywhere in the world or if it has been used or offered for sale in this country prior to the date of the patent application. A U.S. patent is granted only to the true inventor, not to a person who discovers another's invention. No one can copy or sell a patented invention without getting a license from its creator. A patent does not give one the right to make, use, or sell an invention but the right to exclude others from making, using, or selling it.

Although inventors are never assured of getting a patent, they can enhance their chances considerably by following the basic steps suggested by the PTO. Before beginning the often lengthy and involved procedure, inventors should obtain professional assistance from a patent practitioner—a patent attorney or a patent agent—who is registered with the PTO. Only those attorneys and agents who are officially registered may represent an inventor seeking a patent. A list of registered attorneys and agents is available at the PTO's Web site. Approximately 98 percent of all inventors rely on these patent experts to steer them through the convoluted process. Legal fees for filing a patent application range from \$3,000 to \$10,000, depending on the complexity of the product.⁵⁵ One study reports that for the typical small business, obtaining a patent and maintaining it for 20 years costs about \$10,000.⁵⁶

THE PATENT PROCESS. Since George Washington signed the first patent law in 1790, the U.S. Patent and Trademark Office (www.uspto.gov) has issued patents on everything imaginable (and some unimaginable items, too), including mousetraps (of course!), Robert Fulton's steamboat, animals (genetically engineered mice), Thomas Edison's lightbulb, games, and various fishing devices. The PTO also has issued patents on business processes—methods of doing business—including Amazon.com's controversial patent on its "1-Click" technology, which allows users to store their customer information in a file and then recall it with one mouse click at checkout. To date the PTO has issued more than 7 million patents, and it receives more than 340,000 new applications each year (see Figure 2.3).⁵⁷ To receive a patent, an inventor must follow these steps:

Establish the invention's novelty. An invention is not patentable if it is known or has been used in the United States or has been described in a printed publication in this or a foreign country.

Document the device. To protect their patent claims, inventors should be able to verify the date on which they first conceived the idea for their inventions. Inventors can document a device by keeping dated records (including drawings) of their progress on the invention and by having knowledgeable friends witness these records. Inventors also can file a disclosure document with the PTO—a process that includes writing a letter describing the invention and sending a check for \$10 to the PTO. A disclosure document is *not* a patent application, but it does provide evidence of the date an inventor conceived an invention.

Search existing patents. To verify that the invention truly is new, not obvious, and useful, an inventor must conduct a search of existing patents on similar products. The purpose of the

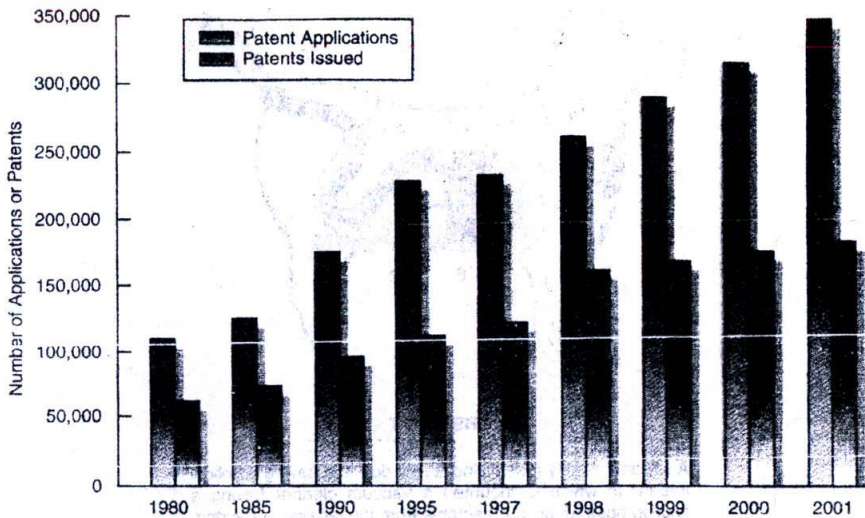


FIGURE 2.3 Number of Patent Applications and Patents Issued

search is to determine whether or not the inventor has a chance of getting a patent. Most inventors hire professionals trained in conducting patent searches to perform the research. Inventors themselves can conduct an online search of all patents granted by the PTO since 1976 from the office's Web site. An online search of these patents does not include sketches; however, subscribers to Delphion's Research Intellectual Property Network can access patents, including sketches, as far back as 1971 at www.delphion.com.

