



Creative Approaches to Problem Solving

Whether it is considered from the viewpoint of its effect on society, or as one of the expressions of the human spirit, creativity stands out as an activity to be studied, cherished, and cultivated.

—Silvano Arieti

The purpose of this chapter is to describe what we mean by "creative approaches to problem solving." As a result of reading this chapter, you will be able to do the following:

1. Describe the four basic elements of the system for understanding creativity.
2. Explain what the terms *creativity*, *problem solving*, and *creative problem solving* mean and their implications for managing change.
3. Describe how creativity and problem solving relate to making change happen.

The person who follows the crowd will usually get no further than the crowd. The person who walks alone is likely to discover places no one has ever been before.

Creativity in living is not without its attendant difficulties. For peculiarity breeds contempt. And the unfortunate thing about being ahead of your time is that when people finally realize you were right, they'll say it was obvious all along.

You have two choices in life: You can dissolve into the mainstream, or you can be distinct. To be distinct, you must be different. To be different, you must be what no one else but you can be. . . .

—Anonymous

The purpose of this chapter is to prepare you for using the information in this book to help you make decisions, solve problems, and use your creativity to change your world in the direction of your greatest aspirations. Let's examine the core concepts behind *Creative Approaches to Problem Solving: A Framework for Innovation and Change*.

One of our intentions in writing this book is to explore with you a creativity method you can use to productively and proactively manage change and produce innovation. However, one of our assumptions is that you already have experience with managing change. Therefore, let's start with you and your own thoughts about the main concepts in this book.

Activity 1.1 Defining Creativity and Problem Solving

Take a minute and write down a few of your first impressions when you see or hear the word Creativity.

Now write down a few of the first impressions when you see or hear the words Problem Solving.

The purpose of Activity 1.1 is to help set the stage for understanding what we mean by creative approaches to problem solving. It asks you to identify and list your perceptions of the key words in our book title. Take a minute to complete the activity before continuing to read the chapter.

What do you notice about the two lists you created? When we do this exercise in our training courses and workshops, we get plenty of different responses for each word. However, we also find strong themes in people's responses, even when we involve people from several different cultures. Let's examine how people have responded to the activity and use these responses to examine each topic.

What Is Creativity?

Creativity is a distinguishing characteristic of human excellence in every area of behavior.

—E. Paul Torrance

Most people can readily come up with informal definitions of creativity. They often associate creativity with words such as *new, unusual, ideas, out of the ordinary,*

imagination, unique, exciting, wacky, open, fuzzy, or something radically different. It is common for them to relate creativity to the arts: composing or performing plays, making great sculpture, the paintings of the masters, writing great literature, composing and performing music, and the like. It's a word that often has a great deal of positive power and energy associated with it, within and across cultures.

On the other hand, it is unusual for people to associate creativity with words such as usefulness, value, and purposeful. When we probe further, we find that some people often perceive creativity as something not very worthwhile, and in some cases, even as something quite negative. We have identified three principal myths people hold about creativity. We call them the myths of mystery, magic, and madness.

Some people believe that creativity is something so mysterious it cannot be studied productively. They believe creativity comes from an external source over which the individual has no control. This becomes a problem when it inhibits or interferes with their desire or ability to make sense of their own creativity and how they might use it.

Other people believe that creativity is something that is magical, which only a few gifted people really have. This suggests that creativity is a trick that certain people know and if you talk about how the trick is done you will take away the "magic." If you hold this belief, you separate people into two groups: those who have it and those who do not. This myth also discourages people from discussing how they use their creativity or how they can nurture it in others.

A third common myth is that creativity is linked with madness. In other words, to be creative, you must be weird, strange, or abnormal. This suggests that creativity is unhealthy behavior, which should be avoided (Figure 1.1).

In the face of so many common myths and misconceptions, it is a wonder that creativity has been studied seriously at all. However, there is an alternative set of assumptions and beliefs that allow us to be more productive in learning about and developing creativity. Creativity is natural (present in everyone), healthy, enjoyable, important, and complex but understandable.

Although creativity is a complex and challenging concept, with no universally accepted definition, it is understandable. For more than 50 years, people have been studying, reading and writing about, theorizing about, and researching creativity. Many theories have been developed to help us understand and organize the complex nature of creativity. Many research studies have established a body of evidence to guide us in understanding, recognizing, and nurturing creativity.

Rothenberg and Hausman (1976) support the importance of studying creativity. They stated,

The investigation of creativity is at the forefront of contemporary inquiry because it potentially sheds light on crucial areas in the specific fields of behavioral science and philosophy and, more deeply, because it concerns an issue related to our survival: our understanding and improvement of ourselves and the world at a time when conventional means of understanding and betterment seem outmoded and ineffective. (p. 5)

Creativity is a natural part of being human. It is not reserved for those people with some sort of special gift. This suggests that creativity exists in all people

Figure 1.1 A Common Perception of Creativity

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(at different levels and various styles). The challenge arises from learning how to understand and use the creativity you have. This belief is fundamental for those who are interested in identifying what creativity is and understanding how it can be developed.

Accessing and using creativity can release tension and help people lead healthy and more productive lives. Much of the popular creativity literature tends to focus on those stories of unusual artists or scientists who were highly creative and known for rather exotic or strange behavior. We often overlook creative individuals who lead “normal” lives. It can be easy to fall into the trap of believing that people need to display unusual behaviors in order to be creative. In the research conducted on creativity, there is no evidence to suggest that in order to be creative one must be sick, abnormal, or unhealthy. To the contrary, there is some evidence to suggest that learning how to understand and use creativity can be mentally and physically healthy.

Creativity is enjoyable in that using it brings about a sense of satisfaction, accomplishment, and reward. When you learn about and apply your creativity, it can provide you with a sense of peacefulness and joy. Creativity is also important in that the outcomes and consequences of using creativity have benefits for individuals, groups, and organizations. Creativity provides important benefits for all people in their personal life, as well as in their work, and enhances the quality of life for society as a whole.

