Collaborative Problem Solving Through Creativity in Problem Definition: Expanding the Pie

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The classic models of two party problem solving in situations of potential conflict are reviewed and the growing impetus for a process that would encourage collaborative win-win solutions is summarized. In is demonstrated that in-win collaboration requires innovative thinking, and that a four stage process of deliberate creativity with a track record of success is described. The process, called Simplex, emphasizes 'out of the box' thinking in problem defining (before solving) as the key to making a perceived 'fixed pie' larger, moving beyond the shackles of zero-sum, win-lose, compromise thinking. If a problem can be conceptualized from a new angle in such a way that each party believes its resolution would provide a high level of satisfaction, then the parties will be more likely to work together collaboratively. This process uses four specific creative thinking skills. A case study is described in which the Simplex process was used in union management bargaining. In the case study, when the creative process was deliberately applied, success was achieved in building trust and developing expanded pies and new solutions. However, when the process was abandoned, the trust was lost, no creative solutions were developed, and a sub-optimal lose-lose situation resulted. A two-dimensional diagnostic model which shows the relationship between skill level in the process and motivation to use it is provided. This model defines four modes of pure and mixed distributive and integrative bargaining.

Introduction

Handling joint problem solving between two parties in situations with potential for conflict is an important topic. Given various names such as dispute resolution, conflict management, conflict resolution, union management bargaining, alternative dispute resolution and negotiating in general, it crosses the boundaries of many diverse fields including industrial and organizational (I/O) psychology; industrial relations; human resource management; and social psychology.

In this paper, we will first review classic models of conflict management and the growing impetus for a process that would encourage collaboration. We will demonstrate that the Simplex process provides a viable method for collaborative win-win problem solving through the deliberate use of creativity. A key in this process is creativity in problem definition. This process focuses on developing a joint creative problem definition which opens up room for new 'win-win' solutions. This new conceptualization of the issue makes the so called 'pie' to be split larger. The Simplex process makes the collaborative behavior orientation in Figure 1 (below) possible. Collaborative behavior is the preferred choice but requires a new process of thinking. In this case, new means different and superior to the traditional zero-sum movement up and down the bargaining line or sub- optimizing movement down into the lose-lose area below the bargaining line (see Figure 2 below). The new process of thinking is learnable and can be deliberately applied even in the most difficult of situations. The more difficult the situation, the higher the necessary skill in applying the process. We will focus particularly on union management bargaining, a specific form of conflict management, and how the Simplex process can be applied to it. We will demon-

Problem definition

strate the adaptation of the process to this forum, the training provided in advance, the procedural checks used during the training and the application of the process and the outcomes. A case study is described in which real world participants learned to use such a process.

The fundamental purpose of our paper is to show how this expansion can be achieved using creativity deliberately in problem definition or conceptualization. This deliberate creative work in problem definition must not to be confused with attempting to be creative in developing solutions to a narrowly defined, preconceived problem. The process of creativity applied in this paper, called Simplex, has four sequential stages: problem generation, problem conceptualization, solution optimization, and solution implementation. This is one of the reasons Simplex is called a complete process of creativity. Most people think of creativity only in terms of the third stage. They tend to think of creativity as brainstorming solutions for solving a problem, not realizing that the previous two stages even exist and are even more critical to the creative process. The conceptualization stage is the key to making the pie bigger. By and large, people in North America do not know how to deliberately apply a complete creative process to conflict management situations.

The creative process that will be introduced in this paper simultaneously builds trust and provides a pathway to collaborative, creative, work in a way that is honest, above-board and makes sense to any manager, union member or government person through its simplicity and logical common sense. Skillful application of this process produces a climate of trust and collaboration. A simple problem solving language is employed to enable the opening of minds in a non-threatening way. An example of how this process worked successfully in a confrontational franchisee-franchisor situation in a consumer goods company in North America is provided elsewhere in this paper. Although the basis for the conflict resolution models of Figures 1 and 2 is well known, the application of a creative process emphasizing creativity in problem conceptualization as a practical, deliberate method for expanding the total satisfaction available (the size of the pie) and achieving super-optimization (as modeled in Figure 2) is new and unique and is the basis of our paper. In the case study presented in this paper, when the creative process was

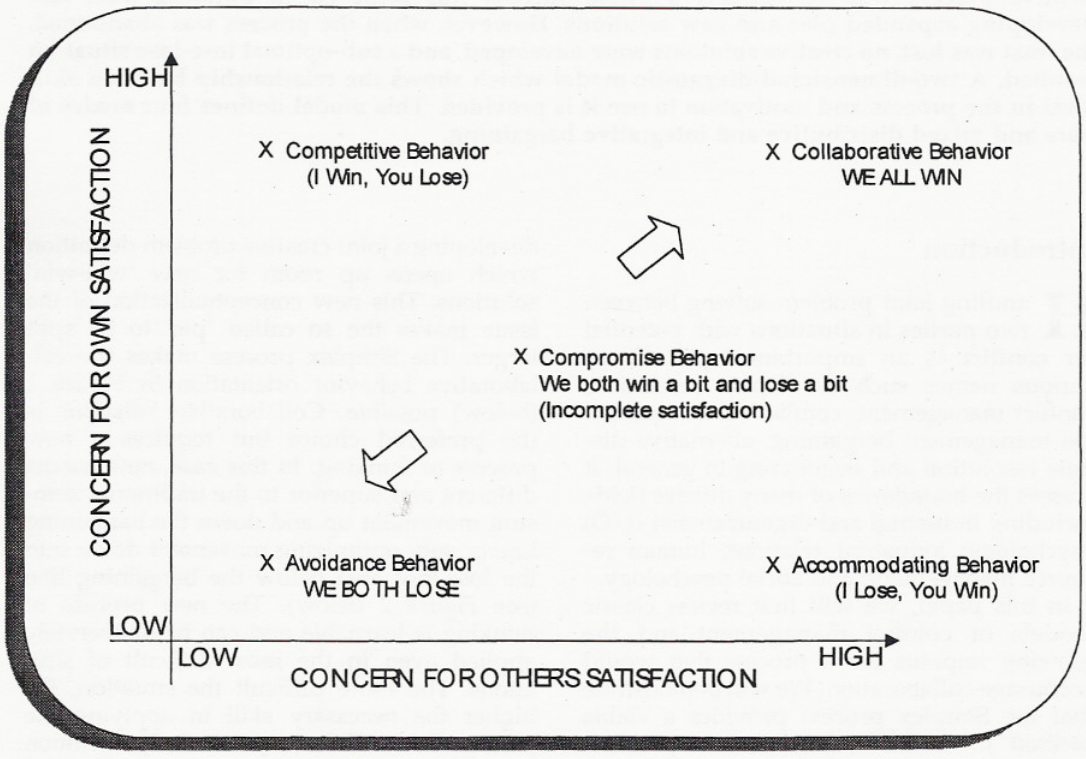

Figure 1. Orientations Toward Conflict Resolution

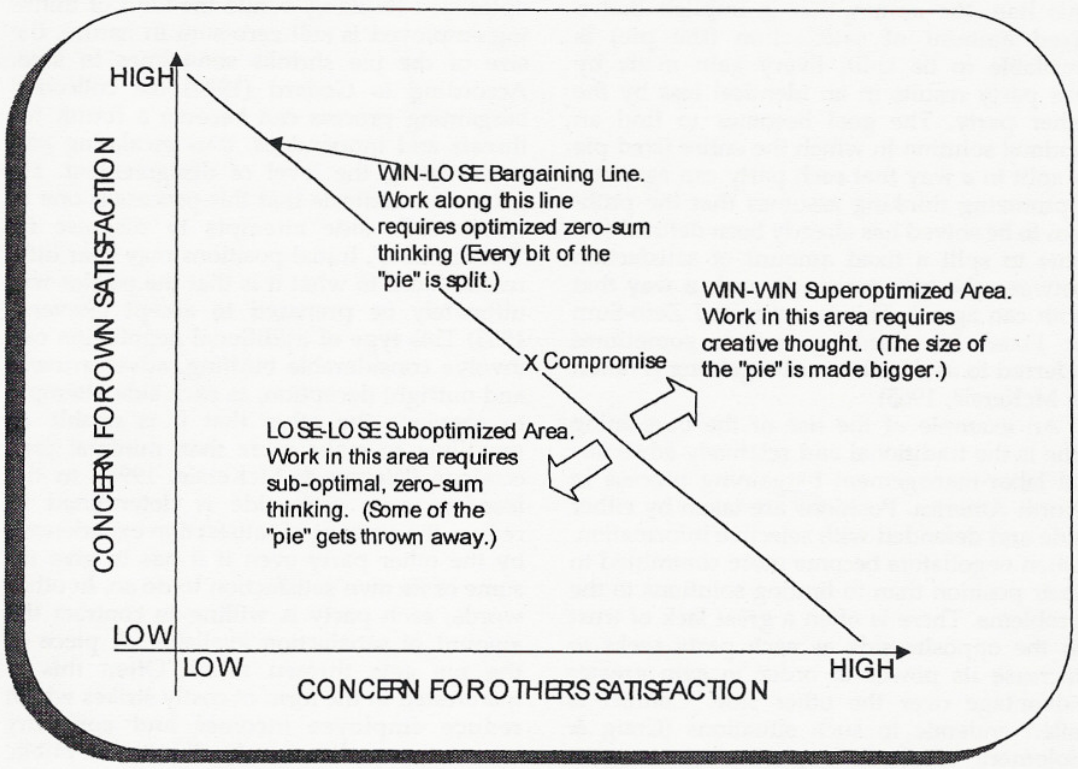

Figure 2. Beyond the Bargaining Line: Expansion and Contraction of the Pie

deliberately applied, success was achieved in building trust and developing creative solutions for implementation. However, when the creative process was deliberately abandoned in that case study, the trust was lost and no creative solutions were developed and a sub-optimal lose-lose situation resulted.