Study search results. Once the patent search is finished, inventors must study the results to determine their chances of getting a patent. To be patentable, a device must be sufficiently different from what has been used or described before and must not be obvious to a person having ordinary skill in the area of technology related to the invention.

Submit the patent application. If an inventor decides to seek a patent, he or she must file an application describing the invention with the PTO. The typical patent application runs 20 to 40 pages, although some, especially those for biotech or high-tech products, are tens of thousands of pages long. The longest patent application to date is one for a gene patent that was 6 million pages long!⁵⁸ Most inventors hire patent attorneys or agents to help them complete their patent applications. Figure 2.4 shows a portion of the application for a rather unusual patent, number 3,771,192.

Prosecute the patent application. Before the PTO will issue a patent, one of its examiners studies the application to determine whether or not the invention warrants a patent. Approval of a patent normally takes about two years from the date of filing. If the PTO rejects the application, the inventor can amend the application and resubmit it to the PTO.

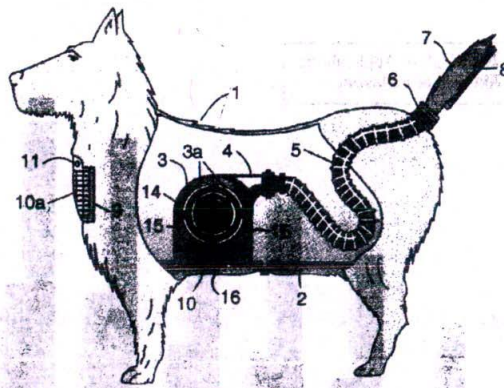
Defending a patent against "copycat producers" can be expensive and time-consuming but often is necessary to protect an entrepreneur's interest. The average cost of a patent infringement lawsuit is about \$1 million if the case goes to trial (about half that if the parties settle before going to trial), but the odds of winning are in the patent holder's favor. More than 60 percent of those holding patents win their infringement suits.⁵⁹

Knockoffs of its famous "Big Bertha" golf club have kept Callaway Golf Company busy defending its patents against counterfeiters. The company recently discovered a company making a look-a-like driver called the "Big Bursa." Experts estimate that in some cases, the knockoffs, with their steeply discounted prices, actually outsell the original clubs.⁶⁰

A Company Example

The World Wide Web has only compounded the problem of counterfeit sales, especially among luxury items such as Luis Vuitton and Coach bags, Cartier jewelry, and Chanel perfumes. The World Wide Web accounts for 10 percent of the total counterfeit market, which is double the amount of legitimate retail sales through e-commerce.⁶¹

FIGURE 2.4 Dog-Shaped Vacuum Cleaner. Patent Number 3,771,192



[57]

ABSTRACT

A toy dog closely resembling a real dog and having a hollow interior in which is mounted a vacuum cleaner having a suction hose which is retractable from the tail end of the dog. This enables vacuuming a dog after a hair cut and grooming without causing fear to the dog, inasmuch as the vacuum cleaner noise is greatly muffled by such enclosure. The vacuum cleaner is convertible to a blower and air issuing from the tail end can be heated so as to serve as a dryer.

5 Claims, 5 Drawing Figures

Trademarks

trademark—any distinctive word, phrase, symbol, design, name, logo, slogan, or trade dress that a company uses to identify the origin of a product or to distinguish it from other goods on the market.

A **trademark** is any distinctive word, phrase, symbol, design, name, logo, slogan, or trade dress that a company uses to identify the origin of a product or to distinguish it from other goods on the market. (A *service mark* is the same as a trademark except that it identifies and distinguishes the source of a service rather than a product.) A trademark serves as a company's "signature" in the marketplace. A trademark can be more than just a company's logo, slogan, or brand name; it can also include symbols, shapes, colors, smells, or sounds. For instance, Coca-Cola holds a trademark on the shape of its bottle, and NBC owns a trademark on its three-toned chime. Motorcycle maker Harley-Davidson has applied for trademark protection for the shape of its oil tanks and the throaty rumbling sound its engines make!⁶²

trade dress—the unique combination of elements that a company uses to create a product's image and to promote it.