We are not the first authors to attempt to define creativity. Previous scholars have collected and synthesized dozens, and even hundreds, of different definitions offered by various writers and thinkers (e.g., Treffinger, 1996). For example, Gryskiewicz (1987) defined creativity as novel associations that are useful. This definition came as a result of interviews and analysis of stories of creative performance with approximately 400 managers in organizations. What we like about this definition is that it is simple and has a built-in tension between something being novel and useful. The novelty part of the definition appears to fit well with most people's perceptions of creativity. However, the usefulness part of the definition often stimulates questions in people's minds about whether something needs to be useful in order to be creative. It also raises questions in general about who determines if something is novel or useful, and therefore, who determines if creativity is present or not.

Ruth Noller, Distinguished Service Professor Emeritus of Creative Studies at Buffalo State College, developed a symbolic equation for creativity. She suggested that creativity is a function of an interpersonal attitude toward the beneficial and positive use of creativity in combination with three factors: knowledge, imagination, and evaluation (see Figure 1.2). Children are often viewed as naturally strong in imagination. They often need help in acquiring knowledge and expertise, as well as in understanding appropriate criteria for evaluating ideas or behavior. In comparison, practicing professionals often are seen as having a great deal of knowledge and evaluative strength but as needing help with imagination.

Figure 1.2 Noller's Symbolic Formula for Understanding Creativity

$$C = f_a(K, I, E)$$

Creativity is a function of Knowledge, Imagination, and Evaluation, reflecting an interpersonal attitude toward the beneficial and positive use of creativity.

You might learn a number of lessons from Noller's equation. One is that creativity is a dynamic concept. It changes through our experience. Also, creativity always occurs in some context or domain of knowledge. But, while expertise is important and necessary, it is not sufficient for determining creativity. Finally, creativity involves a dynamic balance between imagination and evaluation.

Despite the many different definitions of creativity, you can make some sense out of them. Just look back to what you wrote down during the first activity in this chapter. As Welsch (1980) indicated,

The definitions of creativity are numerous, with variations not only in concept, but in the meaning of sub-concepts and of terminology referring to similar ideas. There appears to be, however, a significant level of agreement of key attributes among those persons most closely associated with work in this field. . . . On the basis of the survey of the literature, the following definition is proposed: Creativity is the process of generating unique products by transformation of existing products. These products must be unique only to the creator, and must meet the criteria of purpose and value established by the creator. (p. 107)

Rather than trying to subscribe to one single definition of creativity, we use a broad framework originally offered by Rhodes (1961) to organize the diverse and large numbers of definitions. Rhodes collected 56 definitions of creativity and reported,

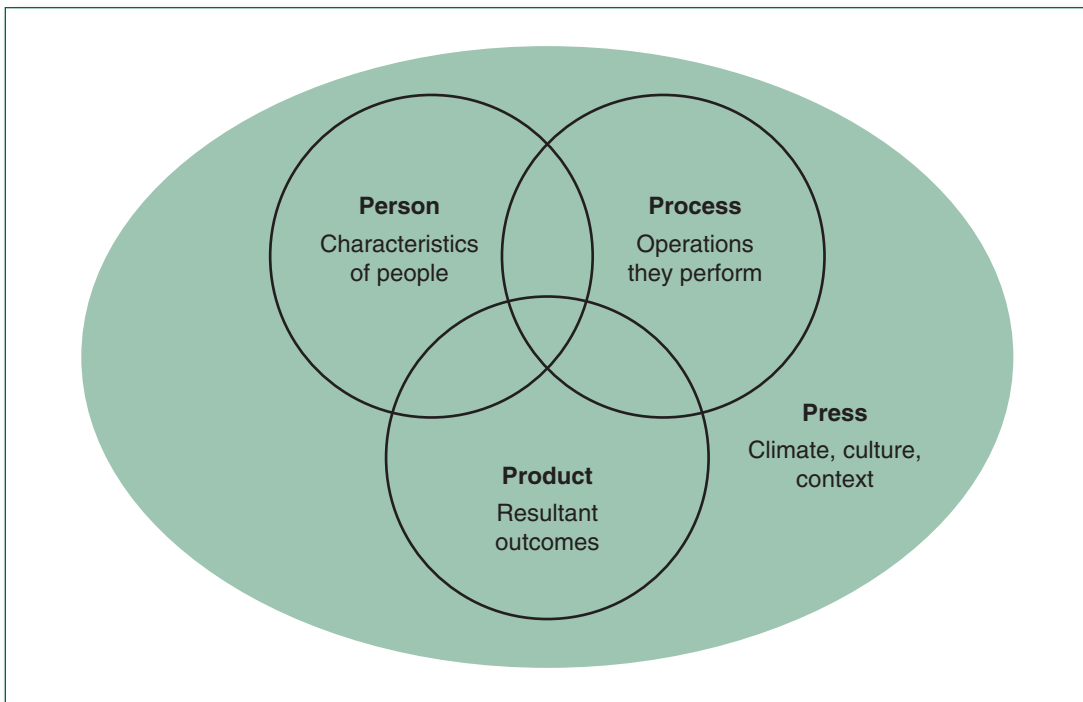
As I inspected my collection I observed that the definitions are not mutually exclusive. They overlap and intertwine. When analyzed, as through a prism, the content of the definitions form four strands. Each strand has unique identity academically, but only in unity do the four strands operate functionally.

Rhodes (like many other scholars) found it more productive to describe creativity within four overlapping themes. These themes include definitions of the characteristics of creative people, the operations within the creative process, the creative results and outcomes, and the context or place for creativity. Isaksen (1984) put these four themes into a Venn diagram (see Figure 1.3) to represent the interaction that occurs among the four elements and the need to consider the whole system to obtain the best picture of creativity.

There are some in the creativity field who feel that this framework is old and tired and that it should be retired or broadened. Unfortunately, most do not offer an alternative. We know of two alternatives that have been offered as general models for outlining inquiry for the broad field of creativity research. One is specifically focused on formulating research (Isaksen, Stein, Hills, & Gryskiewicz, 1984). The other is designed to provide a framework and name for the entire emerging discipline of creativity (Magyari-Beck, 1993).