We will conclude with recommended future steps both in terms of research and practical application of this process to conflict management situations. We strongly believe, and the research clearly indicates, that this process, and the training necessary for using the process skillfully, is neither industry nor culture bound. This process is currently being used across a wide variety of organizations in many countries and in several different languages. Because of its unique focus on discovering and building upon the possibilities in any given situation, it is ideally suited to the arena of conflict management.

The Classic Model of Conflict Management

Thomas (1976) adapted the work of Blake and Mouton (1964) and Hall (1969) to provide a model (Figure 1) of five different basic orientations toward conflict resolution involving two parties. In Figure 1, the vertical axis measures one party's concern for its own satisfaction on a scale from low to high while the horizontal axis measures its concern for the other party's satisfaction. Within the framework, high concern for one's own satisfaction coupled with low concern for the other's satisfaction indicates Competitive behavior while the opposite is Accommodating behavior. Compromise behavior occurs midway and represents some, but incomplete, satisfaction for both parties. Avoidance behavior occurs when there is low concern for both self and other's satisfaction while Collaborative behavior occurs when a party experiences high concern for both its own satisfaction and also for the other party's satisfaction.

Fixed Pie Assumption – Optimizing

The straight line joining the Competitive, Compromise and Accommodating behavior orientations is called the Zero-Sum, Win-Lose, Bargaining Line. When problem solving orientations are confined to positions along

this line, the assumption is implicit that a fixed amount of satisfaction (the pie) is available to be split. Every gain made by one party results in an identical loss by the other party. The goal becomes to find an optimal solution in which the entire fixed pie is split in a way that each party can agree to. Optimizing thinking assumes that the problem to be solved has already been defined (i.e. how to split a fixed amount of satisfaction between the two groups in such a way that both can agree). This is optimized Zero-Sum or Fixed Pie thinking and is sometimes referred to as distributive bargaining (Walton & McKersie, 1965).

An example of the use of the bargaining line is the traditional and relatively adversarial labor-management bargaining process in North America. Positions are taken by either side and defended with selective information. Often negotiators become more committed to their position than to finding solutions to the problems. There is often a great lack of trust in the opposite side as each party seeks to increase its power in order to gain greater advantage over the other side. Conflict is often endemic to such situations (Craig & Solomon, 1996). Both parties assume that there is a fixed amount of satisfaction available. The management side goes into the bargaining process determined to limit the union to the minimum possible share of what it perceives as the fixed amount of money and benefits it can afford. Meanwhile the labor side goes in determined to gain the maximum share possible of what it perceives as the fixed amount of money and benefits the company can afford. Because these are directly opposing goals (problem definition) little collaborative problem solving is possible. Unless some process could be devised and applied which would create a common agreed goal to pursue or problem definition to solve, the management-labor team is doomed to sliding up and down the Bargaining Line until exhaustion, government intervention or public outcry brings a final compromise position somewhere on the line. This solution will indicate how much each side won/lost in the distribution of the whole pie.

Throwing Away Some of the Pie (Sub-optimizing)

Continuing to use the example of union management bargaining, sometimes no compromise is reached and some of the fixed pie actually gets thrown away. The bargainers get off the bargaining line into the lose-lose area which is to the lower left in Figure 2. This area demonstrates various degrees of sub-optimized thinking. While the kind of thinking employed is still zero-sum in nature, the size of the pie shrinks sometimes to zero. According to Godard (1994) the collective bargaining process can become a forum for threats and innuendoes, thus escalating and accentuating the level of disagreement. He goes on to indicate that this process is one in which each side attempts to disguise its 'Bottom Line'. Initial positions may bear little resemblance to what it is that the parties will ultimately be prepared to accept (Stevens, 1963) This type of traditional negotiation can involve considerable bluffing, adversariness, and outright deception, as each side attempts to convince the other that it is unable or unwilling to make more than minimal concessions (Walton & McKersie, 1991). In the lose-lose area each side is determined to reduce the amount of satisfaction experienced by the other party even if it has to give up some of its own satisfaction to do so. In other words, each party is willing to contract the amount of satisfaction available. A piece of the pie gets thrown away. Often this is manifested in the form of costly strikes which reduce employee incomes and company revenues as well as good will with the public for both the union and management. During work stoppages, neither the company nor its workforce makes money. Both sides end up in the 'lose-lose' area. In the worst possible scenario, all the pie is thrown away: the company is dissolved and the Avoidance behavior orientation in the lower left-hand corner of Figure 1 has been adopted (We both lose). This may occur through bull-headedness on either side. It may also result from an ulterior motive on either side such as the company wanting to open up a replacement plant in another geographic area or employees secretly wanting to buy the company out of bankruptcy and run it themselves.

Thus, the bargaining process as described to this point (above) is some sort of a win lose contest. At best, what one side wins, the other automatically loses and none of the fixed pie is thrown away. This represents an optimization of sorts. At worst, when negotiations get really heated and both sides fail to compromise anywhere along the bargaining line, some of the assumed fixed pie is actually thrown away. This is called sub-optimization.

Making the Pie Bigger (Super-optimizing)

The area above and to the right of the Win-Lose Bargaining Line in Figure 2 is the Win-Win area. In this area, both parties' concerns are considered valid and relevant. Both parties achieve a higher level of satisfaction

Sub-optimized thinking

than they believed possible and sometimes the full satisfaction desired. The solution is not on the bargaining line but rather, is somewhere in the area above it. The collaborative behavior orientation in the upper right-hand corner of Figure 1 (we all win) is required to achieve this solution. To the extent that each party wants more than partial satisfaction for itself and more than partial satisfaction for the other party, collaboration is necessary. Full collaboration is necessary for both parties to achieve 100% satisfaction. This can be referred to as integrative bargaining or mutual gains bargaining. This system emphasizes (1) the need to focus on common interests between parties rather than on positions; (2) the need to put oneself in the position of the other party and see things from the other party's point of view; (3) the need to create options that will enhance the mutual gains of the parties; (4) the need to develop and use objective rather than selective criteria for evaluation of outcomes (Craig & Solomon, 1996). Each side goes into the bargaining process with the same goal: How to achieve full satisfaction for ourselves and at the same time ensure that the other party also achieves full satisfaction? In other words: How to ensure both parties experience full satisfaction? In this collaborative approach the amount of total satisfaction expands and makes the pie bigger than it was.

Integrative bargaining

Collaboration as the Preferred Approach

Intuitively the collaborative approach seems the best way to go. However, many researchers go beyond an intuitive argument to back up the need for the collaborative approach and the need for a process to allow it to happen. Adams, (1995), Pfeffer, (1994), Craig and Solomon (1996), Kochan and Osterman (1994), Godard (1994), Kochan and Piore (1984) and Kochan, Katz and McKersie (1986) have written extensively on the need for a more collaborative process for collective bargaining. According to Adams (1995), adversarialism is not in the economic interests of any society and confrontational industrial relations systems are a drag on economic performance. Thus, it is in the interests of any nation to pursue policies designed to elicit consensus. He suggests that articulated cooperation produces an economic synergy that is absent in confrontational societies. Adams strongly believes that American legislation, rather than stimulating labor-management cooperation, further embedded adversarialism. Unions came to be considered not as social partners, as they were defined in Europe, but instead as a kind of punishment for managerial sins. North American industrial relations are exceptional in the degree to which they are confrontational and exclusionist, and that exceptionalism is to our economic and political disadvantage. Godard (1994) believes that labor-management cooperation is being held back by adversarial traditions and a high degree of distrust between parties.

The cooperative and collaborative approach in many European countries is in stark contrast to the situation in North America. From the early 1970s Scandinavian unions have been leaders in cooperating with management in order to reorganize work to make it simultaneously more satisfying and rewarding to the workers and more productive (Berggren, 1992). In Germany unions are also participating cooperatively in work reorganization schemes (Jacobi, Keller & Muller-Jentsch, 1992). The tradition in many European countries is the tripartite process whereby management, government, and employee representatives are willing to work together for the common good and approach the bargaining process with a cooperative, collaborative mindset. Often the union initiates problem solving with government and management. For example, in Germany when east and west were unified into one country and a great deal of unemployment and other financial malaise occurred, the union, instead of simply demanding solutions, took the initiative to work with government and management to achieve ways to increase employment. In these countries, there is a common approach that is based on trust among the three parties to solving problems collaboratively.