Components of a product's identity such as these are part of its **trade dress**, the unique combination of elements that a company uses to create a product's image and to promote it. For instance, a Mexican restaurant chain's particular decor, color schemes, design, and overall "look and feel" would be its trade dress. To be eligible for trademark protection, trade dress must be inherently unique and distinctive to a company, and another company's use of that trade dress must be likely to confuse customers.

A Company Example

*The Zippo Manufacturing Company, which has been making its distinctive metal cigarette lighter since 1932, has trademarked the shape of its classic lighter with the PTO to protect it from an onslaught of cheap imitations. Every year, the company sells more than 12 million lighters with their gently curved metal case, beveled edges, and distinctive flip-top. Zippo estimates that look-a-like knockoffs, many of which are made in China, have been skimming off as much as 30 percent of the company's sales by infringing on its trade dress.*⁶³

There are 1.5 million trademarks registered in the United States, 900,000 of which are in actual use. Federal law permits a manufacturer to register a trademark, which prevents other companies from employing a similar mark to identify their goods. Before 1989, a business could not reserve a trademark in advance of use. Today, the first party who either uses a trademark in commerce or files an application with the PTO has the ultimate right to register that trademark. Unlike patents and copyrights, which are issued for limited amounts of time, trade-

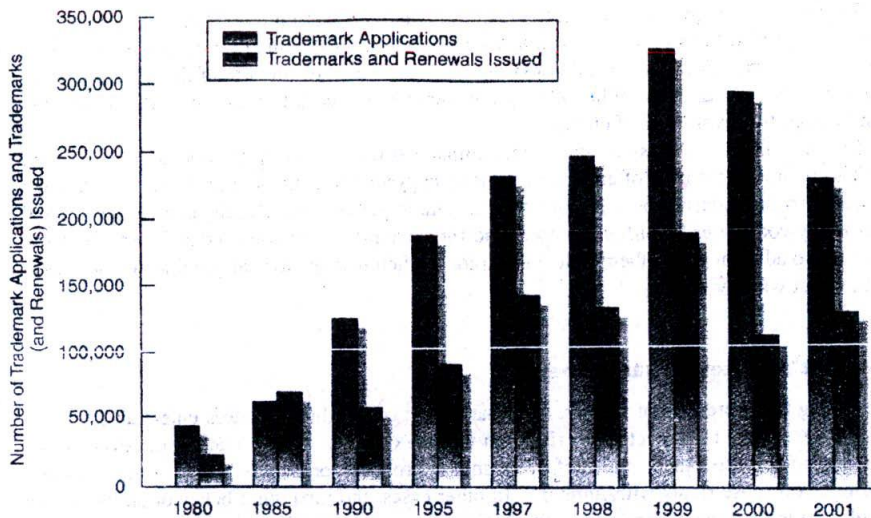


FIGURE 2.5 Trademark Application and Trademarks Issued

Source: U.S. Patent and Trademark Office.

marks last indefinitely as long as the holder continues to use it. However, a trademark cannot keep competitors from producing the same product and selling it under a different name. It merely prevents others from using the same or confusingly similar trademark for the same or similar products. Figure 2.5 shows the number of trademark applications filed and the number of trademarks issued in recent years.

Many business owners are confused by the use of the symbols TM and [®]. Anyone who claims the right to a particular trademark (or service mark) can use the TM (or SM) symbols without having to register the mark with the PTO. The claim to that trademark or service mark may or may not be valid, however. Only those businesses that have registered their marks with the PTO can use the [®] symbol. Entrepreneurs do not have to register trademarks or service marks to establish their rights to those marks; however, registering a mark with the PTO does give entrepreneurs greater power in protecting their marks. Filing an application to register a trademark or service mark is relatively easy, but it does require a search of existing names.