Those who complain about the "4P's" (person, process, product, and press) model seen in Figure 1.3 present an argument that is similar to complaining about the periodic table of elements. These four broad themes are simply the way creativity has been defined and how it is found in the literature. We see value in this general way to classify our understanding of creativity because it provides a comprehensive model that embraces a number of different and important perspectives on this subject. It also provides a view of the entire system of creativity. We refer to it as a system because each of the four elements is a

Figure 1.3 Systematic Approaches to Creativity



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necessary and interrelated part of the whole concept of creativity. Each element influences the other elements. It is difficult to get a complete or true picture of creativity when one part of the system is left out.

The following four subsections will provide you with a short summary of each of the four P's.

Characteristics of Creative People

Creative personality is . . . a matter of those patterns of traits that are characteristic of creative persons. A creative pattern is manifest in creative behavior which includes such activities as inventing, designing, contriving, composing, and planning.

—J. P. Guilford

Much of the initial interest in creativity among psychologists and others working in applied settings started with curiosity about how highly creative people were able to demonstrate their creativity. Some of the initial approaches to understanding the

characteristics of creativity in people involved finding and describing individuals who were generally agreed on as being highly creative. The major challenge facing investigators who followed this approach was in determining how much creativity the individuals had. As a result of this approach, we had a great deal of information regarding the cognitive and affective characteristics of highly creative people.

Early writers in this area often focused on describing creative geniuses, those people who have special and significant talents and gifts. More recently, scholars have taken a more inclusive approach and looked for extraordinary creativity in ordinary people. Most researchers and educators have emphasized the level aspect to creativity in people. The major question for them is “How creative are you?” It was easy with the historical geniuses, but much more difficult if we look at everyday creativity. For example, MacKinnon (1978) indicated that there were many different paths along which people travel toward the full development and expression of their creative potential. Rather than trying to put creative people into a single mold, he said, “the full and complete picturing of the creative person will require many images” (p. 186).

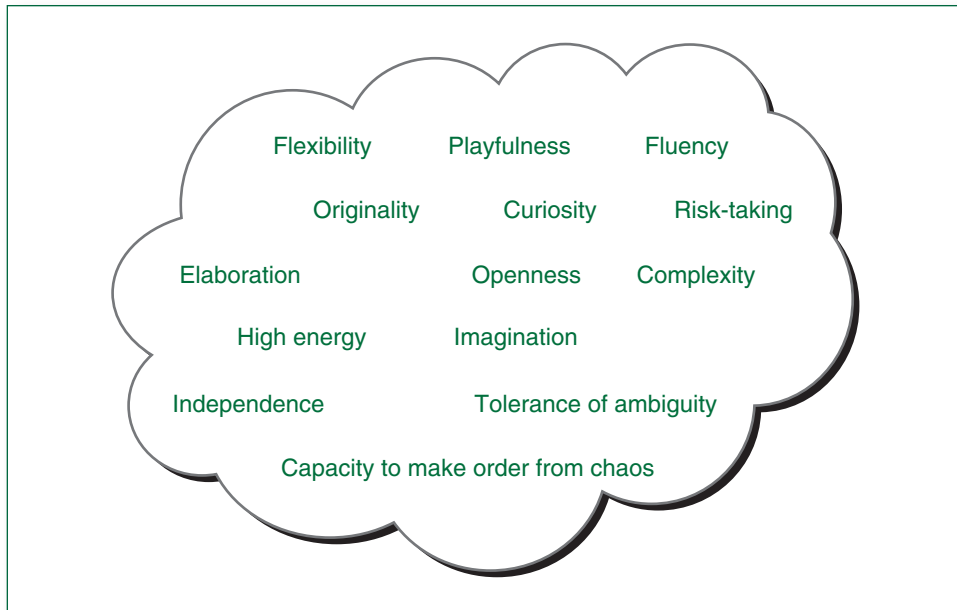
A great deal of this research led to the identification of a large number of characteristics associated with highly creative people (Puccio & Murdock, 1999; Treffinger, Young, Selby, & Shepardson, 2002). However, as you read the sample list in Figure 1.4, you will probably begin asking yourself some important questions such as:

- To be creative, is it necessary to demonstrate all the characteristics in the list? If not, how many?
- Does anyone really demonstrate all those characteristics? All the time? Isn't that a little unlikely?
- Are these “traits” (aspects of your personality that are “with you” all the time) or patterns of behavior that might describe how someone acts once in a while?
- Wouldn't many of the characteristics vary, depending on what task the person might be working on and how she or he feels about and reacts to that task? Might they not also change over time, or in different situations?

These are not easy questions to answer. The traditional view of traits in highly creative people fosters the belief that those characteristics are only held by those at the very top of the spectrum—geniuses and those who are famous for their productions. Clearly, these characteristics may be held by everyone, at all levels, to some degree.

Some people might also believe that these characteristics are fixed and cannot be modified or enhanced. Our experience and research indicate quite clearly that creativity characteristics are dynamic and changeable (see Isaksen, 1987; Isaksen, Murdock, Firestien, & Treffinger, 1993). Although many writers emphasize identifying high or low creativity, the challenge might be more appropriately posed as nurturing and developing creative characteristics within everyone.

A more recent approach to the study of creativity in people concerns how people show the creativity they have. Rather than asking the question, “How creative am I?” it

Figure 1.4 Some Characteristics of Being Creative

asks the question, “How am I creative?” This question deals more specifically with the form, kind, or style of creativity, rather than the level, degree, or amount.

We believe that it is important to recognize, understand, and access the full spectrum of creative talent in people. This includes the natural diversity in orientation that people have toward creativity, as well as the full range of knowledge, abilities, and skills people bring to the table when solving problems creatively. Understanding your personal creativity, and the creativity of those around you, will help you be more successful in deliberately using your creativity.

You will read more about this area of creativity and its relationship to Creative Problem Solving (CPS) in Chapter 7.

Operations Within the Creative Process

The art of thought, like the art of running, or the actor’s art of significant gesture, is an attempt to improve by conscious effort an already existing form of human behavior.