Adams (1995) believes that a move away from confrontation is possible in North America despite the long history of confrontation. He stresses that the Swedes, during the early 1900s were among the most quarrelsome of peoples, but by the 1970s the world was acclaiming their propensity to find mutually acceptable solutions to difficult socioeconomic problems. In short, attitudes and behaviors embraced for decades or even centuries can be changed. Magma Copper, fourth largest copper mining company in the United States has been able to bring about such a change. The details of how Magna achieved an end to the company's 'us versus them' adversarial relationship is documented in Pfeffer (1998). Magma's vice-president of human resources, saw old hostilities and resentments preventing both sides from discussing future possibilities without a dramatic breakthrough. A group of seventeen high ranking union and management personnel

was formed to develop, oversee and implement a process of cooperative labor relations. The management and union jointly hired an outside consultant to facilitate such a process involving both sides. The process began with all group members venting emotions for a full day followed by a second day which was used to develop an implementation plan to achieve cooperative labor relations. This plan was 'jointly owned' by union and management.

The new working relationship that developed at Magma, inspired the company and union to reconsider the contract they had signed earlier. Both parties voluntarily agreed to sign a new contract eight months prior to the old one's expiration in 1992. They approached designing and negotiating a contract the same way they approached all other work place issues: jointly, collaboratively, and cooperatively. Magma 'believes it enjoys a substantial competitive advantage in the mining industry due to its innovative high-involvement human resource processes'. Pfeffer (1998) wrote that many of the changes made at Magma entailed a sharing of power with employees that organizational leaders are often not willing to undertake, regardless of the economic benefits from doing so.

Easier Said than Done

In North America the collaborative approach often fails when tried. This may be because most North American organizations have never learned how to innovate new management processes that work permanently. North America is famous for the 'Fad of the Month' approach to learning how to manage better. New 'programs' such as TQM, quality circles, and suggestion systems, make a lot of sense conceptually but they often fail because the implementation is poorly understood and skills in making change are lacking (Basadur & Robinson, 1993). For these new programs to become permanently established, the way people think and behave needs to change. This is very difficult and takes much time and effort. North American managers tend to look for the 'quick fix'; they do not usually take the time to learn the necessary creative skills of change making. Thus such programs come and go and are often derisively referred to as the latest 'flavor of the month'. The problem is that the 'what' is understood, but there is a lack of knowledge of the 'how', the new, different behaviors and thinking skills to put the theory into practice. According to Pfeffer (1998) 'smart people and organizations do dumb things' because a profound gulf exists between knowing *what* to do and knowing *how* to do it and between knowing *how* to do things more effectively and *actually doing* things more effectively. Knowing 'what' to do is necessary but on its own it is clearly insufficient. What is required to close the gap is a clear cut implementable process for organizational creative or innovative thinking, that is, skill in deliberately changing for the better how we do things. Basadur (1995) suggested that, in order to achieve high-quality, innovative, creative results, an individual or a group requires not only the appropriate content (i.e., the knowledge or the *what*) but a creative, innovative process (the *how*) for working on that content, as well as sufficient skills in applying the innovative process. These three components provide the 'quality results equation':

$$\text{Quality Results} = \text{Content} + \text{Process} + \text{Process Skills}$$

An important objective of this paper is to introduce such a process and process skills and demonstrate how they can be learned and applied.

Trust as an Outcome of Collaboration

Pfeffer (1998) suggests that all workplace practices and changes should be evaluated by a simple criterion: to what extent do they convey and create trust and respect among people. The collaborative approach requires a serious commitment to doing things differently. According to Adams (1995) collaboration is based on mutual recognition and acceptance of the validity of the interests of each party. In Germany and Japan for instance, the key ingredient seems to be that the parties are consulted about issues critical to their interests and there is a concerted attempt to achieve consensus before any action is taken. As experience is acquired, that their interests are not treated cavalierly, labor and management become more willing to commit themselves to positions that in confrontational circumstances both would automatically oppose. This suggests that union-management cooperation over a broad range of issues helps to engender the trust necessary to produce employees highly committed to continuous improvements in quality and productivity (Adams, 1995). For many North American companies, this atmosphere of trust is considered highly desirable, but there is no method or pathway to achieving it. It seems to be assumed that because such an atmosphere of trust does not already exist, therefore, collaboration is impossible, that is, trust leads to collaborating. In this paper we propose that works the other way around,

No pathway to trust

that is, collaborating leads to trust. More specifically, we propose that the deliberate application of the special creative process and process skills described in this paper leads to an atmosphere of mutual trust and respect.

Simplex as a Tool for Conflict Management – Collaborative Win-win Solutions Through The Deliberate Use of Creativity

Creativity

Moving beyond the bargaining line into the 'win-win' area of Figure 2 requires 'out of the box thinking', that is, 'creativity'. However, the key is that creativity is needed most in problem *defining*, not so much in problem solving. What is needed is a process that permits both sides to use their creativity in defining problems in new ways. Attempts to categorize the study of creativity (e.g. Murdock & Puccio, 1993) frequently emphasize the four 'Ps': **p**roduct, **p**erson, **p**ress (environment) and **p**rocess. Most research focuses on one category. O'Quin and Besemer (1989) and Jackson and Messick (1964), for example, focused on understanding and assessing the product of creative efforts. Meanwhile, one aspect of the 'person' approach has been *identification*: the development of cognitive and personality tests capable of identifying more or less creative people. Dunnette (1976), Gough (1976), Roe (1976) and Torrance (1974) provide comprehensive reviews of this identification movement. Guilford's work (1968) is among the best-known in the cognitive realm and MacKinnon's (1962, 1977) in the personality realm. Kirton (1976) and Myers (1962) addressed the relationship between personality and creative behavior, and Guilford (1968) addressed the cognitive aptitudes and abilities associated with various kinds of (potentially creative) thinking. The study of environmental 'presses' has been pursued by Amabile and Gryskiewicz (1989), Andrews and Farris (1972), and Baker, Winkofsky, Langmeyer and Sweeney (1976), among others.

The Process Approach to Creativity

The focus on the fourth P is apparent in research that models creativity as a *process*. For example, Basadur (1979, 1982, 1992) portrayed individual, team and organizational creativity as a dynamic, circular four stage process (Figure 3) of continuously finding good problems, (generating), defining them (conceptualizing), solving them (optimizing), and putting good solutions into practice (implementing).

Generating means continuously and deliberately discovering and surfacing new and useful problems to be solved. In organizations, this includes generating new products or services by anticipating new customer needs, by discovering ways to improve existing products, services, procedures and processes, or by identifying opportunities to improve the satisfaction and well-being of organizational members and pertinent groups outside the organization. Conceptualizing means keeping an open mind and defining such new problems and opportunities (regarding them as 'fuzzy situations') accurately and creatively to clearly visualize the big picture and to identify more specific challenges and insights and relate them to one another. *Optimizing* means developing new, useful, imaginative solutions to these challenges. *Implementing* means successfully putting such new solutions into action. Each implemented solution leads to new, useful problems to be discovered – hence the circular process. Research shows that effective organizations do what it takes to mainstream such a process (make it an everyday habit among its members) for continuous innovation and for intrinsic motivation (Basadur, 1993, 1997). Research also shows that skills in such a process can be deliberately developed (Basadur, 1979, 1994). To make the process work, skills in sequential diverging and converging thinking (defined below) are necessary within and between the stages. In practice, the process is represented as eight diverging-converging steps within the four stages as follows:

- Generating: problem finding and fact finding
- Conceptualizing: problem definition and idea finding
- Optimizing: idea evaluation and action planning
- Implementing: gaining acceptance and implementation

These eight steps make up the complete circular Simplex innovative thinking process shown in Figure 4.

Building upon the work of Parnes, Noller and Biondi (1977), Basadur, Graen and Green (1982) identified a two-step mini-process called *ideation-evaluation* in which diverging and converging thinking occur sequentially (see Figure 5). *Ideation-evaluation* occurs within each of the eight steps of the Simplex process. *Ideation*, or active divergence, is the generation of options without evaluation

