Leading others to think innovatively together:
Creative leadership

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Abstract

Individuals, teams, and organizations differ in their creative problem solving styles. How leaders manage these styles can have a significant effect on performance. The most effective leaders of the 21st century will help individuals and teams to coordinate and integrate their differing styles to drive change through a process of applied creativity that includes continuously discovering and defining new problems, solving those problems, and implementing the new solutions. Leaders must appreciate individuals’ differing preferences for various stages of this process. Leaders can use various tools—notably the Creative Problem Solving Process (CPSP) inventory—to encourage and enable people to think together in innovative ways.

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1. Introduction

Conventional theories about leaders and leadership have focused on physical, personality, or cognitive traits, behavioral styles, and specific situations. This article will argue that leadership has less to do with matching the “right” traits or behaviors to the “right” situation and more to do with how leaders involve others in thinking together in innovative ways. Effective leaders recognize that individuals, teams, and organizations differ in their creative problem solving styles. The most effective leaders will help individuals and teams to coordinate and integrate their differing styles through a process of applied creativity that includes continuously discovering and defining new problems, solving those problems, and implementing the new solutions. Managing creative problem solving styles will allow leaders to make a significant impact on performance.

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1.1. The leadership challenge of the 21st century

No matter where one looks around the world today, organizations face a common challenge: the need to improve their performance to capitalize on rapid change. In North America, crash restructuring and downsizing have become a way of life as organizations struggle to regain market share from global companies producing higher-quality products. In Eastern Europe, managers and employees struggle to establish new behaviors and procedures that will allow their companies to compete in the free market. Third World countries hungry for economic development look for growth markets around the world. In Japan, organizations that once had a clear target—to match and surpass North American quality and customer service—now lack a blueprint for further progress. Wherever they are in the world, the most effective leaders of the 21st century will be those who can lead others in their organizations to think in innovative ways and, in fact, to drive change.

1.2. Efficiency and adaptability

Effective organizations—those that enjoy sustained competitive edge—display two specific characteristics simultaneously: efficiency and adaptability (Mott, 1972). Efficiency allows an organization to implement and follow well-structured, stable routines for delivering its “product” (goods and services) in higher quantities and higher quality and at lower cost than those of its competitors. The efficient organization also reacts quickly to unexpected turns of events, allowing it to maintain its routines with minimal disruption. In yesterday’s relatively stable world, organizations were able to concentrate on efficiency alone. However, in a changing world, mastering the routine is no longer enough. Adaptability allows an effective organization to master the process of changing its routines deliberately and continually. It entails deliberate discontent—discovering new problems to solve, finding new things to do, and adopting new technologies and methods before anyone else. Adaptability requires looking outside the organization, anticipating new opportunities and problems, trends, technologies, ideas, and methods to improve or change its routines. In today’s effective organizations, leaders induce not only efficiency but also adaptability for sustained competitive edge.

2. The process approach to applied creativity

Adaptability is driven by organizational creativity, which has been defined as a continuous process of thinking innovatively, or finding and solving problems, and implementing new solutions (Basadur, Graen, & Green, 1982). Kabanoff and Rossiter (1994) defined applied creativity as a process “occurring in a real-world, industrial, organizational, or social context; pertaining to the finding or solving of complex problems; and having an actual behavioral creative product (or plan) as the final result.” Leaders can use creativity as the deliberate tool to lead their organizations to achieve adaptability. Studying and discussing creativity is difficult and complex, and no single, agreed-upon definition of this quality exists—and researchers have taken many different approaches to studying it. However, one approach that models creativity as a process, with phases or stages, has been proven effective in permitting people in organizations to increase creative performance (Basadur et al., 1982) and communicate more efficiently with others in creative teamwork (Basadur & Head, 2001). Basadur et al. (1982) showed that appropriate training in thinking skills, attitudes, and behaviors associated with
executing such a multistage process was effective in improving creative performance (Kabanoff & Rossiter, 1994). Basadur and Head (2001) showed that teams with more heterogeneous preferences for various phases or stages of the creative process were more innovative than teams whose members were more homogeneous in preference for stages of the creative process. Other evidence that people can learn such skills, attitudes, and behaviors—and the process itself—to improve creative performance may be found in such references as Basadur, Runco, and Vega (2000), and Runco and Basadur (1993). This offers leaders a blueprint to learn how to lead others to achieve adaptability. By developing a high level of skill, leaders can lead others in executing this process and in learning the skills, attitudes, and behaviors required to execute the process well. Above all, leaders can learn to synchronize individuals’ very different preferences for various stages of the creative process, called his or her process style. Roland (1996) showed that appropriate training in the creative process methodology of Basadur et al. (1982) also increased appreciation by individuals for the four-stage creative process as a whole. Training increased individuals’ preference for stages different from their own preferred stage and their perception of the value of those different stages. I have documented how leaders can integrate the process, skills, attitudes, behaviors, and preference appreciation into everyday organizational work and life for tangible results and for motivation, job satisfaction, and group interaction (Basadur, 1992, 1994, 1995).