—Graham Wallas

The creative process is also one of our four essential aspects of creativity. It is concerned with how creativity takes place. It examines the mental or cognitive processing, or the thinking that occurs, as people use their creativity. Much of our early research

on the creative process involved reports of how highly creative people described the processes they went through to develop their products. This type of investigation is based on the assumption that we can

take a single achievement or thought—the making of a new generalization or invention, or the potential expressions of a new idea—and ask how it was brought about. We can then roughly dissect out a continuous process, with a beginning and a middle and an end of its own. (Wallas, 1926, p. 79)

One of the challenges to studying the creative process was developing an accurate description of a person’s internal thought processes. The goal was to help make the creative process more visible and understandable in order to improve creative thinking. Many different artists, scientists, composers, poets, and inventors made attempts to describe their creative moments. A variety of scholars during the 20th century became interested in productive or reflective thinking and the art of thought (Dewey, 1933; Ghiselin, 1952; Koestler, 1969; Spearman, 1931; Wallas, 1926; Wertheimer, 1945), resulting in many different attempts to describe the best thinking that humans could accomplish.

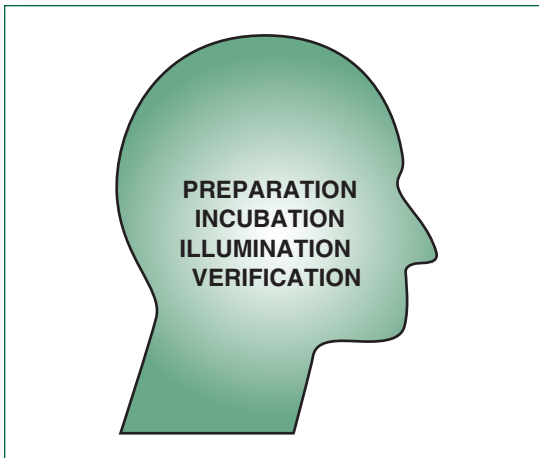
Wallas (1926) developed one of the early descriptions of the creative process (see Figure 1.5) based on numerous descriptions of famous artists and scientists. He suggested that the art of thought included four stages: (1) preparation (investigating the

problem in all directions), (2) incubation (thinking about the problem in a “not conscious” manner), (3) illumination (the appearance of the “happy idea”), and (4) verification (validity testing and reducing the idea to an exact form). This demonstrated that you could deliberately identify the creative process.

In the 1930s, Alex Osborn (1942, 1953) pursued his interest in the human imagination and began reading the research on and experimenting with practical procedures for encouraging creative thinking by the people with whom he worked. His initial description of CPS built on the work of Wallas, Spearman, and others, and helped change the perception that the creative process could only happen intuitively or implicitly. He also worked to develop deliberate strategies for its use in groups.

Another outcome from pursuing an improved understanding has been a diversity of strategies and methods that can be helpful to anyone who is attempting to be deliberately creative. These strategies can include deliberately shifting your perception about a problem by using analogies or metaphors, setting aside the problem to

Figure 1.5 Wallas’ Creative Process



allow for incubation and insight, or seeking inspiration from great works of music or art. There are as many strategies as there are stories from highly creative people about their creativity.

Removing Blocks and Barriers. Many of the strategies for increasing your personal creativity come from an understanding and removal of your personal barriers or blocks to creative thinking. You may notice that in some situations you feel confident about yourself and your ability to succeed in a particular task, while in other situations you do not. As depicted in Figure 1.6, one aspect of your approach to creativity is your awareness of blocks to creative thinking and behavior.

It is only natural to have some resistance to novelty. Novelty requires you to change the approach, behavior, or way of thinking. It requires new learning and may increase the possibility of failure. Your internal climate is most likely formed as a result of some interaction between who you are and the environment or situation in which you operate. One of the ways to reduce the effects of blocks and barriers is to increase the likelihood of developing your strengths. Another way to overcome barriers is to

Figure 1.6 Blocks to Creative Thinking



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know what they are and whether or not they are keeping you from productively making use of your strengths. You will overcome obstacles more effectively when you are conscious of their presence and impact.

There are three broad, overlapping categories of blocks: personal, problem solving, and environmental (situational). Examples of personal blocks include lack of self-confidence or self-image; a tendency to conform; a need for the familiar, habit-bound thinking; emotional numbness; saturation; excessive enthusiasm; various values and cultural influences; and lack of imaginative control.

As an example of personal blocks, Jones (1987) discovered four major categories of barriers in the literature. These included strategic, value, perceptual, and self-image barriers. Strategic barriers relate to the inability to see and use a variety of possibilities for problem solving. Examples of strategic barriers include resistance to using imagination, an inability to tolerate uncertainty, and the inability to keep an open viewpoint to new ideas.

Value barriers reflect the lack of flexibility displayed in applying personal values, beliefs, and attitudes. Examples of this kind of barrier include being rigidly custom bound, having a strong desire to conform to preexisting patterns, and having dogmatically negative attitudes toward creative thinking.

Perceptual barriers relate to seeing things in rigidly familiar ways and usually involve aspects of sensual acuity and awareness of the environment. Having difficulty in seeing a problem from a variety of viewpoints, imposing unnecessary constraints, failing to use all the senses, and stereotyping are examples of this kind of barrier.

Self-image barriers describe conditions where people do not assert themselves or make use of available resources. Sometimes, people have an extreme fear of failure, have a reluctance to exert influence, or simply fail to take advantage of resources around them. These barriers are easily related to other problem-solving and situational blocks.

Problem-solving blocks are strategies, skills, or behaviors that inhibit your ability to focus and direct problem-solving activities, generate and identify options and alternatives, or turn ideas into action. Some problem-solving blocks include solution fixedness, premature judgments, habit transfer, using poor problem-solving approaches, lack of disciplined effort, poor language skills, various perceptual patterns that limit intake, and rigidity.

Environmental blocks are those factors in your context, situation, or setting that interfere with your problem-solving efforts. Environmental (situational) blocks to creativity include the belief that only one type of thinking is required for creative outcomes, resistance to new ideas, isolation, a negative attitude toward creative thinking, autocratic decision making, reliance on experts, various strategic blocks that limit the use of resources, and an overemphasis on competition or cooperation. We will look more deeply into these barriers and the conditions necessary for their removal in the section on the context for creativity.

We believe that most creativity methods today share common core foundations and relate to the creative process outlined by Wallas and Osborn. Although these methods

may appear distinct on the surface, they are likely to be guided by solid foundational principles associated with how highly creative people naturally use their creativity.