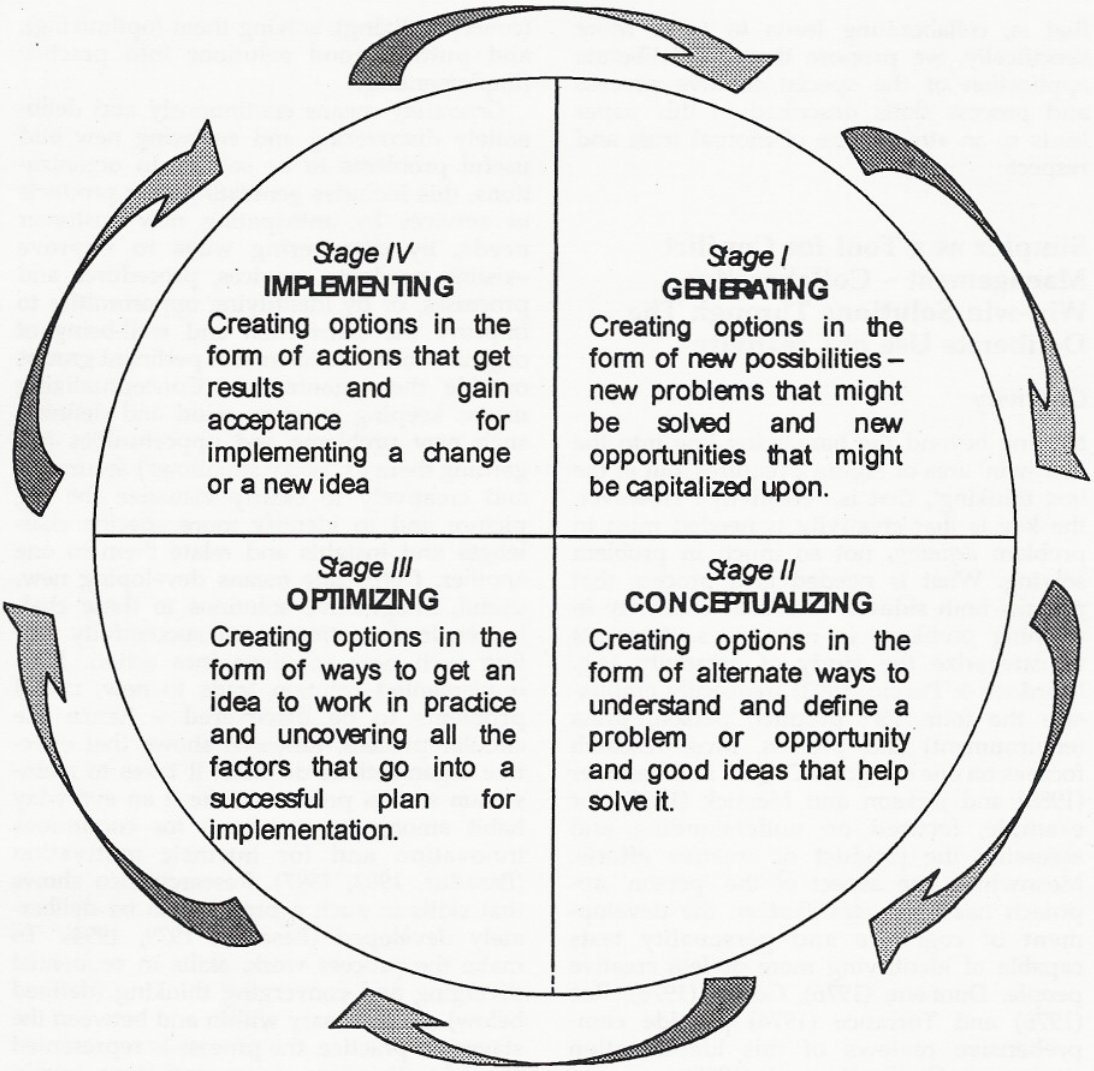

Figure 3. The Four Stages of the Innovation Process

(deferring judgment). *Evaluation*, or active convergence, is the application of judgment to the generated options to select the most significant options. Separating active divergence from active convergence is a vital aspect of this mini-process and must be executed skillfully within each step of the eight step process. The skill required to separate active divergence from active convergence is called deferral of judgment. As depicted in Figure 6, deferral of judgment skill balances active divergence and active convergence by separating them. Both active divergence and active convergence are essential to creativity but must not be done at the same time. Instead, they are used sequentially.

A fourth skill, the vertical deferral of judgment is also vital. It operates between the steps or stages of the process to prevent unconscious leapfrogging and short circuiting the process. This skill is described in more detail below. The four necessary process skills of the Simplex process can be summarized as follows:

- Active divergence B the ability to assertively generate a variety of options.
- Active convergence B the ability to evaluate and choose from among options and advance the process.
- Deferral of judgment B the ability to separate active divergence from active convergence.

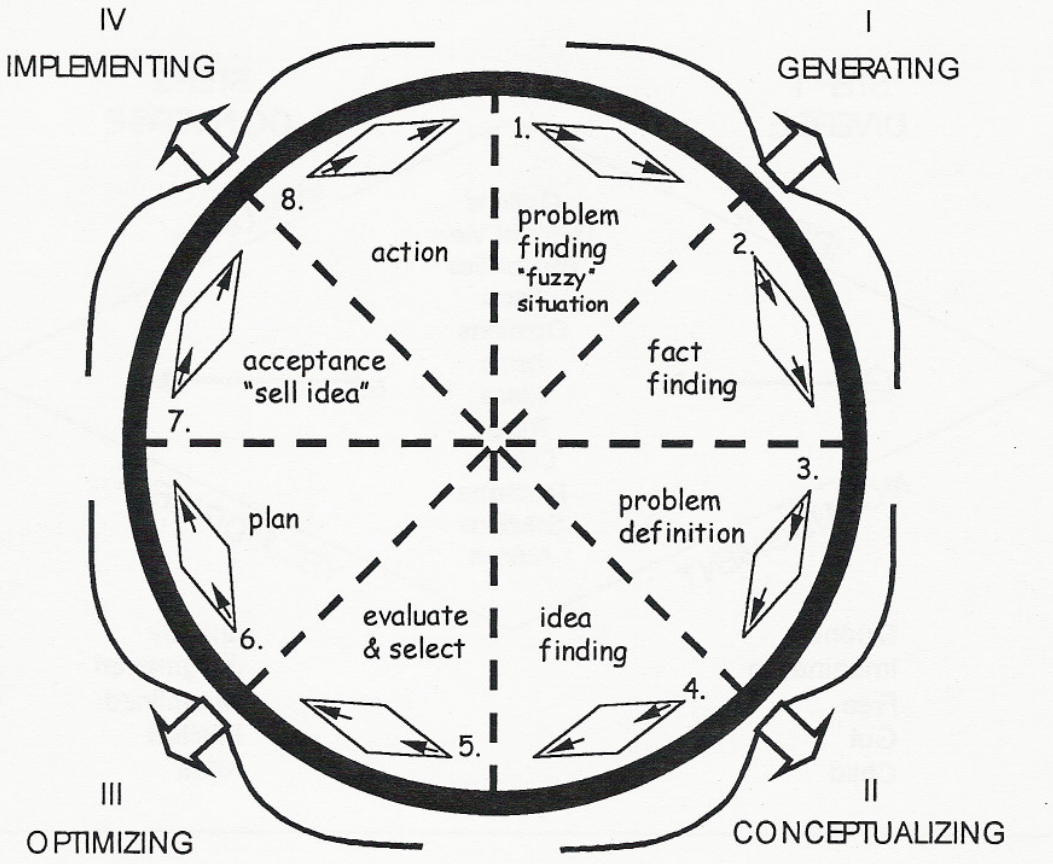

Figure 4. How the Four Stages Correspond to the Eight Steps of the Simplex Innovation Process

- Vertical deferral of judgment B the ability to avoid unconsciously leapfrogging past steps or stages of the process.

Problem definition

Why Problem Definition is So Important

Asked what he would do with only one hour to save the world, Albert Einstein said, 'I would spend 55 minutes defining the problem and then five minutes solving it'. He believed that the best problem solvers were those who could define problems in new ways. The same belief has been expressed by many famous problem solvers such as Polaroid inventor Edwin Land who said 'If a problem can be defined, it can be solved' and the famous educational psychologist John Dewey who wrote 'A problem well stated is half solved'. Getzels (1975) conducted a field experiment linking problem definition emphasis to creative performance.

Tables 1, 2 and 3 list the specific skills required for good diverging and converging thinking and for the separation of the two especially in the conceptualization stage of the creative process. The conceptualization stage emphasizes creativity in problem defining.

Vertical Deferral of Judgment

Not only does deferring judgment mean delaying and separating evaluative, converging thinking and behavior from non-evaluative diverging thinking and behavior within each stage, it also means delaying moving to the next stage of the process until each previous stage is complete. The fourth skill, vertical deferral of judgment, must be exercised from stage to stage. Skipping in and out of different stages at random must be avoided. This skill means avoiding the urge to leapfrog over different stages of the process. For example, many people lack the patience to fact find, preferring to jump straight to a solution before the problem is well defined. Others jump even further and want to plan for or even take action immediately. A