*Nancy Ganz, founder of **Bodyslimmers[®] by Nancy Ganz**, registered the name she gave her hipshaping undergarment, **Hipslip[®]**, with the PTO as soon as she coined the name. With her company's sales now exceeding \$10 million, Ganz has successfully defended her trademark against several competitors who unlawfully sold similar products using the **Hipslip[®]** name. "Shielding your trademarks isn't hard," she says. "If you let things slide long enough, you could learn the hard way how much it costs to have your name taken in vain."⁶⁴*

A Company Example

An entrepreneur may lose the exclusive right to a trademark if it loses its unique character and becomes a generic name. *Aspirin*, *escalator*, *thermos*, *brassiere*, *super glue*, *yo-yo*, and *cellophane* all were once enforceable trademarks that have become common words in the English language. These generic terms can no longer be licensed as trademarks.

Copyrights

A **copyright** is an exclusive right that protects the creators of original works of authorship such as literary, dramatic, musical, and artistic works (e.g., art, sculptures, literature, software, music, videos, video games, choreography, motion pictures, recordings, and others). The internationally recognized symbol © denotes a copyrighted work. A copyright protects only the form in which an idea is expressed, not the idea itself. A copyright on a creative work comes into existence the moment its creator puts that work into a tangible form. Just as with a trademark, obtaining basic copyright protection does not require registering the creative work with the U.S. Copyright Office (<http://lweb.loc.gov/copyright>).

copyright—an exclusive right that protects the creators of original works of authorship such as literary, dramatic, musical, and artistic works.

Registering a copyright does give creators greater protection over their work, however. Copyright applications must be filed with the Copyright Office in the Library of Congress for a fee of \$30 per application. A valid copyright on a work lasts for the life of the creator plus 70 years after his or her death. When a copyright expires, the work becomes public property and can be used by anyone free of charge.

Because they are so easy to duplicate, computer software programs, videotapes, CDs, and DVDs are among the most often pirated items by copyright infringers. Experts estimate that the global software industry loses \$12 billion each year to pirates who illegally copy programs and that Hollywood loses \$2 billion to those who forge counterfeit movies and sell them. Because they are so adept at plying their trade, video pirates often manage to beat genuine distributors to the market with movies.¹⁶⁵

Protecting Intellectual Property

Acquiring the protection of patents, trademarks, and copyrights is useless unless an entrepreneur takes action to protect those rights in the marketplace. Unfortunately, not every businessperson respects others' rights of ownership to products, processes, names, and works and infringes on those rights with impunity. In other cases, the infringing behavior simply is the result of a lack of knowledge about other's rights of ownership. The primary weapon an entrepreneur has to protect patents, trademarks, and copyrights is the legal system. The major problem with relying on the legal system to enforce ownership rights is the cost of infringement lawsuits, which can quickly exceed the budget of most small businesses.

If an entrepreneur has a valid patent, trademark, or copyright, stopping an infringer often requires nothing more than a stern letter from an attorney threatening a lawsuit. Often offenders don't want to get into expensive legal battles and agree to stop their illegal behavior. If that tactic fails, the entrepreneur may have no choice but to bring an infringement lawsuit.

Legal battles always involve costs. Before bringing a lawsuit, an entrepreneur must consider the following issues:

- Can the opponent afford to pay if you win?
- Do you expect to get enough from the suit to cover the costs of hiring an attorney and preparing a case?
- Can you afford the loss of time, money, and privacy from the ensuing lawsuit?

CHAPTER SUMMARY

1. Explain the differences among creativity, innovation, and entrepreneurship.

- The entrepreneur's "secret" for creating value in the marketplace is applying creativity and innovation to solve problems and to exploit opportunities that people face every day. Creativity is the ability to develop new ideas and to discover new ways of looking at problems and opportunities. Innovation is the ability to apply creative solutions to those problems and opportunities to enhance or to enrich people's lives. Entrepreneurship is the result of a disciplined, systematic process of applying creativity and innovation to needs and opportunities in the marketplace.

2. Describe why creativity and innovation are such an integral part of entrepreneurship.

- Entrepreneurs must always be on guard against existing paradigms—preconceived ideas of what the world is, what it should be like, and how it should operate—because they are logjams to creativity. Successful entrepreneurs often go beyond conventional wisdom as they ask "why not . . .?"
- Success—even survival—in this fiercely competitive, global environment requires entrepreneurs to tap their creativity (and that of their employees) constantly.