2.1. Cognitive process models


My model also builds on the Osborn-Parnes approach in that each stage synchronizes divergent and convergent thinking, separated by the ability to defer judgment. My approach also emphasizes the psychology of implementing the process and requisite process skills, attitudes, and behaviors to mainstream creative performance as an organizational way of life. My approach to creative problem solving involves more than using a tool to solve particular, identified problems on an ad hoc basis. Rather, this approach begins with deliberate problem finding in everyday life and ends with action to implement new solutions as the first and last of eight steps within the four-stage model. My research shows that people often prefer different stages of the process (Basadur & Gelade, 2002). Rather than promote individual tools and techniques of creativity, my approach is a system that interconnects the process, the skills, attitudes, and behaviors, specific tools, and the CPSP (which measures preferences for the different stages of the process) into a common language of innovation. When the system is applied to senior management to develop a clear, concrete business goal to be pursued through application of the system and to create a well-defined organizational structure (such as an integrated network of
interfunctional teams, for example) within which people are able to apply the system toward the goal, a shift to a more creative, innovative culture is achieved over time as the system becomes habitual.

2.2. A circular process of applied creativity

Gordon (1956, 1971) modeled the discovery of new ideas (making the familiar strange) and their implementation (making the strange familiar) as a never-ending circular process. Field research by Carlsson, Keane, and Martin (1976) supported Gordon’s model by showing that the R&D process in organizations follows a continuous, circular flow of creating new knowledge to replace old knowledge.

Extensive field research and practical experience within business organizations reported by Basadur (1974, 1979, 1981, 1983) supported this modeling of the creative process as an ongoing cycle. This cycle recognizes that, as new problems are discovered and new solutions are subsequently developed and implemented, new problems and opportunities arise. For example, not only did the automobile’s invention provide a new solution to an old problem (improving transportation) but also it created many brand-new problems (e.g., pollution, energy, and accidents).

This circular process, which emphasizes continuous creativity beginning with problem finding, is a model for organizational adaptability. Adaptable organizations and their leaders continually and intentionally scan the external environment to anticipate new opportunities and problems and to proactively change their routines and find new products and methods to implement, thus leapfrogging their competitors. Each implemented solution leads to new, useful problems to be discovered. Fig. 1 shows a simple, three-phase circular model of applied creativity or adaptability in an organization, which continuously cycles through problem finding, problem solving, and solution implementation. As solutions are implemented, new problems (opportunities) are created (Basadur, 1992, 1997). Effective leaders in adaptable organizations may use this model to help their people to think in new ways.

3. Leading people to think in new ways

To execute this process well, leaders must first help others to execute basic creative thinking skills to overcome shortcomings in each of the three phases of Fig. 1. Not only do these skills help in solving obvious problems (problem solving) but also they help people follow a synchronized process for innovative thinking to find and define new problems to solve and implement those new solutions. Leaders must help others to follow this process, not alone but with other individuals or within groups or teams. These basic thinking skills include the abilities of deferring judgment, keeping an open mind, and thinking divergently. The attitudes, behaviors, and skills necessary for creative thinking are underdeveloped in many people, inadequacies that show up in many ways (Basadur, 1994; Elbing, 1978).

3.1. Shortcomings in problem solving

When confronted with new ideas, people are often prematurely critical, shutting down the flow of productive thinking. They desire to be perceived as practical and economical above all things, allowing judgment to enter into play too quickly. Rather than build on promising but imperfect ideas, they discard them. Taught to be logical, people assume that every problem has only one right answer. Unable to appreciate “shades of gray,” they are unwilling to take detours to reach goals. They test new ideas
mentally—in the abstract—rather than trying them out and welcoming the opportunity for learning and unexpected outcomes and opportunities. Attempting to equate new and old experiences, people search for what is similar rather than what is unique in a new problem and use available solutions rather than consider new or innovative ones. Decisions are directed toward a single goal, although most problems involve multiple goals that must be addressed at once.

3.2. Modeling and training in problem solving

To overcome these shortcomings, leaders can model open-minded thinking and reinforce training in behaviors intended to improve performance in creative problem finding, problem solving, and solution implementation (Fig. 2). Training has been shown to make people more willing to actively diverge to generate more, and better, ideas for solving problems. Training also improves skills in evaluating ideas and improves the ability to separate idea generation from evaluation through deferral of judgment. I have also shown that this training improves performance in all three stages of finding problems, solving problems, and implementing solutions, even among people who might naturally regard creativity training with skepticism. Among the results, training makes people less likely to jump to conclusions about the nature of a problem, more open-minded to new, unusual ideas and approaches, and less likely to make negative judgments during idea generation. Through training, leaders may improve people’s abilities to develop a range of problem definitions, encourage them to risk trying out an unusual solution, and
increase their willingness to defer judgment on a particular problem. Leaders can encourage employees
to extend effort to find more and better ideas and improve their skills subsequently in evaluating ideas
(Basadur et al., 1982; Basadur, Pringle, Speranzini, & Bacot, 2000; Basadur, Runco, et al., 2000).