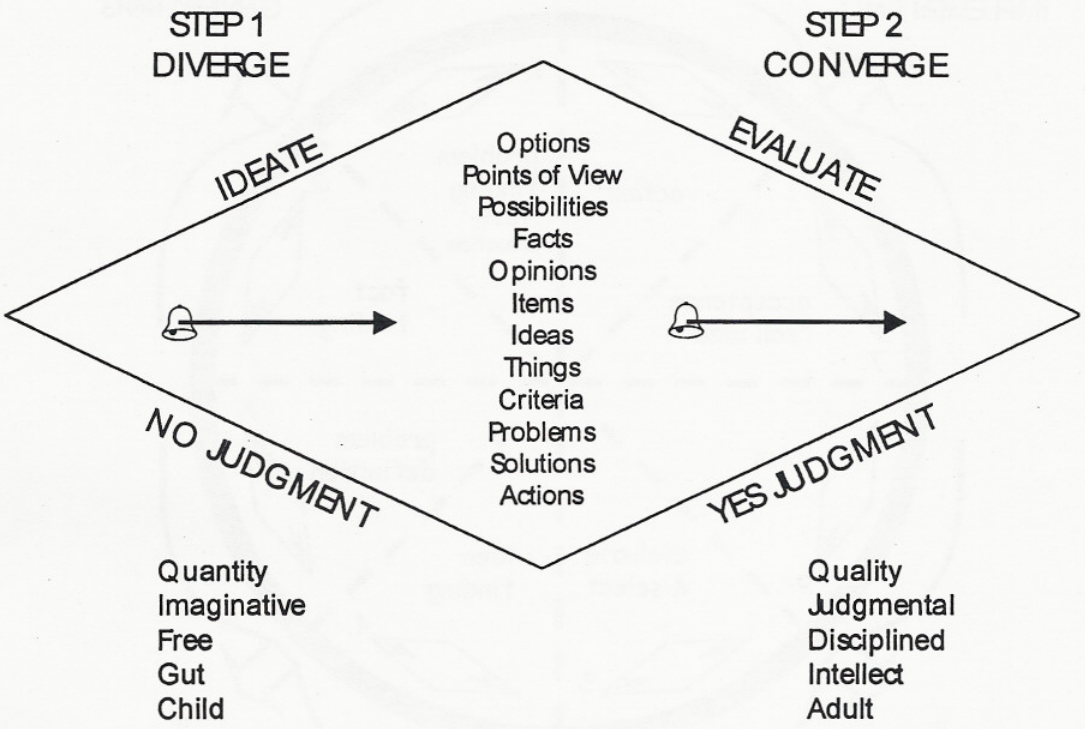

Figure 5. The Ideation-Evaluation Process

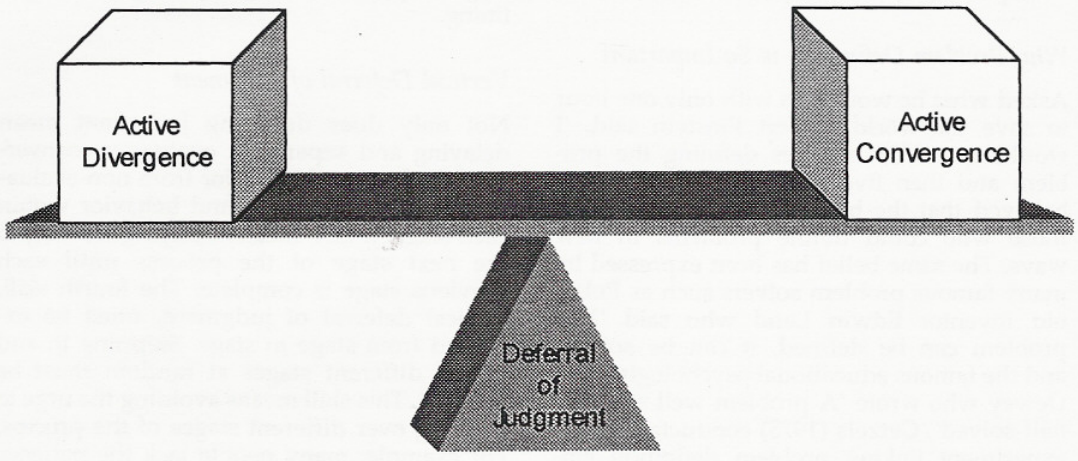

Figure 6. Balancing the Process Skills of Active Divergence and Active Convergence Using the Process Skill of Deferral of Judgment

Table 1: Specific Skills for Deferring Judgment Especially in Conceptualization

- Avoid making premature, negative judgments of fledgling thoughts (both when working alone and with others)
- Visibly value, appreciate, and welcome other points of view as opportunities to strengthen thinking, rather than as a threat to one's ego
- Patiently maintain an awareness that some facts are more difficult to perceive (more invisible) than others
- Question assumptions for validity and search out hidden, unconscious assumptions which may be unwarranted
- Tackle problems with an optimistic 'can do' attitude rather than prematurely concluding that it 'cannot be done' because 'I can't see how'
- Tend not to jump prematurely to a conclusion as to what the 'real problem is' in a situation
- Avoid attaching negative connotations to problems; such prejudgment may bias fact finding efforts
- Visibly stay open-minded to others' versions of the facts
- Often pause deliberately to try an unusual approach to define a problem instead of automatically relying on an old approach
- React positively to new radical thoughts as opportunities to build fresh new thinking

Table 2: Specific Skills for Active Divergence Especially in Conceptualization

- Search out many different facts and points of view before attempting to define a problem
- Define problems in multiple and novel ways to get a variety of insights
- Clarify problems by breaking them down into smaller, more specific subproblems and also by opening them up into broader, less limiting challenges
- Deliberately extend effort to create additional unusual, thought provoking potential ways of defining a problem
- Give credit for divergent thinking by others; praise others for alternative viewpoints and try to build upon and strengthen such alternatives to increase variety of choice
- Turn premature, negative evaluations of ideas into positive challenges to keep the creative process flowing; that is, change negative 'We can't because...' thoughts into positive 'How might we...?' thoughts
- Share information and ideas freely with other people and departments hoping to build understanding of problems
- Get teams to formulate problems in ways which transcend individual and departmental considerations.

problem solving group must ensure that its members are moving through the process one step at a time and diverging and converging together within each step. Skill in vertical deferral of judgment is essential to allow a group to work through the Simplex process together and to knowingly adapt the flow as circumstances suggest. A process facilitator should be used to synchronize a group in its flow of sequential diverging thinking and converging thinking. The facilitator models these thinking skills (and the supporting attitudes and behaviors) and builds the group's own capability to use the process. Group members are encouraged to remain open to and seek out fresh points of view while diverging, and to apply objectivity and good judgment while converging.

Importance of Deferring Judgment

Obviously, crucial to the success of Simplex is this thinking skill of 'deferring judgment'. The ability to defer judgment in the two ways described above is the gateway to the creative, collaborative development of multiple

Table 3: Specific Skills for Active Convergence Especially in Conceptualization

- Take the time to select, clarify and focus upon the most significant facts available prior to attempting to define a problem
- Recognize and accept the critical few best problem definition options in terms of 'broadness' vs 'narrowness' of focus and insight provided
- Open-mindedly develop and use multiple, unbiased criteria for selecting from among problem formulation options, rather than letting preconceptions or hidden motives sway decisions
- Take the risk of failing or being criticized for being different for selecting novel problem definitions
- Be willing to accept and participate in consensus decisions about problem formulation and move on decisively in the problem solving process
- Do not wait for the 'perfect' option to emerge; instead take reasonable risks to finish the problem formulation stage

points of view and new and different perspectives. If analysis and evaluation of fledgling thoughts and different points of view are deferred skillfully, multi constituency participation and problem defining and solving is made safer. Under such conditions, team members are less fearful advancing fledgling points of view and less likely to feel they must be constantly 'on guard' to protect parochial interests. Breakthroughs are more likely to occur under this process which encourages different points of view and relaxed supportiveness.

Skill in deferring judgment permits extreme emphasis to be placed upon the first two stages of the Simplex process. The essence of the generating stage is to surface new problems and information as positive opportunities for improvement and innovation. In the union-management context this would be equivalent to looking forward to the next bargaining session as an opportunity to improve the quality of work life and company performance. In Japan, this is commonly called 'looking for the golden eggs' (Basadur, 1992). This orientation permits safe, open-minded, fact finding to occur. The essence of the conceptualization stage is to raise insightful challenges that are sparked by the key facts discovered in the generation phase and create a common and fresh understanding of the problem as a whole. Creativity in problem defining often provides the road to a breakthrough... looking at the problem from a new angle. Too often we rush into developing solutions without determining a good problem statement. Many unwarranted assumptions are made. For example we assume the problem definition is clear to all parties involved and that it is the same as our own perception. An important aspect of problem definition in the Simplex process is that problem definitions are always forced into an optimistic format beginning with the words 'How might we...?' People tend to dislike negative problems, but they are quite positive toward opportunities and challenges. The 'How might we...?' is a vital and powerful phrase. The 'How might we...?' question replaces the negative 'We can't because...' statement which is frequently heard in organizations.

Skills, Behaviors And Attitudes Are Needed to Make The Process Work

Basadur and Finkbeiner (1985) identified specific attitudes that *enhance* the process skills described above. They suggested that, unless the ideation-evaluation process is *accepted* attitudinally, then the process will not likely occur. Thus, the process skills have both attitudinal and behavioral components. Basadur, Graen and Green (1982) reported a field experiment which tested the effects of training the complete Simplex process in an applied setting. They expected that the training would improve creative performance on the job only if a positive change in attitudes and behaviors occurred. That is, the training had to motivate participants to accept the value of separating diverging and converging thinking and to deliberately apply the ideation-evaluation process if innovative performance were to be improved.