Work on understanding the creative process continues today. Beyond the work of those who follow the tradition established by Osborn, there are practical books such as *Creating Minds* (Gardner, 1993) and *The Mind's Best Work* (Perkins, 1981). In addition, there have been advances in cognition and neuroscience that can provide even further insight into the nature of the creative process (Boden, 1991; Carroll, 1993; Dietrich, 2007; Kaufmann, Helstrup, & Teigen, 1995; Ward, 2004, 2007).

This book is mainly about a particular approach to understanding the creative process, called Creative Problem Solving. An overview of this approach is more fully described in Chapter 2.

Creative Results and Outcomes

Creativity may be defined, quite simply, as the ability to bring something new into existence.

—Frank Barron

Creative products or outcomes come in a variety of sizes and shapes and from many different contexts. Many people think of an outstanding play or novel, an inspiring painting or song, or a significant invention or discovery when they think about creative products. They are not limited to either the arts or the sciences. Creative products can be found in the arts, the sciences, the humanities, or any other discipline or domain of human endeavor. They can be the result of the efforts of individuals or groups. They may have varying degrees of novelty and usefulness.

Creative products can be both tangible and intangible. They may be concrete or “touchable,” such as an invention or marketable product. Other creative outcomes can be intangible, such as learning and personal development, the development of a new service or improvement of an existing one, social technology, or the design of a new process or methodology.

For many people, this area of study has been called “innovation” rather than “creativity” because of the focus on product rather than process (see Figure 1.7 for other distinctions). Since innovation is often considered to be the commercialization of a new idea, we see it as a part of the creativity system outlined above. The reasons some prefer to use the term *innovation* over *creativity* include the need to focus on obtaining concrete

Figure 1.7 Creativity Versus Innovation

CREATIVITY	INNOVATION
Imagination	Implementation
Process	Product
Generating	Developing
Novelty	Usefulness
Soft	Hard

results, preferring to stay focused on what is useful and easier to understand, and the need to avoid such fuzzy concepts as people and process. Our position is simple. You can have creativity without innovation, but you cannot have innovation without creativity (see Isaksen & Tidd, 2006).

MacKinnon (1975) pointed out the importance of studying creative products. He stated:

In a very real sense . . . the study of creative products is the basis on which all research on creativity rests and, until this foundation is more solidly built than it is at present, all creativity research will leave something to be desired. . . . In short, it would appear that the explicit determination of the qualities which identify creative products has been largely neglected just because we implicitly know—or feel we know—a creative product when we see it. (pp. 69–71)

An interesting approach to examining the characteristics of creative products or outcomes has been developed by Besemer (Besemer, 1997; Besemer & O’Quin, 1987, 1993, 1999; Besemer & Treffinger, 1981). She and her colleagues developed ways to assess the creativity in a particular product or outcome, using a paper-and-pencil rating scale. Their assessment, initially called the Creative Product Analysis Matrix, and subsequently changed to the Creative Product Semantic Scale (Besemer, 2006; O’Quin & Besemer, 1989), is based on asking people to identify the characteristics required in a product for it to be considered creative.

As shown in Figure 1.8, creative products and outcomes can be evaluated on the three dimensions of novelty, resolution, and style. The novelty dimension examines the amount of newness or originality contained in a product. The resolution dimension examines how well the product solves the problem for which it is developed. The third dimension, style, focuses on the extent that a product extends beyond the basic requirements needed to solve a problem. The style factor examines the kind of elaboration or synthesis that has gone into creating an outcome with simple elegance. It considers, for example, factors such as packaging and presentation, how well crafted or attractive it is.

Many organizations involved in new product development have a similar process for analyzing and developing new concepts. One of the Dun and Bradstreet companies conducted a study of 51 U.S. companies. Figure 1.9 shows the results of the study. Note that, on average, it took more than 50 ideas to get one successful new product. These were

Figure 1.8 Besemer’s Characteristics of Creative Products

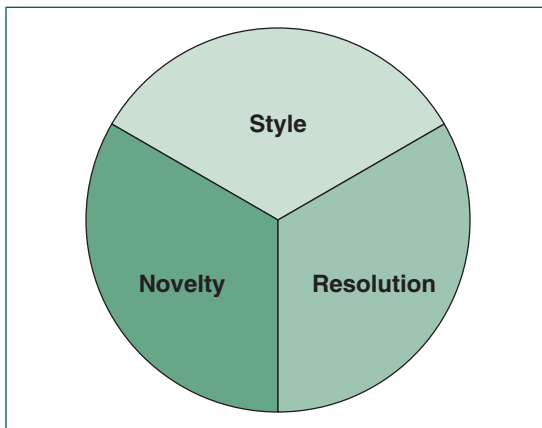
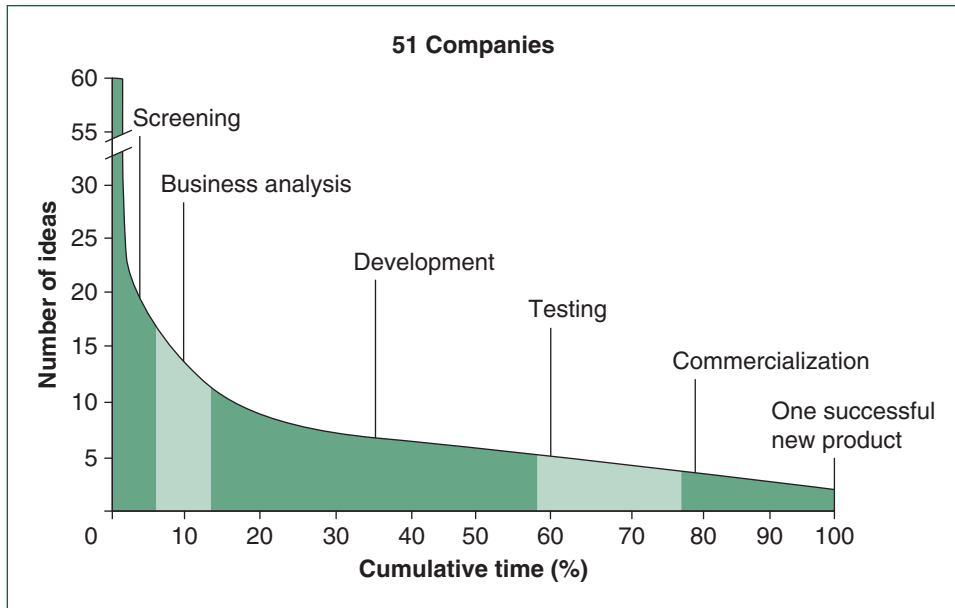