3.3. Shortcomings in problem finding

People tend to wait for others to find problems for them to solve rather than take the initiative to seek
out or anticipate problems, changes, trends, and opportunities for improvement or innovation. Rarely
does anyone in business, industry, and government precisely define your assignment. This provokes
some frustration and anxiety in many people trying to adjust to continual, accelerating change—how to
live with the anxiety of not knowing what you are supposed to do in uncharted territory. People often
avoid important problems that cut across organizational functions and department lines: “That is not our
problem.” They tend to overlook “unsolvable” problems and concentrate instead on simpler concerns.
Often, people assume prematurely that “it cannot be done” when they know too much about their work
and fail to inquire further or challenge convention.

3.4. Transfer ownership

If people are asked to simply implement their leader’s predetermined solutions, how much
commitment will they feel to making those solutions succeed? People naturally work harder at their
own projects than at someone else’s. Leaders must transfer to others their ownership of these challenges.
The earlier they do so, the more ownership they will feel. When they are willing to share problems early,
they give people the freedom to do their own fact finding and to define the problem in their own way—
the secret to transferring ownership. Leaders must learn to hand off challenges to others, not make them
wait for their own solutions. In addition, far from being the only content expert, they must engage other

Fig. 2. Strategies for involving others in meeting your critical challenges.

1. Model and train others in problem finding, defining and solving
2. Transfer ownership: delegate challenges, not solutions.
3. Pick up your end.
4. Set up structures that encourage others to buy in.
5. Be a process leader, not just a doer.
6. Show others how their challenges align with strategic company goals.
content experts. They must also learn to be process leaders, facilitating those content experts toward implementing novel solutions.

Involving people early during problem finding permits them to exercise their full creative potential. If a manager comes up with a new idea, they figure out what particular problem the idea might solve then seek out an employee willing to take on that problem. The employee’s subsequent solution often turns out to be different from the manager’s original idea although both solutions might be equally good. However, the employee is now committed to making their solution succeed—more than they would have been to making the manager’s solution succeed. By transferring ownership of problems, these managers facilitate change rather than impose it.

3.5. Shortcomings in problem defining

When confronted with problems and new situations, people tend to evaluate before investigating and often respond automatically or act without carefully thinking. Such early evaluation precludes inquiry into a fuller understanding of the situation. People confuse symptoms with problems and causes with effects. They accept unsubstantiated assumptions rather than taking the time to discover “real” facts that might suggest refreshing new ways to define the problem. They address problems at face value rather than asking questions to probe beneath the surface. People assume that they understand the nature of the problem and cannot understand that a single situation may cause diverse goals, motives, and problem definitions for different people and circumstances. People tend to focus on problem solutions rather than problem definitions. Stereotyping, or assuming facts about situations and people based on preconceived notions, is an important perceptual barrier. It leads to prematurely categorizing from previous experience and hearsay. Failure to observe and consider details and investigate the obvious promotes an inability to find a balance between narrowing a problem too much (missing the “big picture”) and broadening it too much (not breaking it down into small enough subproblems). This can be further fueled by an inability to use one’s imagination sufficiently to connect seemingly unrelated matters.

3.6. Pick up your end

A leader’s goal is to involve others to solve the critical challenges they have identified. They must continually demonstrate their own commitment to using the creative process and process skills in meeting their own challenges. In other words, they must act as a role model in using the process. How can they ask people to do something that they are unwilling to do?

Suppose a leader decides to send their subordinates for training but feel that they are too busy to attend the sessions themselves. If they do not understand what their subordinates have learned, the subordinates will have difficulty implementing their learnings and will have to work around them. If they want others to gain skills in using the process but see the leader failing to pick up their end, how likely are they to use the process to meet those critical challenges?

Leaders must also demonstrate that they are willing to do their own share to meet an important challenge. They make it clear that, without the others’ help, they would have been willing to tackle the challenge themselves. They do not let others think that they are simply dumping the challenge onto them merely to get rid of it. When leaders abdicate responsibility, they send a clear signal that they do not believe the challenge is a worthwhile one. Why not hand over to employees the responsibility for managing the challenge while remaining willing to help out as needed?
3.7. Shortcomings in solution implementation

People are often afraid to implement their own creative solutions. They fear failure and the unknown (which is where their new solution will take them). They fear their solution is imperfect and will open them to criticism. Distrusting their superiors, associates, and subordinates, and looking for the best route to compete, succeed, and move ahead, they conform to accepted patterns. The need to belong and to learn the rules for achieving career success win out over the opportunity to make bold, risky decisions and the prospect of making mistakes. Who wishes to make a fool of themselves or of others? People consider it impolite to be too inquisitive. They hesitate to confess ignorance or to ask “why” about things that everyone else seems to know or accept. This leads to the “group think” phenomenon in team problem solving (Janis, 1971).