This belief was based on Basadur's (1979, 1994) analysis of previous laboratory and field experiments on the value of providing creativity training of any kind. In virtually all of this research, the extent to which the participants were actually *skilled* in the creativity techniques that they were asked to use

in the experiment was never measured. For example, although 'brainstorming' is a creative thinking technique based on deferral of judgment and active divergence, none of the brainstorming research ever attempted to measure to what extent the subjects *accepted* the value of and *employed* the skills of deferral of judgment and active divergence in the experiment (or more importantly, back in the real-world setting). In other words, many earlier research studies provided no more training than 'giving brainstorming instructions' (as if this were sufficient to effect sudden changes in brainstorming attitudes and skills). In contrast, Basadur, Wakabayashi, and Graen (1990) stressed the importance of building significant skills through at least two days of hands-on practice on real-world problems. Basadur and his colleagues also suggested that compared to simple brainstorming, a complete process such as Simplex is likely to be perceived as more useful and more credible among participants from real-world business and other organizations and less subject to the skepticism that often plagues attempts to 'train creativity' (Basadur *et al*, 1982; Basadur, Graen, & Scandura, 1986). Basadur, Runco and Vega (in press) modeled how *real* improvements in the acceptance of ideation-evaluation related to improvements in its skillful application. One reason why so many new management techniques earn the ironic label of 'flavor of the month' is that managers are unaware that fundamental new thinking attitudes and skills must be learned and applied to make using the new techniques permanent. Basadur and Robinson, (1993) and Basadur (1997) provide complete analyses of what it takes to make permanent changes in how organizations think and how perpetuation of this 'fad' approach to management can be avoided.

Out of the box thinking

Measuring the Needed Skills, Attitudes and Behaviors

Basadur et al (1982) systematically measured for the first time the impact of training in a complete process of creativity on individuals both immediately after training and after their return to work. They expected that performance would be improved only if significant gains in the acceptance and practice of the ideation-evaluation process were achieved. These expectations are consistent with Kraut's (1976) traditional industrial/organizational psychology training model: Training must go beyond *understanding* to change *attitudes* and to change *behaviors* in order to achieve superior *results*. Basadur *et al* stressed that essentially none of the previous research in creativity training had addressed the intermediate steps in Kraut's model. Their research attempted to measure and understand to what extent changes in acceptance of (attitude) and practice of (behavior) ideation-evaluation might *actually* result from training and accompany changes in performance (results). As described above, this link between training and changes in acceptance and practice of the fundamental ideation-evaluation process had simply been *assumed* to occur in previous research.

Basadur and Finkbeiner (1985) established a questionnaire to measure two specific attitudes that make up acceptance of ideation-evaluation: the preference for ideation (active divergence) and the tendency to (not) evaluate prematurely (preference for deferral of judgment). They suggested that these two attitudes enhance and encourage the practice of the two related behavioral skills. Encouraging active divergence leads to generation of more options and deliberate development of many points of view. Encouraging avoidance of premature convergence reduces the urge to prematurely judge or analyze a fledgling thought. Basadur and Finkbeiner also suggested that a low tendency toward premature convergence would trigger a high preference for active divergence. That is, the former, more passive attitude is a prerequisite trigger for the latter, more active attitude. When people become skilled in reducing premature convergence and increasing active divergence, they create more, higher-quality options. These two measures of the acceptance attitudes are used in the research reported in this paper as explained later. Measures of the behavioral skill (practice of the ideation-evaluation process) are also described later.

'Out of the Box' Thinking Is Critical in All Four Stages

For many people, 'out of the box' thinking is much more difficult in the earlier stages of the creative process, especially conceptualization, which involves discovering good questions and challenges prior to creating good answers and solutions. Applying Simplex helps people uncover specific challenges that they face, relate strategic and tactical challenges to one another, and understand a situation both from a big picture (forest) and a specific (trees) standpoint. The Simplex process is designed to facilitate an individual, group or whole organization to discover, think through, clarify and define complex, ambiguous, or strategic issues by placing maximum emphasis on the skills of problem generation and conceptualization prior to solutions and

implementation. This special skill is not taught in school. On the contrary, students become totally immersed in learning various *solutions* for presented and structured problems and when they begin their jobs find that these solutions often do not match the ill-structured problems that they either encounter or must seek out for themselves (Livingston, 1971; Leavitt, 1975; Levitt, 1963). The most important skill they need seems to be *finding* the right problems to work on, and this includes increasing the size of what at first glance seems to be a 'fixed pie'.

Formulating Creative Challenges to Make the Pie Bigger

The first three steps in the Simplex process of Figure 5 are concerned with creativity in terms of problems not solutions. Once a problem or opportunity has been sensed (Step 1), participants in a Simplex creative problem solving application session deliberately view it as a 'fuzzy situation' requiring clarification. Fact finding follows (Step 2). Participants share perspectives and stretch their thinking to generate information about what they know or think they know, what they don't know but wish they knew, what they may be needlessly assuming, what would be different if the situation were resolved, and what they have already thought of or tried. Participants then choose key facts to create specific challenges they need to confront. Formulating these challenges in an imaginative way is called problem definition (Step 3). The key facts are used for divergent generation of concrete, specific, simply worded challenges each beginning with the words, 'How might we...?'. Participants defer judgment and avoid prematurely assuming what can and cannot be done. Each 'How might we...?' represents a unique challenge. By discussion and consensus, the group then chooses a small number of challenge statements they consider as the more important ones. Next, using the selected challenges as starting points, the group creates a Challenge Map, with broader (bigger picture) challenges placed higher and more specific (tactical) challenges placed lower. When moving down the map from the top, the questions 'What's stopping us?' and 'What else is stopping us?' are used to elicit specific impediments and create additional previously undiscovered challenges. Conversely, when moving up the map, the questions 'Why?' and 'Why else?' are asked to identify previously undiscovered goals and broader challenges. Because this mapping process relates all of the challenges created by the team to one another both strategically and tactically, when completed it represents many ways in which the pie can be enlarged. Judgment and analysis are deferred while the map is being built, permitting new and sometimes hidden or unexpected challenges to be discovered in both directions. The simple three-step questioning process in Table 4 is used to create and place each new challenge.

The group then selects the challenges from the map that are believed especially critical and merit solutions and action plans or further fact finding and more detailed exploration. If further fact finding and exploration is decided, for each of the selected challenges the major impediments preventing its solution are identified by asking the questions repeatedly: 'What's stopping us?' and 'What else is stopping us?'. This results in additional challenges to add to the challenge map. The top challenges are then selected from the final map to enlarge the pie. A more extensive description of the challenge mapping and problem formulation methods above are provided in Basadur, Ellspermann and Evans (1994).

Examples of the Power of Problem Definition

Irish Spring

A research team at Procter and Gamble was given the directive to develop a bath soap which could compete in a superior way against the newly launched competitor product 'Irish Spring'. The team had prematurely defined the problem in the following way: 'How might we produce a better green striped bar of soap?' After several months of

Table 4: The Simplex 'Why What's Stopping?' Creative Analysis

Step 1. Ask the complete question: 'Why...?' or 'What's Stopping...?' of the selected challenge. (Also, ask 'Why else...?' and 'What else is stopping...?').
Step 2. Answer in a complete simple sentence.
Step 3. Transform the answer into a new challenge.

solution generation they were unable to design a green striped bar of soap which tested superior to Irish Spring. They had rushed into solving a poorly defined problem. By asking some good fact finding questions, creating a divergent list of 'How might we...?' challenge statements and deliberately applying the 'Why-What's stopping?' analysis, a new, broader and more creative problem definition was developed. This powerful statement of the problem was 'How might we produce a more refreshing bar?' One team member immediately pictured freshness in the form of fluffy clouds in a blue sky while another member said freshness made him think of the sea coast. In a very short time frame a new and very successful product was conceived: Coast bath soap. The key to the team's success was a less restrictive, broader problem definition. The 'pie' was made bigger: better green stripes was only one way of achieving better refreshment. The refreshment pie was bigger than the green-striped pie.

Lay the Bags Flat

Another example of broadening the problem, increasing the pie and increasing the amount of total satisfaction available is a Frito-Lay packaging dilemma. An interfunctional team had been formed to reduce costs and was bogged down solving the challenge 'How might we reduce packaging department costs?' The team's manufacturing members had identified a new packaging system which saved enormous amounts of time and money. The individual bags of potato chips were being packaged standing upright in larger boxes for delivery to customers. The new idea involved laying the bags on their sides in the boxes. The sales department team members were not at all satisfied with this solution because on delivery, customers open each box and count the bags before signing the receiving documents. Thus the new idea would result in extra time and frustration for the customer and slow down the salesperson who would make fewer sales calls per day. Obviously, an important challenge for sales was 'How might we continue to make our required quota of sales calls per day?' By working together with the attitude of achieving full satisfaction for both sides, and by following the discipline of the Simplex creative process, a new problem definition was identified. 'How might we lay the bags flat yet still allow the customer to quickly know how many bags are inside the box?' Several solutions immediately became evident, including providing each customer with a weigh scale so that opening the box and counting was unnecessary. Rather than argue and disagree over solutions which appear to conflict because they address two different challenges, the creative process resulted in a new expanded challenge that encompassed both original challenges. In the union-management bargaining context this would be an example of making the pie bigger, where many more and more creative solutions could be generated to the expanded problem definition. Some of these solutions would be capable of providing complete satisfaction to both parties.

Transference of skills

The Necessary Creative Process and Facilitation Skills Can Be Acquired

Learning the creative process and skills involves participation in a workshop setting followed by the completion of a program of activities in the work setting. The intent is to acquire the skills, attitudes and behaviors necessary for achieving successful creative outcomes each day in day to day working and living.