Figure 1.9 Creative Product Decay Curve Identified in Dun and Bradstreet Study

ideas that were screened or selected for further business analysis. More recent research from the private sector indicates that those organizations that are very successful in commercializing new ideas generate and nurture more than 100 ideas per day (Davis, 2000). Still others have found that it depends on when you start to count the ideas. For example, Stevens and Burley (1997) found that it can take as many as 3,000 raw, unwritten ideas to result in about 300 ideas submitted to a more formal idea-screening process. Evidently, it takes an idea-rich environment to produce creative products.

Current trends in many of the organizations within which we work point to some interesting implications for new concept and product development. Many organizations are trying to shorten the amount of time it takes to come up with successful new products. They are also trying to push more ideas through the entire process so that more than one successful new product will result.

This is having an effect on the kinds of new products being developed. Decreasing time, increasing throughput, and other demands on the new product development process appear to be reducing the occurrence of highly novel products. Instead, this trend seems to promote an increase in the frequency of useful and stylistically modified products. For example, Tide™ was a very new product for Procter & Gamble when it was first produced. Tide with Bleach™ is a new product, which is lower in novelty but emphasizes usefulness. The net result of the trend is that we are able to see more and

more modifications and improvements on existing product lines (within many markets). Examining product and services lines, as well as examining customer demands, can be fruitful applications of the measure developed by Besemer. Inventors and companies can target the kind of new development they desire to meet market needs.

The development and nature of creative products and outcomes offers a fruitful and important aspect within various conceptions of creativity. Inventions, discoveries, innovations, and the development of new and improved services and products offer both tangible and intangible evidence of the significance and value of understanding creativity and its many applications. Recent developments in this area of creativity help to go beyond the traditional emphasis on products being new and useful. The third dimension of stylistic elaboration and synthesis, made evident through recent research, has expanded and extended our view of creative outcomes. The development of creative products and inventions is increasingly seen as a collaborative effort. Many organizations are attempting to shorten the product development cycle by involving all the relevant areas in cross-functional teams. This illustrates how creative people can work together to create products or outcomes in particular places using a certain kind of creative method. This serves as just one example of how the four areas of the system are related.

The Context for Creativity

Be brave enough to live creatively. The creative place is where no one else has been. You have to leave the city of your comfort and go into the wilderness of your intuition. You can't get there by bus, only by hard work, risking and by not quite knowing what you're doing. What you'll discover will be wonderful—yourself.

—Alan Alda

The creative context concerns the environment, place, situation, or climate in which creativity takes place. It examines those factors that promote or inhibit creative behavior. Those conducting inquiry into the creative climate ask questions such as, “What stops people from using their creativity?” “What is the environment, context, or situation that is most conducive to creativity?” “How can someone establish a climate that encourages the release and development of creativity?”

Press was the early word used to describe this broad area because it meant the interaction between the person and the situation. Factors in the environment pushed or pulled the person, while factors, actions, and qualities within the person pushed and pulled on the environment. When you consider the kind of blocks and barriers listed earlier that come from the situation (such as those identified in Figure 1.10), you can see how the climate can exert pressure on the individual. The entire interaction was labeled “press.”

What is the environment like in which creativity can flourish? Research on organizational obstacles to creativity done by the Center for Creative Learning, Inc. (Burnside, Amabile, & Gyskiewicz, 1988) yielded a variety of barriers to innovation,

Figure 1.10 Barriers to Innovation

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including various organizational characteristics (inappropriate reward systems being overly bureaucratic, lack of cooperation across functions, etc.), lack of freedom in deciding what to do or how to approach a task or problem, perceived apathy toward task accomplishment, poor project management, perceived inappropriate evaluation systems, insufficient resources, insufficient time, and emphasis on the status quo.

The same research approach identified a variety of organizational stimulants to creativity. These include freedom in deciding what to do or how to accomplish the task, good project management, sufficient resources, management exhibiting enthusiasm for ideas—creating a generally nonthreatening and open environment, a collaborative atmosphere across levels and divisions, a general sense that creative work will receive appropriate feedback, recognition, and reward, sufficient time, challenge due to

the intriguing nature of the problem, its importance to the organization, or the context of the problem, and a sense of urgency that is internally generated.

Our research on the environment supporting creativity is built on the dimensions of the climate for innovation and creativity studied by Ekvall of the Swedish Employment Security Council and the University of Lund (Isaksen & Ekvall, 2007). We will provide more information regarding the context for creativity and how it affects CPS in Chapter 8.

The following list of suggestions for creating or maintaining a climate for creativity draws on the research of many scholars. It is not a totally comprehensive or conclusive list. In short, these suggestions provide recommendations to help you shape an atmosphere conducive to creativity and innovation. The items on this list are necessary for creativity to take place, although other factors may need to be present as well.

1. Provide freedom to try new ways of performing tasks; allow and encourage each individual to achieve success in an area and in a way possible for him or her; encourage divergent approaches by providing resources and room rather than controls and limitations.

2. Point out the value of individual differences, styles, and points of view by permitting the activities, tasks, or other means to be different for various individuals.

3. Establish an open, safe atmosphere by supporting and reinforcing unusual ideas and responses of individuals when engaged in both creative/exploratory and critical/developmental thinking.

4. Build a feeling of individual control over what is to be done and how it might best be done by encouraging individuals to have choices and involving them in goal-setting and decision-making processes.

5. Support the learning and application of specific CPS tools and skills in the workplace and on tasks that are appropriate.

6. Provide an appropriate amount of time for the accomplishment of tasks; provide the right amount of work in a realistic time frame.

7. Provide a nonpunitive environment by communicating that you have confidence in the individuals with whom you work. Reduce concern of failure by using mistakes as positives to help individuals realize errors and meet acceptable standards and provide affirmative feedback and judgment.