3.8. Set up structures that encourage people to use their creativity

Leaders can encourage employees to apply innovative thinking to their critical challenges by setting up simple structures that make it easy for them to buy in. A prime example is employee suggestion systems used in some top Japanese companies. These are intended to get employees into the habit of continually coming up with new problems and solutions and implementing those solutions. The system makes it easy for employees to find problems and to work together to solve them and implement the solutions. Workers jot down their dissatisfactions with their jobs and company products (their “golden eggs”) then post them on a wall poster under a column called “problems.” Coworkers who read about a particular problem that interests them can then join forces to help solve it. Once they solve the problem, they post the solution in the second column on the chart. In a third column, the group chronicles its implementation. Only when all three columns are complete—when the individual or team has carried out problem finding and problem solving and has implemented a workable solution (or at least has proven that the solution works)—can workers submit the idea as a suggestion. At this point, it is automatically accepted by a supervisor. With about 96% of suggestions immediately put into practice, employees get a clear message that the organization really values their ideas.

3.9. Shortcomings in group problem solving

Teamwork is often uncreative for other reasons. Group members often are unable to communicate clearly and simply or fail to define terms well. They assume that “we all know what we mean.” This causes fuzziness and time-wasting frustration during teamwork. In addition, group members may be unaware that individuals have different styles and methods of thinking and problem solving. Group problem solving is often inefficient because people are unable to synchronize these differences. Groups often jump into solving the problem without first considering how they will go about solving it and then flounder. They are unaware of the concept of process (how) and focus only on content (what). Meetings can be undisciplined discussions where facts, ideas, points of view, evaluations, action steps, and new problems are interjected randomly. Interfunctional teams often get mired in arguments about functional issues to protect their “turf” rather than focusing on the problem at hand. They are also unable to discuss, analyze, and agree where problem ownership lies, or should lie, for any given problem. Problem ownership can vary in degree and in number. Rather than coaching the group to find its own way to innovative action, leaders often steer the group toward their own points
of view. Rarely will group members debrief their meeting process to examine how their future meetings might be improved. Groups are satisfied to just “hold” meetings, not to solve problems—the commitment is more to preserve one’s place in the organizational membership structure than to actually solve problems.

3.10. Be a process leader, not just a doer

Transferring ownership of critical challenges means managers must learn to interact with others as a process leader or coach. Within a meeting, for example, a process leader keeps track of “how” the group works on a problem. What is the flow of the process steps and what behaviors and attitudes are needed to make the flow work? The process leader’s job is to help everyone work together toward a useful solution. The process leader must continuously model process skills and encourage everyone to use these skills themselves. He or she frequently reminds the group which step of the process they are in and which process skill they should be using at any time. Occasionally, a process leader will request that a coach be present to give him/her and the team feedback on their process. Managers must allow people to figure out their own solutions and their own implementation plans and support them throughout the process. A creative leader induces others to focus the process and process skills on meeting their challenges. They become consultants or facilitators in the process of solving the challenge rather than giving orders or doing the work themselves. Having transferred ownership, they then help others to achieve their own goals. These creative leadership skills hardly fit with the traditional management style that most organizations employ, but they can be learned.

3.11. Show people how their challenges align with strategic company goals

Not only should tactical challenges be aligned with the company’s strategic plan but also this alignment must be readily seen and understood. People must clearly understand how every challenge they manage fits into the more strategic challenges of their department and organization. Even more important, they have to understand how their own challenges connect to their customers’ key challenges. Employees in a food processing plant, for example, might face the tactical challenge of reducing waste. A leader should take pains to show how this tactical challenge, by reducing manufacturing costs, aligns with the strategic company goal of increasing customer value during a recession.

4. A formula or process for creative teamwork

Creative leadership means leading people through a common process or method of finding and defining problems, solving them, and implementing the new solutions. This process necessitates a common language to help people communicate their thoughts efficiently. They must be able to quickly understand which stage of the creative process they are in at any given moment. They also must recognize that different people prefer various stages of this creative process. They must also become skilled in managing other people and teams in a fluid but orderly fashion through the creative process. Mastery of this process provides a blueprint they can use for providing innovation leadership that gets results. In short, leaders need a process formula to guide them and tools to make the formula work.
4.1. A synchronized process for thinking innovatively together

Basadur and Gelade (2002) suggested a theory of applied creativity that expanded the three-phase creative process depicted in Fig. 1 into the four-stage process of Fig. 3. In Fig. 3, the problem finding phase is split into two components: problem generation and problem conceptualization. The third and fourth stages, optimization and implementation, correspond to the last two phases of Fig. 1. Following is a brief description of each of the four stages and how they synchronize. A more complete explanation is available in Basadur (1995).