Simplex training workshops are intensive and practice oriented. Learning experiences include a series of diverse tasks that encourage participants to discover concepts not considered before such as the value of deferring judgment and of divergence in thinking. For example, participants define problems then compare definitions with other participants, discovering that the same problem can be viewed in many different, yet fruitful ways. Importantly, the emerging skills are applied to real-world problems as part of the learning experience. This promotes transference of creativity skills and concepts to personal frames of reference. A supportive climate is developed and participants are encouraged and rewarded for displaying the necessary attitudes, skills and behaviors. Participants are provided many opportunities for discovery that such attitudinal and cognitive skills do work.

Results of Training the Necessary Creative Skills

Research and experience strongly indicate that the Simplex skills for innovative thinking can be learned, nurtured, and managed within organizations through experiential and practice-oriented training (Basadur, 1994, 1995; Basadur, Wakabayashi, & Takai, 1992).

Basadur *et al* (1982) demonstrated that such training among participants from an industrial research organization yielded several improvements including:

- more likely to pause to try new, unusual approaches;
- more open-mindedness to new ideas;
- deferral of premature critical judgment;
- less time spent in negative evaluation during idea generation;
- increased quantity and quality of problems found; and
- more different problem definitions developed;
- less likely to jump to conclusions about the nature of a problem;
- better skilled in evaluating ideas.

Basadur, Graen, and Scandura (1986) found that training effects on manufacturing engineers persisted back on the job, particularly when they were trained in teams. Other organizational field research demonstrating the results of training in specific thinking skills, attitudes, and behaviors for both individuals and teams is summarized by Basadur (1987, 1993). Top management can also be trained to apply these skills in their work as individuals and as members of executive teams. Furthermore, they can be taught how to model and encourage the use of these new skills throughout the organization. Top managers must lead by learning and visibly using the creativity skills and change-making process. They must also develop specific strategies to maintain the use of the process and the thinking skills (Basadur, 1993, 1994) on an everyday basis.

Union Management Bargaining: A Special Subfield

A special and very important category within the field of conflict management is union-management bargaining. An effective method for achieving collaboration and integrativeness would be very valuable to this category because much acrimony is still associated with it. One tends to think of agonizing, prolonged strikes causing loss of worker income and company profits, and nerve-wracking brinkmanship in highly confrontational meetings between union leaders and company bargainers sitting on opposite sides of a long narrow table. The meetings last all night and all day for weeks on end with news blackouts and adversarial posturing by both sides.

Stagner and Rosen (1965) describe the bargaining process as beginning when one side attempts to communicate to the other its perception of the work situation and to induce a change in the situation. They go on to say that bargaining is necessary because the situation as seen by management does not coincide with that seen by workers and union officers. Conflict occurs when one party does not achieve its desired satisfaction level in relation to the other party. Bargaining is an important kind of conflict management. It has become part of life in the work environment. It also can obviously lend itself to improvement.

The case study below used the Simplex four-stage, eight-step creative process as a deliberate tool to implement collaboration in a real-world labor-management collective bargaining session. A genuine need provided an opportunity in a real life setting for some research and also an opportunity to develop a practical method for application to a wider range of situations. The results were used to develop theory integrating creativity, the bargaining process and conflict resolution and explaining why successful application would be situational.

Case Study Application

In this North American corporation, the historic relationship between management and the union can be characterized as definitely confrontational. Four times in the past 11 years, resolution of the collective agreement had involved work stoppages. This time both parties thought that it was timely to explore a more collaborative approach to bargaining a new agreement. During the past decade there had been a slump in the industry and revenues were decreasing. Neither the company nor the union relished the acrimony and non-productive effort that appeared to be inseparable from their traditional bargaining, especially in these difficult times. It was agreed to try to apply the Simplex creative problem solving methodology to the bargaining process to try to achieve more of an integrative win/win solution.

Training to Build Attitudes and Skills

How the training works is modeled in Figure 7 (as discussed earlier with respect to Kraut, 1976, etc). For training to be effective in achieving improved creative performance it must first achieve a change in attitude, that is, an acceptance of the four process skills (active divergence, active convergence, deferral of judgment, and vertical deferral of judgment). This then, must lead to the application of these four process skills to real world work which in turn should result in improved creative performance in terms of finding and defining good problems and creating and implementing good solutions.

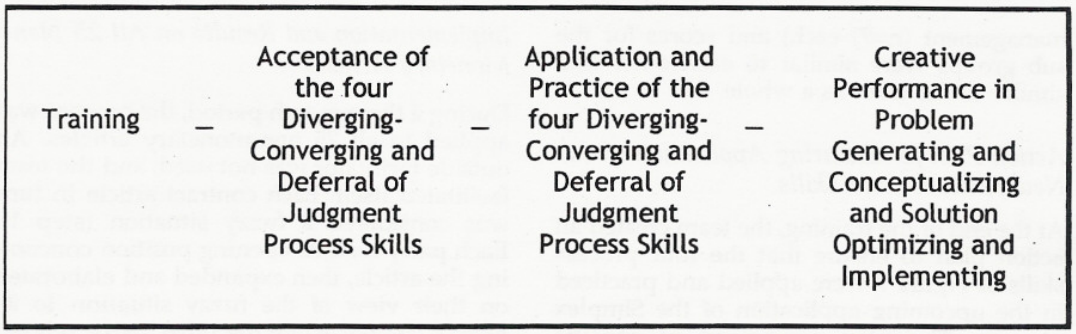

Figure 7. How Simplex Training Works: Attitudes to Behaviors to Results

A special 12 day training session was devised for the 14 member negotiating team to build the attitudinal and cognitive skills described above. The team was comprised of seven members from each side. The level of such skill can be expected to be proportional to the amount of training provided (Basadur 1994). The impact of training in this case was a compromise between the level of skill needed, time available, and risk. (As will be discussed later, this level of skill was not sufficient to handle all the articles to be bargained. The monetary article was considered too difficult to risk the new approach.) A procedural check was made to ensure a training 'take' had been achieved. The questionnaire measuring the two attitudes connected with deferral of judgment and active divergence skills described above (Basadur & Finkbeiner, 1985) was administered before and after the training. The results were compared to a control group (n=99) comprised of members who had undergone the same training previously in the same company but for different purposes. According to Table 5, the training was likely successful in achieving a 'take'.

The bargaining team and the control group both made significant improvements on both attitudes. The magnitude of the changes is consistent with previous research. After training, the two groups improved on both attitudes and also both attitudes scored very similarly (17.8 vs 18.3 for premature convergence and 23.8 vs 22.2 on active divergence). While the magnitude of improvement on premature convergence was even higher (6.3) for the control group than for the bargaining team (3.3), this was probably due to a lower starting point (21.1 vs 24.7) before training and was not considered an important difference. This indicates that the training was successful in at least influencing attitudes toward innovative thinking in the correct direction and to a similar degree as other training groups. Furthermore, the same analysis was conducted for the two sub teams (union and

Table 5: Attitudes Associated with Creative Thinking Skills Before and After Training

	Preference for Active Divergence			Tendency toward Premature Convergence		
	Before Training	After Training	Change	Before Training	After Training	Change
Union-Management Bargaining Team (n=14)	20.5 (3.4)	23.8 (3.4)	3.3* (3.3)	21.1 (5.5)	17.8 (4.0)	−3.3* (3.2)
Control Group (n=99)	19.3 (4.0)	22.2 (3.9)	2.9** (4.3)	24.7 (5.8)	18.3 (5.7)	−6.3** (6.1)

* $p < .01$
** $p < .001$
Standard deviations are provided in parentheses ( ).

management (n=7) each) and scores for the sub groups were similar to each other and similar to the team as a whole.

Action Plan for Ensuring Application of the New Attitudes and Skills

At the end of the training, the team created an action plan to ensure that the four process skills in Figure 7 were applied and practiced in the upcoming application of the Simplex process. The plan comprised of specific implementable actions to help the team deliberately use their new skills and avoid falling back into old habits. For example, a bell would be purchased to be rung every time premature judgment was used by anyone to squelch a fledgling thought. Nominal fines would be imposed for interruptions and poor listening behaviors. Also included in the action plan were a bias board and some techniques for avoiding bogging down.

Bias board

To capitalize on the Simplex process's emphasis on creativity in fact finding and problem definition, the team created a 'Bias Board'. The purpose was to help push fact finding way beyond superficial and obvious information. Each side's biases were to be 'dug out', identified and recognized as legitimate starting points rather than remaining hidden. The fact finding that followed the training used the 'Bias Board' to permit both parties to deliberately and openly share their key biases as simple facts to be started with, not to be hidden, ignored or used later to 'kill' new approaches. Such sharing of preconceived notions was rewarded with positive feedback and recognition by other members.

Avoiding bogging down

Whenever the group would lapse into old adversarial tactics, however unintended or disguised, it learned to employ a technique called 'debriefing' (Basadur, 1994). In debriefing, a group pauses to self-correct by examining its behaviors and processes and intercepting any slippage. Furthermore, when the team found itself 'in a loop' where no new ground was being broken, they would entertain what they called a 'free wheeling' period. By permitting each person to talk in a very unstructured way about anything that might in any way be related to the issue, the team developed new insights that permitted it to evolve new words and approaches to bridge differences.