3. Understand how the two hemispheres of the human brain function and what role they play in creativity.

- For years, people assumed that creativity was an inherent trait. Today, however, we know better. Research shows that almost anyone can learn to be creative. The left hemisphere of the brain controls language, logic, and symbols, processing information in a step-by-step fashion. The right hemisphere handles emotional, intuitive, and spatial functions, processing information intuitively. The right side of the brain is the source of creativity and innovation. People can learn to control which side of the brain is dominant in a given situation.

4. Explain the 10 “mental locks” that limit individual creativity.

The number of potential barriers to creativity is limitless, but entrepreneurs commonly face 10 “mental locks” on creativity: searching for the one “right” answer; focusing on “being logical”; blindly following the rules; constantly being practical; viewing play as frivolous; becoming overly specialized; avoiding ambiguity; fearing looking foolish; fearing mistakes and failure; and believing that “I’m not creative.”

5. Understand how entrepreneurs can enhance the creativity of their employees as well as their own creativity.

- Entrepreneurs can stimulate creativity in their companies by expecting creativity; expecting and tolerating failure; encouraging curiosity; viewing problems as challenges; providing creativity training; providing support; rewarding creativity; and modeling creativity.
- Entrepreneurs can enhance their own creativity by using the following techniques: allowing themselves to be creative; giving their minds fresh input every day; keeping a journal handy to record their thoughts and ideas; reading books on stimulating creativity or taking a class on creativity; taking some time off to relax.

6. Describe the steps in the creative process.

- The creative process consists of seven steps: Step 1. Preparation—involves getting the mind ready for creative thinking; Step 2. Investigation—requires the individual to

develop a solid understanding of the problem or decision; Step 3. Transformation—involves viewing the similarities and the differences in the information collected; Step 4. Incubation—allows the subconscious mind to reflect on the information collected; Step 5. Illumination—occurs at some point during the incubation stage when a spontaneous breakthrough causes “the lightbulb to go on”; Step 6. Verification—involves validating the idea as accurate and useful; and Step 7. Implementation—involves transforming the idea into a business reality.

7. Discuss techniques for improving the creative process.

Three techniques that are especially useful for improving the creative process:

- Brainstorming is a process in which a small group of people interact with very little structure with the goal of producing a large quantity of novel and imaginative ideas.
- Mind-mapping is a graphical technique that encourages thinking on both sides of the brain, visually displays the various relationships among ideas, and improves the ability to view a problem from many sides.
- Rapid prototyping is based on the premise that transforming an idea into an actual model will point out flaws in the original idea and will lead to improvements in its design.

8. Describe the protection of intellectual property involving patents, trademarks, and copyrights.

- A patent is a grant from the federal government that gives an inventor exclusive rights to an invention for 20 years.
- A trademark is any distinctive word, symbol, or trade dress that a company uses to identify its product and to distinguish it from other goods. It serves as a company’s “signature” in the marketplace.
- A copyright protects original works of authorship. It covers only the form in which an idea is expressed, not the idea itself, and lasts for 70 years beyond the creator’s death.

DISCUSSION QUESTIONS

1. Explain the differences among creativity, innovation, and entrepreneurship.
2. How are creativity, innovation, and entrepreneurship related?
3. Why are creativity and innovation so important to the survival and success of a business?
4. One entrepreneur claims, “Creativity unrelated to a business plan has no value.” What does this mean? Do you agree?
5. What is a paradigm? What impact do paradigms have on creativity?
6. Can creativity be taught or is it an inherent trait? Explain.
7. How does the human brain function? What operations does each hemisphere specialize in? Which hemisphere is the “seat” of creativity?

8. Briefly outline the 10 “mental locks” that can limit individual creativity. Give an example of a situation in which you subjected yourself to one of these mental locks.
9. What can entrepreneurs do to stimulate their own creativity and to encourage it among workers?
10. Explain the steps of the creative process. What can an entrepreneur do to enhance each step?
11. Explain the differences among a patent, a trademark, and a copyright. What form of intellectual property does each protect?