4.2. A synchronized process: Stage 1

The first stage gets the creative process rolling. Here, creative activity includes gaining knowledge and understanding by physical contact with and involvement in real-world activities and using this knowledge to create new problems, challenges, opportunities, and projects that might be worth defining and solving. Understanding is derived from what is experienced, including emotions and feelings of self and others through empathy. New possibilities are imagined from what is experienced. Stage 1 activity thus consists of sensing, seeking, or anticipating problems and opportunities and is called generation. An
outcome of this stage is a problem worthy of investigation but not yet clearly defined or understood. Consider Edwin Land, inventor of the Polaroid camera, who said the key was not inventing the camera itself but finding a problem, sparked by his daughter’s innocent question about why she could not see her own picture instantaneously. He demonstrated the generation stage of the creative process: initiating problems to be solved instead of waiting for the problems to be provided (Land, 1972). At Japan’s electronics giant Toshiba, most engineers and scientists beginning their careers in R&D start off in the sales department (Basadur, 1992). This apparently backward approach is designed to teach them the process of problem finding. As these people will spend their working lives creating products to solve customers’ problems, what better start than to learn first-hand about those customers’ needs, habits, and problems—both visible and hidden? A major auto parts supplier, Nippondenso, trains and encourages employees from day one to find problems and to be discontented with their jobs. Employees write down their discontents and post them for workers to read. Here, and at many other Japanese companies, this is actually the start of the creative process called the employee suggestion system. The entire suggestion system hinges on problem finding.

4.3. A synchronized process: Stage 2

The second stage, conceptualizing, keeps the creative process going. Creative activity in this stage involves gaining knowledge and understanding mentally, working in the abstract, and analyzing, pondering, and theorizing about the information received to create a sound conceptualization or model of the problem domain. Understanding is gained not by direct experience but by detached, abstract thought. What is understood through rational, systematic analysis is turned into new insights that help define problems and create theoretical models and ideas to explain things. Stage 2 activity consists of turning a problem recognized in Stage 1 into a well-understood problem definition and some fledgling solution ideas and thus is called conceptualization.

For example, I was approached to help a Procter & Gamble product development team formed at short notice to respond to Colgate’s new green-striped soap bar. Early on, I realized that the team had chosen to define its problem as follows: How might we make a green-striped bar that consumers will prefer over Irish Spring? Posing the question from a consumer’s point of view, we came up with a new challenge: How might we better connote refreshment in a soap bar? Without any mention of green stripes, this less restrictive conceptualization allowed more room for creative solutions. The result was a blue-and-white swirled bar with a unique odor and shape, which eventually achieved market success as Coast. By leaping prematurely into solutions, the team had wasted almost 6 months before coming up with a superior conceptualization.

4.4. A synchronized process: Stage 3

The third stage moves the creative process further. Creative activity in this stage involves gaining knowledge and understanding mentally by working in the abstract—thoroughly analyzing a defined problem and using this knowledge to develop and evaluate ideas and options and create an optimal, practical solution. What is understood through rational, systematic, and orderly analysis is used to mentally evaluate situations and options to convert abstract ideas into practical solutions and plans. Stage 3 activity is called optimization. At this point, a good solution to an important, well-defined problem exists but has not yet been implemented. For example, the newly defined concept of a refreshment bar in
the example above still had to be converted into a practical solution. The team’s engineers created variations on a new soap bar that were evaluated on such criteria as cost, feasibility, and implementation time. A final optimal prototype was chosen and successfully tested with consumers, showing an exploitable competitive advantage over its competitor.

4.5. A synchronized process: Stage 4

The fourth stage completes the creative process. Apprehension in this stage involves gaining knowledge and understanding by physical contact and involvement in the real world. Utilization consists of employing evaluation to convert this knowledge into implemented solutions that work, accomplish valuable results, and are accepted by others. What is experienced and felt is used to evaluate. Creative activity in this stage consists of gaining experience with new solutions, evaluating the outcomes, and making adjustments to successfully implement them. Thus, this stage is called implementation. For example, the refreshment bar team still faced a patent barrier involving production of the new product. The team brought together diverse points of view, including engineers, technicians, lawyers, and even a few people who were unfamiliar with the production process. Eventually, a breakthrough insight emerged that allowed Procter & Gamble to make its new refreshment bar without infringing any patent. A full cycle of the creative process was now complete.

5. Synchronizing problem solving styles for various stages of the process

To use this process most effectively, leaders must appreciate (and convince others to appreciate) differences in how people gain and use knowledge and understanding. Basadur and Gelade (2002) explain the four stages of Fig. 3 in terms of two cognitive processes. One is apprehension or the acquisition of understanding or knowledge. The other is utilization or the application of understanding or knowledge. Plotting at right angles, an individual’s relative preferences for each of these processes yields a schematic of four types of creative activity (quadrants), each defined by a different combination of apprehension and utilization (Fig. 4).