8. Recognize some previously unrecognized and unused potential. Challenge individuals to solve problems and work on new tasks in new ways. Ask provocative questions.

9. Respect an individual's need to work alone or in groups. Encourage self-initiated projects.

10. Tolerate complexity and disorder, at least for a period. Even the best organization and planning requires clear goals and some degree of flexibility.

11. Create a climate of mutual respect and acceptance among individuals so that they will share, develop, and learn cooperatively. Encourage a feeling of interpersonal trust and teamwork.

12. Encourage a high quality of interpersonal relationships and be aware of factors such as a spirit of cooperation, open confrontation and resolution of conflicts, and the encouragement of expression of ideas.

The four themes for understanding creativity (people, context, method, and outcome) will be examined throughout the book. We will keep these four perspectives in mind to help ensure that we take a comprehensive and holistic perspective to providing you with creative approaches to problem solving. As Rhodes (1961) concluded, the themes overlap and intertwine. The best and most comprehensive picturing of creativity will require the interaction of all four themes. In short, creativity is not a simple thing—it is multidimensional. Although we have made some progress in introducing some science to the field, we will never reduce the wonder inherent in human creativity. We believe that taking a holistic approach will increase your chances of successfully solving problems. However, what is problem solving and how does it relate to creativity?

What Is Problem Solving?

Nothing is more interesting for humans than human activity and the most characteristically human activity is solving problems; thinking for a purpose, devising means to some desired end.

—George Polya

In the Creativity and Problem Solving word listing activity, we often get a wide variety of words associated with problem solving. In some situations, people associate problem solving with overcoming a difficulty or avoiding some sort of pain. They focus their attention on the word *problem* and perceive it as a bad thing or something to be removed. However, in other situations, people associate problem solving with words such as logic, analysis, structure, closing a gap, meeting a need, overcoming difficulties, making something work better, mathematics, and science.

We take the stance that problem solving is a process of closing the gap between what is and what is desired. It is the act of answering questions, clearing up uncertainties, or explaining something that was not previously understood. You engage in problem solving while conducting day-to-day activities such as adding up grocery totals or figuring out how to find a particular building, office, or product. You may try to remember important birthdays, figure out what to do for someone special in your life, or try to find information to help you with a school project. You may also face more important or significant issues that require problem solving. For example, you may need to replace your car or home, make decisions about family holidays, determine the best courses to take at a university, or give tough feedback to an employee.

Problem solving generally involves devising ways to answer questions and to meet or satisfy a situation which presents a challenge, offers an opportunity, or is a

concern. It involves closing the gap between what you have and what you want. The search for answers is often based on your expertise or existing knowledge. Many times, the area of the challenge is well-defined, with clear pathways and methods for solution. The opportunity may also offer clear-cut boundaries, priorities, roles, and directions for effective or even “correct” answers. There are a number of highly effective approaches you can use for problem solving in situations with these characteristics. Here are some examples:

- Check the literature (Has someone else already provided a perfectly appropriate and useful solution to this problem, or to one very similar to it?)
- Use existing or previous solutions from history (What has been successful for other people in similar circumstances?)
- Hire a consultant (Can an outsider bring a new perspective that will reveal a good option that was too obvious for you to see yourself? Will a consultant’s past experience save you time, effort, and money?)
- Delegate the task (Should this situation be handled by someone else? Even though it seems like it’s just “passing the buck,” might that be the best response?)
- Just do it (If you really know what you ought to be doing, but you have been procrastinating or avoiding it, why not just get it over with?)
- Research it (Might the situation be handled effectively by conducting an experiment, a field study, or a pilot project?)
- Form a committee or task force (Might a few key people come up with a productive strategy efficiently and promptly?)
- Read the manual (As the sign says, “When all else fails, try reading the directions.”)
- Use existing algorithms (Is there a formula or existing set of procedures that has been designed specifically for situations just like this?)

These approaches can be powerful in a variety of situations. However, when might you need a creative approach to problem solving?

What Is a Creative Approach?

We say that this book is about a creative approach to problem solving. What does that mean? An approach is simply the way you move toward, advance, or come closer to something. In the context of this book, an approach is a way of making change happen. There are at least two different kinds of approaches to making change happen; creative and non-creative. A creative approach implies that you are attempting to advance toward an outcome that is new, unstructured, and open ended. These situations often involve an ill-structured problem and unknown solutions. Although you

need to use your knowledge and skills for evaluation, a creative approach requires you to engage your imagination, as well as your intelligence, during your approach because no ready-made answer exists. It also requires you to take a more comprehensive view and use the entire system of people, method, content, and context in the approach.

Using a creative approach also implies that you have a courageous attitude; one that includes being open to new experiences, embracing ambiguity, and venturing into new and unfamiliar territory. This attitude is often necessary because creative approaches are about helping you move from a place with which you are familiar to one that is different and potentially unknown, and the results of your efforts are potentially uncertain. To demonstrate what we mean by creative approaches to problem solving, consider the approaches identified in Table 1.1.

Table 1.1 Examples of Creative Approaches to Problem Solving

Actively constructing many and varied opportunities and identifying the more promising ones to explore and examine more fully. Being open to many different possibilities and maintaining a positive attitude. Solving future-focused problems that do not even exist today.
Examining facts, impressions, feelings, and opinions from many different points of view. Being willing to dig deeper under assumptions.
Seeing the problem or challenge from many different viewpoints. Being able to play with possibilities.
Generating many, varied, and unusual ideas that have high potential to address the problem or meet the challenge in a fresh and valuable way. Being able to think up and suspend judgment when needed. Having idea power.
Investing energy and talent in taking a wild or highly unusual idea and shaping, refining, and developing the idea into a workable solution. Being persistent.
Considering aspects of the situation surrounding the solution to enable agreement of your solutions by others. Being sensitive to the context and the people who may be involved with your solution and working to obtain support and acceptance.
Having a variety of possible approaches to take for any given situation, challenge, or problem. Being aware of the power of process.
Reflecting on many different factors in determining your approach.

Let's also illustrate what we mean by a noncreative approach to problem solving. Table 1.2 contains specific examples of what we would judge to be noncreative approaches to problem solving.