THE BUSINESS DISC

Launch *The Business Disc*. Before you begin working through the exercises on the disc, you may want to see the brief overview of the process by using the disc’s preview feature. Once you feel comfortable with the process, start the business disc program and work with Harry, your host, accountant, and consultant, to determine the type of business you will launch. Be sure to use the techniques discussed in Chapter 2 to stimulate creative thinking and to avoid the barriers to creativity. Complete the business profile form.

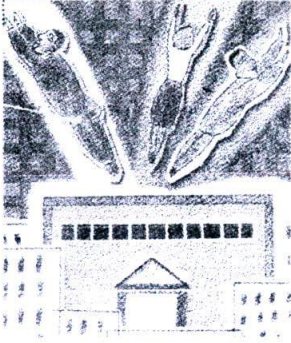
BUSINESS PLAN PRO

Business PlanPro

Did you develop some innovative ideas about different kind of businesses? If so, you may want to include these in the sections in *Business Plan Pro* called “Your Company” and “What You Are Selling”.

As you work your way through *The Business Disc* you can, at any time, use the “Go To” menu to return to earlier parts of the program for review. However, you should never use the “Go To” menu to skip ahead because you will miss data entry and decision points, and will ultimately have to start over. Be sure to exit the program by clicking “File” and “Exit” or by pressing the F4 function key. This will save your data.

At this point it is too premature to complete these sections accurately, but do not let your ideas elude you; put them down in the plan so you can rework them later.



1. Your dinner guests are to arrive in five minutes, and you've just discovered that you forgot to chill the wine!! Wanting to maintain your reputation as the perfect host or hostess, you must tackle this problem with maximum creativity. What could you do? Generate as many solutions as you can in five minutes working alone. Then work with two or three students in a small group to brainstorm the problem.
2. Work with a group of your classmates to think of as many alternative uses for the commercial lubricant WD-40 as you can. Remember to think *fluidly* (generating a quantity of ideas) and *flexibly* (generating unconventional ideas).
3. Review the following list of household appliances. Working with a small group of your classmates, select one and use the brainstorming technique to develop as many alternative uses for the appliance as you can in 15 minutes. Remember to abide by the rules of brainstorming! The appliances are the dishwasher, clothes dryer, curling iron, toaster oven, iron, microwave oven, coffeemaker, and any others you want to use.
4. A major maker of breakfast cereals was about to introduce a new multigrain cereal. Its principal selling point is that it features "three great tastes" in every bowl: corn, rice, and wheat. Because a cereal's name is an integral part of its marketing campaign, the company hired a costly consulting firm to come up with the right name for the new product. The consulting firm tackled the job using "a combination of structural linguistics and personal creativity." One year and many dollars later, the consulting firm gave its recommendation.

Take 20 minutes to list names that you think would be appropriate for this cereal. Make brief notes about why you think each name is appropriate.

Your professor may choose to prepare a list of names from all of the members of your class and may take a vote to determine the "winner."

5. Each hemisphere of the brain processes information differently, and one hemisphere tends to dominate the other. Consider the following lists of words and decide which one best describes the way you make decisions and solve problems:

Metaphor	Logic
Dream	Reason
Humor	Precision
Ambiguity	Consistency
Play	Work
Approximate	Exact
Fantasy	Reality
Paradox	Direct
Diffuse	Focused
Hunch	Analysis
Generalization	Specific
Child	Adult

If you chose the list on the left, you tend to engage in "soft" thinking, which suggests a right-brain orientation. If you chose the list on the right, you tend to engage in "hard" thinking, which suggests a left-brain orientation.

Creativity relies on both "soft" and "hard" thinking. Each plays an important role in the creative process but at different phases.

- A. Identify which type of thinking—"soft" or "hard"—would be more useful in each of the seven stages of the creative process.
 - B. List five things you can do to develop your thinking skills in the area ("soft" or "hard") that least describes your decision-making style.
6. Interview at least two entrepreneurs about their experiences as business owners. Where did their business ideas originate? How important are creativity and innovation to their success? How do they encourage an environment of creativity in their businesses?

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