Each quadrant corresponds to a specific stage of the creative process. The first two quadrants represent the components of problem finding—generation and conceptualization—while the third and fourth quadrants represent problem solving (optimization) and solution implementation (implementation) as the final two stages of the creative process. The first quadrant combines gaining knowledge through experience with using knowledge for creating options. Quadrant 1 activity corresponds to generation and yields a problem worthy of investigation but not yet clearly defined or understood. The second quadrant combines gaining knowledge by mental processing with using knowledge for creating options. Quadrant 2 activity consists of turning a problem from Quadrant 1 into a well-understood problem definition and some fledgling solution ideas and is called conceptualization. The third quadrant combines gaining knowledge by mental processing with using such knowledge for evaluating options. This stage, called optimization, yields a good solution to an important, well-defined problem. The fourth quadrant combines gaining knowledge by experiencing with using such knowledge for evaluating options. In this stage, called implementation, we implement an untried solution. We can determine individual preferences for each of the four stages of the creative process by considering differences in how we both gain (apprehension) and use (utilization) knowledge. An instrument called the Creative
Problem Solving Profile (CPSP) inventory has been developed for determining those relative preferences (Basadur & Gelade, 2002; Basadur et al., 1990). Plotting the scores obtained from the CPSP inventory and connecting them yields an irregular shape or profile on the schematic. Dominant quadrants tell us something about an individual style or profile of the creative process (Fig. 5).

In a creative organization, everyone is responsible for doing at least one of the four stages defined by Fig. 3. Some people initiate new things. Some are responsible for understanding and defining new initiatives and planning. Some produce practical solutions to new problems and initiatives. Others are responsible for finishing things off—taking action to implement new solutions. If this four-stage process of creativity adequately represents the creative process, one would expect that teams whose members cover all stages of the preferred creative process styles (Figs. 3 and 4) would significantly outperform teams with a homogeneous mix of creative process styles. One could also predict that members of homogeneous teams would experience more satisfaction working with their teammates because they are interacting with like-minded people. These predictions have been verified (Basadur & Head, 2001). By contrast, individual preferences for the four stages can cause difficulties if group members are unaware of these differences. For example, if someone’s orientation strongly favors generation (Quadrant 1), their behaviors may irritate someone who favors optimization (Quadrant 3). Similarly, a person oriented toward implementation (Quadrant 4) and focused on getting a quick result may experience a great deal of frustration with someone who favors Quadrant 2 (conceptualization) and wishes to fully understand and define a situation before proceeding.

In addition, one should be able to predict an individual’s preference for a certain stage of the creative process by seeing how that individual gains and uses understanding (Fig. 4). How individuals gain and use knowledge should also lead them toward certain fields of endeavor or occupations. Basadur and Gelade (2002) showed that, indeed, different kinds of creativity represented by the four stages of Fig. 3 correspond to various kinds of disciplines and work in organizations. They also showed that organizations need different forms of creativity within various kinds of work and jobs. These different kinds of creativity are associated with the various phases or stages of the process and must be synchronized across the organization and within groups and teams to achieve innovative results.

![Fig. 4. Four combinations of methods of gaining and using understanding.](image-url)
5.1. Matching the innovation process style to the situation

How an individual, team, or organization combines these different ways of gaining and using knowledge determines their innovation process profile. Understanding these differences allows team members to shift their own orientation to complement the innovation process preferences of others and even intervene to reduce frustration resulting from clashes of styles. Equally important, members can take various approaches to working with people and even mentoring. They can decide on the optimum strategy for helping someone else to learn something. In addition, they can decide whom to turn to for help in ideation or evaluation. Understanding these differences also helps them interact with other people to help them make best use of the complete creative process of Fig. 3. For example, effective leaders can help strong optimizers discover new problems and facts or present new problems and facts to them. They can help strong implementers better define challenges or present well-defined challenges to them. Leaders can help strong generators/initiators evaluate and select from among solutions and make plans or present to them evaluated solutions and ready-made plans. Alternatively, they can help strong conceptualizers to convince others of the value of their ideas and push them to act on them or push their
ideas through to acceptance and implementation for them. The profile provides a common problem solving language.

5.2. Working across functions

Maintaining this healthy balance is most important for the organization’s interfunctional teams. While there are many exceptions, people who work in similar occupations or departments usually gravitate toward one dominant quadrant. Because their secondary preferences differ, their individual profiles may differ. However, they have more in common with each other than with people in other occupations or departments who rely on different ways of absorbing and using knowledge.

Effective leaders help individuals learn to shift among orientations, ensuring that the entire organization has a complete blend of process styles. In fact, one’s dominant orientation is less important than the ability to shift among the orientations of Fig. 4. Preference(s) for certain quadrants within the innovation process is not a static “trait” but rather a dynamic “state.” Leaders can encourage individuals to work in any of the four stages to complement others in a given situation.