Table 1.2 Examples of Non-Creative Approaches to Problem Solving

Mindlessly defending the status quo. Being resistant to exploring new opportunities.
Making and acting on faulty assumptions or incorrect data.
Seeing the problem or challenge in only one way.
Applying worn-out or habitual responses that don't have the desired effect or fail to solve the real problem.
Overlooking the need to improve, develop, or refine a tentative solution.
Moving on before ensuring agreement and acceptance by others (premature completion or conclusion).
Using an approach uncritically, just because it may have provided relief or results before.
Reacting to a situation before reflecting on alternative ways of responding.

Creative approaches to problem solving enable you to better use the knowledge and skills you already have. They deliberately link creativity and problem solving.

Linking Creativity and Problem Solving

When we present our approach, some people become concerned about the relationship between the concepts of creativity and problem solving. They often ask, “Are you saying that creativity is the same as problem solving?” This idea of linking creativity and problem solving seems to create some tension for some people. One of the challenges we faced in writing this book was to demonstrate the productive links between creativity and problem solving that will help you get the best from both forms of thinking.

Researchers have explored links between creativity and problem solving before and have come up with a variety of answers (Isaksen, 1995). For example, Guilford (1977) suggested that problem solving and creative thinking were closely related. Creative thinking produced new outcomes, and problem solving involved producing novel responses and outcomes to new situations. Problem solving often has creative aspects, but creativity is not always problem solving. Newell, Shaw, and Simon (1962) suggested that “creative activity appears . . . simply to be a special class of problem-solving activity characterized by novelty, unconventionality, persistence, and difficulty in problem formulation” (p. 63).

Rather than keeping creativity separate from problem solving, our approach has been to deliberately link the two. Our approach is designed to apply both your imagination and your intelligence, to generate as well as focus, to use logic and memory as well as emotion and synthesis. The opportunity created by linking these two concepts is that you have a very diverse collection of strategies, tools, and approaches, enabling you to handle a wide variety of challenges and opportunities.

Linking creativity and problem solving is an example of Janusian thinking. This kind of thinking is named after the Roman god Janus. The reason Janus was chosen as the inspiration behind Janusian thinking is that he had to look in two opposing directions at the same time. As the god of doorways, he looked outside and inside at the same time. Rothenberg (1971) used this attribute to coin the phrase Janusian thinking. He (Rothenberg, 1999) described the Janusian process as

actively conceiving multiple opposites or antitheses simultaneously. . . . During the course of the creative process, opposite or antithetical ideas, concepts, or propositions are consciously conceptualized as simultaneously coexisting. Although seemingly illogical and self-contradictory, these formulations are constructed in clearly logical and rational states of mind to produce creative effects. They occur as early conceptions in the development of scientific theories and artworks and at critical junctures at middle and later stages of the creative process; these simultaneous antitheses or simultaneous opposites usually undergo transformation and modification and are seldom directly discernable in final creative products. (p. 103)

Rothenberg (1979, 1996) provided evidence that this kind of process exists in both the arts and sciences, and in most creative endeavors. He has collected historical and anecdotal evidence, as well as a large amount of data from his psychiatric practice, to support his theory (Rothenberg, 1998).

Active and simultaneous consideration of opposites appears to be a key aspect of creating new and useful responses across a variety of fields. We find support for this idea from a number of key creativity researchers and writers, particularly those who are interested in the creative process. At the core, Janusian thinking is an attempt to describe an aspect of the creative process, a process that is in motion and is dynamic. Deliberately linking creativity and problem solving allows you to take a Janusian stance when you face challenges and opportunities.

A Framework for Change

We often hear the expression, “Change is inevitable, growth is optional.” Unfortunately, we do not know who originally said it. However, it fits nicely when talking about a framework for change. This book provides our current description of CPS, a system that organizes creative approaches to problem solving. The system contains an explicit, yet flexible, framework, language, and suite of tools you can use to productively guide the changes you want throughout your life—at home, at school, and at work.

Change will happen. That is a given. CPS is designed to help you address change in a way that enables you to grow and prosper. Whether you are stimulating changes yourself, or responding to changes brought on by others, the CPS framework provides you with a flexible structure you can use to enhance your effectiveness at using your creativity to make change productive. You can use the framework to address your need for change on a personal level. You can use it to work more effectively with others in a group or team to make change happen. The framework can also be used to change and improve the quality of life and work within organizational settings, and indeed, for society as a whole.

Part of the CPS system is an explicit framework containing components and stages. The components will help you gain clarity about the change you need to make, help you create ideas for what the change might look like, and help you develop powerful solutions and plans for making the change happen. They will also help you take into consideration the whole picture surrounding a desired change to help you be more effective at making the change happen. Whether it takes 10 minutes to complete or multiple years to plan and initiate the change, the CPS framework is flexible enough to support your efforts.

You will find that the CPS framework serves as a menu from which you can choose specific components, stages, tools, and language. You only need to use the part of the framework that suits your needs for a given change you want to create. You can use the elements of the framework in any order or sequence, depending on your specific needs at the time. Therefore, we will show you the items on the menu in the initial chapters of the book, and then demonstrate how you can put the elements of the menu together in the later chapters of the book. Now let's look more closely at the framework of CPS.

Putting This Chapter to Work

This chapter has been focused on defining what we mean by CPS. We examined some of the conceptions of creativity and problem solving, and then linked the two to better understand creative approaches to problem solving.

Activities to Guide Reflection and Action

Work on one or more of the following activities to review your understanding of the material in this chapter and to practice applying the content in real situations. If you are using this book as part of a course or study group, you may wish to work individually and then compare your responses or to work collaboratively as a team.

1. Become a myth spotter. Be on the lookout for when people use the term *creative* or *creativity*, and see if they are holding on to any of the nonproductive conceptions of creativity.
2. Try generating a list of things that might benefit from a more creative approach to problem solving versus a more traditional approach. Try keeping a journal or create a blog to record or share these creative challenges.
3. Think about someone who strikes you as a creative person. Then list those characteristics that support your impressions. Compare those you listed against some of those included in this chapter.
4. Think about a time or place in which you felt particularly creative. List the characteristics of that occasion—what supported your creativity? Compare your answers with the description of the creative environment included in this chapter.