5.3. Assembling teams (“reverse stacking”)

In assembling a team, especially a top management team, it is important to go beyond the mere notion of balancing quadrant preferences. Leaders must deliberately select people with opposing styles. Managers, including CEOs, often make the mistake of stacking a new team with people of similar CPSP style preferences. Although these team members may cooperate because they think alike, my research shows that the team will likely be significantly less effective than a team deliberately picked to mix diverse, opposing style preferences. The latter team may experience more frustration initially but members will achieve more breakthrough results as they learn to mesh their styles into a smooth process.

6. Leading multidisciplinary teams

Besides ever-accelerating change, another key factor facing leaders today is increasing complexity. Long gone are the days when managers working in functional silos could solve important corporate problems alone. In today’s much more complex world, many problems call for the combined expertise of multiple functions. This is why there is such an emphasis on teams from top management all the way down to the shop floor. However, if it is difficult to encourage people to think in innovative ways, it is even more challenging to encourage them to think creatively together as a team or group. For example, people understand things in different ways—some more experientially and concretely and others more theoretically and abstractly. They also use what they understand in different ways. Using their understanding, some people prefer creating new options while others prefer evaluating options. Being unaware of such differences in cognitive styles, they lack the tools or skills to communicate to each other what they are thinking and how they are thinking.

Occupations that require people to initiate change, recognize opportunities and new possibilities, start projects, and work with people in unstructured situations might thus be expected to contain a relatively high proportion of generator (Quadrant 1 dominant) individuals. Typical occupations here would be the
artistic and academic professions, training and teaching, and marketing. Similarly, fields such as strategic planning and R&D in which it is important to define problems, understand situations, and create direction and strategy might be expected to contain a relatively high proportion of conceptualizers (Quadrant 2 dominant). Quadrant 2 activity would likely typify fields such as market research, organization development, strategic planning, R&D scientist, university professor/researcher, and senior systems consultant. Quadrant 3 (optimizer) activities involve solving problems with precision and evaluating and optimizing products and procedures. This should be characteristic of fields such as engineering/engineering design, IT systems development, finance, and accounting. Quadrant 4 (implementer) fields would likely emphasize shorter-term implementation work, such as sales, manufacturing production, secretarial or administrative support, and project management.

Empirical research bears out these predictions (Table 1). In the first column of Table 1, the occupations are ranked (in descending order) by the percentage of generators in each. Thus, the occupation with the highest proportion of generators is schoolteacher followed by academic and artistic. In the second column, occupations that contain the highest proportion of conceptualizers are organization development, strategic planning, and market research. In the last two columns, occupations are ranked by the percentages of optimizers and implementers, respectively. The occupations that contain the most optimizers include engineering, finance, and IT systems developer, and the occupations that contain the most implementers include IT operations, customer relations, secretarial/administrative support, project manager, sales, and purchasing. Certain occupations appear in more than one column because they rank highly in more than one quadrant.

These occupational differences are also consistent with the dynamic flow of the four-stage creative process. Typically in an organization, ideas for new products to meet emerging customer needs and problems originate in the marketing department, which contains a high proportion of generators. Market research and design departments then articulate the product more clearly and assess its market potential. These occupations contain a high proportion of conceptualizers. Next, engineers develop prototypes for field testing with consumers and establish optimal specifications. Engineering occupations contain a high proportion of optimizers. Finally, the production department manufactures the product for logistics to distribute and sales to sell. These three occupations contain a high proportion of implementers.

This creative process is a cognitive process, one that requires people to think well together in new ways and one that requires a leader to synchronize group members’ thinking. Leaders need concrete skills and tools to implement the process to help people think creatively together. Effective leaders have to learn and recognize distinctly different cognitive styles within the creative process and convey to team members the complementary nature of these styles.

Gone are the days when a company could assign “creative work” to a select group of people, say, in the marketing or R&D department. Today, much more complex challenges posed by globalization of competition and technological advancement make it imperative for organizations to solve problems and capitalize on opportunities—and that requires the creativity of all the organization’s members across multiple disciplines. New ideas need to be implemented more quickly before competitors get there first. No longer can the creative process be seen as a “relay race,” with one department handing off pieces of a problem to the next. Organizations must implement new solutions quickly. Rather than wait for others to “do their job first,” each department must be involved from the beginning throughout the stages of the creative process in parallel processing. Instead, multidisciplinary team members need to think together from beginning to end, respect each other’s expertise, and find ways to identify and solve many complex problems simultaneously. Parallel processing would include
members of all departments from the beginning, thus ensuring that everyone is involved and working together. This also ensures that the group identifies and solves obstacles sooner rather than later. By blending different kinds of knowledge and various kinds of creativity, the entire organization implements new solutions to newly discovered, well-defined problems and opportunities, both more rapidly and more successfully.

7. Effective leaders separate process from content

To lead people through this process in a synchronized fashion, leaders will also have to learn to become process leaders rather than relying solely on their content expertise. Effective leaders recognize that they will not be able to solve all of their critical challenges alone and that they need a lot of help. They will have to involve other people in taking responsibility for many of these key challenges or their components. These people may include their subordinates and employees, their peers, and perhaps even their superiors. To leverage the thinking skills of other people, they will have to engage them in the process of thinking innovatively—rather than telling them what to do. When leaders concentrate on the process of continuously finding and solving important problems, they concentrate on process.

Most people are unaware of process and focus only on content. Simply defined, content is what they are doing, and process is how they are doing it. When leaders focus all of their attention on content, they achieve no better than mediocre results. To distinguish themselves from the pack, leaders must understand the crucial difference between content and process and learn to lead others to balance the two. Becoming a process leader allows you to involve others in the creative process using their content expertise. These process leadership skills will have special implications for interdisciplinary teams. Different disciplines (jobs and departments) favor different styles of knowledge apprehension and

Table 1
Ranking of occupations by percentages of CPSP styles

<table>
<thead>
<tr>
<th>Rank</th>
<th>Generators</th>
<th>Conceptualizers</th>
<th>Optimizers</th>
<th>Implementers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>School teacher</td>
<td>Organization development</td>
<td>Engineering/</td>
<td>IT operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>engineering design</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Academic</td>
<td>Strategic planning</td>
<td>Manufacturing engineering</td>
<td>Customer relations</td>
</tr>
<tr>
<td>3</td>
<td>Artistic</td>
<td>Market research</td>
<td>Finance</td>
<td>Secretarial/ administrative</td>
</tr>
<tr>
<td>4</td>
<td>Nonprofit/university administrative</td>
<td>Design</td>
<td>IT systems developer</td>
<td>Project manager</td>
</tr>
<tr>
<td>5</td>
<td>Training</td>
<td>R&amp;D</td>
<td>IT programmer/analyst</td>
<td>Sales</td>
</tr>
<tr>
<td>6</td>
<td>Marketing</td>
<td>Artistic</td>
<td>Accounting</td>
<td>Purchasing</td>
</tr>
<tr>
<td>7</td>
<td>Design</td>
<td>Product development</td>
<td>Strategic planning</td>
<td>Manufacturing production</td>
</tr>
<tr>
<td>8</td>
<td>Health management executive</td>
<td>IT senior consultant</td>
<td>Technical customer support</td>
<td>Logistics</td>
</tr>
</tbody>
</table>

Occupations ranked 1 contain the highest percentages of the relevant style.
utilization and also different stages of the creative process of Fig. 3 (Basadur & Gelade, 2002). The ability to work within interdisciplinary teams becomes increasingly necessary as problem solving becomes ever more complex and as the time available for solving those problems continues to shrink. Organizational leaders must recognize, nurture, reward, and synchronize the different kinds of creativity associated with the various stages of the creative process. Within organizations, different domains of work favor various kinds of creativity, all equally valuable and all needing to be synchronized effectively to produce innovative results continuously. Because various parts of organizations prefer different stages of the creative process, they contribute in different ways to the creative process.

8. Summary

The successful leaders of the 21st century will be the ones who can lead their organization and teams to make adaptability a standard way of life. This is more challenging than leading for efficiency because it requires skills in leading others to think innovatively—leading others to continuously discover new disruptive problems and implement new disruptive solutions. This will be especially important for leading interdisciplinary teams thinking innovatively together. Getting people to think innovatively requires the leader to know how to synchronize the thinking of others. This includes building skills in being a process leader—not simply a content expert—to help people move through the stages of the creative process. Valuing different stages of the process and appreciating different ways of understanding things and using such understanding is especially important in leading interdisciplinary or interfunctional teams as various departments and kinds of jobs favor different stages of the creative process. People tend to lack skills in deferral of judgment, divergent thinking, and evaluational thinking. Leaders can use skills and tools to help others to work together innovatively. These tools help leaders involve others in finding and solving important new problems. Research shows that involving people in using their creativity is itself motivating. By inducing people to think creatively, the leader creates intrinsic motivation at the same time.

8.1. Future research

Improving and accelerating the development of creative leadership skill in engaging others in employing a process supported by skills, attitudes, behaviors, tools, and appreciation of differences in style, as described in this article, is an area that is ripe for research. Kabanoff and Rossiter (1994) have identified many opportunities for cognitive process researchers. One specific area for future research based on this article lies in learning how to increase team members’ appreciation for, and awareness of the importance of, all four stages of the creative process, not just their preferred stage. Learning to value the preferences of others means they will be more patient with their teammates in executing the four-stage creative process of Fig. 2. Roland (1996) provides a questionnaire for measuring individuals’ appreciation for and importance of each of the four stages. In addition, research shows that involving people in using their creativity on the job is intrinsically motivating. By inducing people to think creatively for tangible results, the leader creates motivation at the same time (Basadur, 1992). An interesting research direction would be to test different ways leaders can use the creative leadership process and skills in this article to increase motivation of teams and individuals.
References


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