Implementation and Results on All 25 Non-Monetary Articles

During a three month period, the process was applied to all 25 non-monetary articles. An outside facilitator was not used; and the team facilitated itself. Each contract article in turn was considered a fuzzy situation (step 1). Each party read its opening position concerning the article, then expanded and elaborated on their view of the fuzzy situation to its heart's content while the other party relaxed and listened non-judgmentally (to the best of its ability). Second came an actively divergent fact finding period (step 2). Any kind of fact finding question without limits was entertained. In addition, special questions to probe for deeper facts were also deliberately employed. For example, 'What do we know or think we know about this fuzzy situation?' 'What don't we know but wish we knew about this fuzzy situation?' 'I wish I knew...?' 'I think I know...' and 'I firmly believe that...'. The teams interacted freely with each other and, as people thought up fact finding questions or answers, these were written up without judgment or argument onto large pieces of newsprint posted on the wall. Many, many such pieces were posted. Consensus was then reached on the most relevant facts through active convergence. The team worked hard to evolve expressions of these facts in ways that were satisfactory to both sides. For example, opinions were stated as 'all of us are of the opinion that...' or 'some of us are of the opinion that....' This way beliefs, opinions and feelings could be identified as such and expressed as statements of fact. (E.g. 'The union believes that supervisory skills are inadequate but management feels most supervisors have skills above the industry average.')

The Bias Board

Using these key facts as the base, the group used active divergence to generate many, many thought provoking 'How might we...?' challenges. Why – what's stopping? questioning was used to further improve and clarify these challenges. The group then converged on those challenges with the most promise for making the pie bigger (step 3).

For each selected challenge (problem definition) for each article, the two step mini process of ideation evaluation was used in steps 4, 5 and 6 to create and select ideas, criteria for evaluation, and action plans for article revision. Actions taken included providing instructions to the language committee for changing the contract and in some cases specific workplace changes were implemented. These changes were assigned to members of the team with a specific timetable

for completion. Where members felt they needed help in gaining acceptance (step 7) for the changes from either constituency, the members of the team created ideas to help. In either case, individuals who were assigned tasks of implementing the changes (step 8) would report back to the group on their success at the next meeting.

Monetary Article Bargaining

Senior management had been planning to increase organization wide application of the Simplex process to improve the company's operations in general in addition to union management bargaining. It wanted to expand this application slowly and deliberately. They feared risking failure so were hesitant to employ the process directly on the monetary article until further skill and experience was achieved. Unfortunately, they did not advise the members of the team of this decision until it was too late. Instead, as soon as work on the twenty fifth article was complete, an awkward attempt was made to apply the process *indirectly*. The senior management of the company advised that 'it wished to table its monetary package in full'. This was a surprise to the entire fourteen member team. A management communique stated: 'At this point discussions have just begun on the monetary items. In a manner consistent with our approach to these negotiations, we have tabled our full mandate.' Apparently, this represented a conscious belief by senior management that to put out all of their predetermined monetary package (facts) as a whole and not emit it in 'dribs and drabs' as in the past was a move forward toward open and honest sharing of information in the spirit of the creative process. In retrospect, it seems that the atmosphere of trust and collaboration that had been built so far had lulled senior management into a false sense of security that this indirect approach would be understood by the union in the way that it had been intended. However, a union communiqué the next day indicated that the union had not perceived the company's move of putting its full mandate on the table as an open disclosure of the facts. On the contrary, instead it was perceived as a return to the old adversarial bargaining approach. This communiqué stated '...the company finally tabled its offer' and '...it is a pity that the company has reverted to the standard method of bargaining and so forces the union to do the same'. Thus bargaining on this single monetary article began without application of the newly adapted Simplex creative process.

Monetary and non-monetary issues

Discussion of Results and Future Steps

Simplex Successful with Non-Monetary Items

From the results above, it appears that Simplex Creative Problem Solving skills were successfully applied to resolving all the non-monetary issues. Subsequent interviews with members of both teams indicated a lot of optimism for the new approach. Importantly, the process allowed the team to get to the underlying causes instead of recurrent symptoms. There was a feeling that a great deal of progress had been made on learning a new process that is useful in the bargaining context. There was also a feeling that the next time around it may very well be time to try to increase skill in the process to the point that it could be experimented with on the monetary article as well. The Simplex process was successfully applied to develop a much more harmonious and co-operative constructive atmosphere around all of the bargaining process until the monetary issue hit. It was firmly believed by both sides that the atmosphere was very productive and well worth repeating in the future. The rest of this section will deal with some explanations of the apparent differential ease of application to monetary and non-monetary issues and suggest future research.

Concerns Precluding Application to Monetary Article

The subsequent interviews with both sides indicated that on the monetary article there were three concerns that tended to preclude the effective use of the Simplex process by the company at this stage. The monetary article was perceived to (1) be more complex (2) be more emotional and (3) involve higher personal risk. The first two can be grouped as a skill issue and the latter can be classified as an organizational climate/motivational issue. These two issues are interrelated and suggest two integrated explanations. The monetary article was considerably more complex from a content point of view and also evoked much more emotion than the non-monetary articles. The monetary issues would require much more trust about very intimate motivations that neither party would be willing to open up about at this stage. For example, what if all the real facts were portrayed fully and resulted in the team deciding that the union should agree to a 10% pay cut? How would this sit with the membership? Conversely, what if the bargaining team concluded that

senior management should double their offer based on the 'real' facts and yet the budget had already been approved by the Board? The inner motivations of both sides on the team would certainly be at odds with such potential results with severe implications for members of both sides. Clearly with the backdrop of past mistrust and adversity prior to these negotiations, such a trust level was not yet present.

For each non-monetary issue, emphasis on creating an expanded problem definition which incorporated high concern for satisfaction for both parties led to creative, integrative solutions. However, on the monetary issue, there was no effort devoted to creative problem definition. The team reverted to zero-sum thinking and there was no opportunity to create a bigger pie. The likely relationship between the amount of emphasis placed on problem definition and the degree of creativity of the solutions and the degree of integrative bargaining is shown in Figure 8.

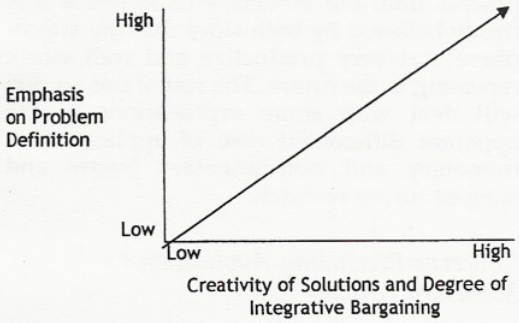

Figure 8. Relationship of Emphasis on Problem Definition to Creative, Integrative Solutions

Skill Levels Required to Use Simplex: Non-Monetary vs Monetary Articles

It is probable that the skill level of the company as a whole in applying the creative process was sufficient to handle problems only to the level of difficulty demanded by the non-monetary issues. As problems get more difficult (emotional and complex), more skill is needed (see Figure 9). With inadequate skill, quite possibly the team would have become more and more engrossed in the content and forgetful of the process in tackling the more difficult monetary article even if it had the opportunity to apply the creative process. Such higher skill in Simplex can be achieved through more extensive training or by employing a highly trained facilitator who can manipulate the team into using the process and detach it from content as needed.

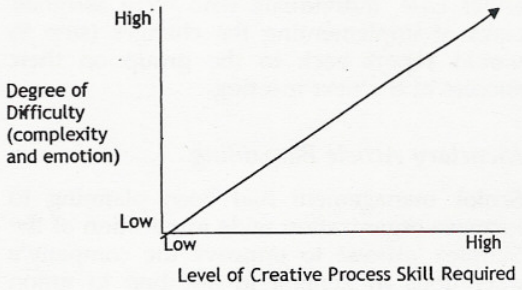

Figure 9. Relationship of Problem Difficulty to Level of Creative Process Skill Required to Achieved Creative, Integrative Solutions

Motivation to Use Simplex: Non-Monetary vs Monetary Articles

In this case, the perceived risk of using the Simplex process caused the company to succumb to the old habits and negative reactions to change that had been built up in the organization over the years. In the well known equation, P=MHA, (performance equals ability times motivation), performance is zero if either the skill or the motivation to use the skill is zero. Thus, in the more general case, if traditions are more secrecy than openness, more adversarial than co-operative, more withholding than sharing, then no matter what the skill level, on certain articles of discussion a team may still not be able to perform well even if given the chance, due to a low motivation level. Such a low motivation level might occur, for example, if team members are thinking 'I don't think we should use this process because I'm not sure it will lead to success in the eyes of my members (or my hierarchy)'.

Bringing the Two Explanations Together

The two potential explanations above provide the basis for a two-dimensional model of Distributive-Integrative Bargaining. The level of motivation of a bargaining team to use the Simplex creative process can be plotted on one axis and the skill level of the bargaining team in the process on the other as shown in Figure 10.

In area 1, the team is low in both creative process skills and in motivation to apply them. Thus, it resorts to purely distributive, uncreative, adversarial bargaining on all articles. In area 2, the team believes strongly

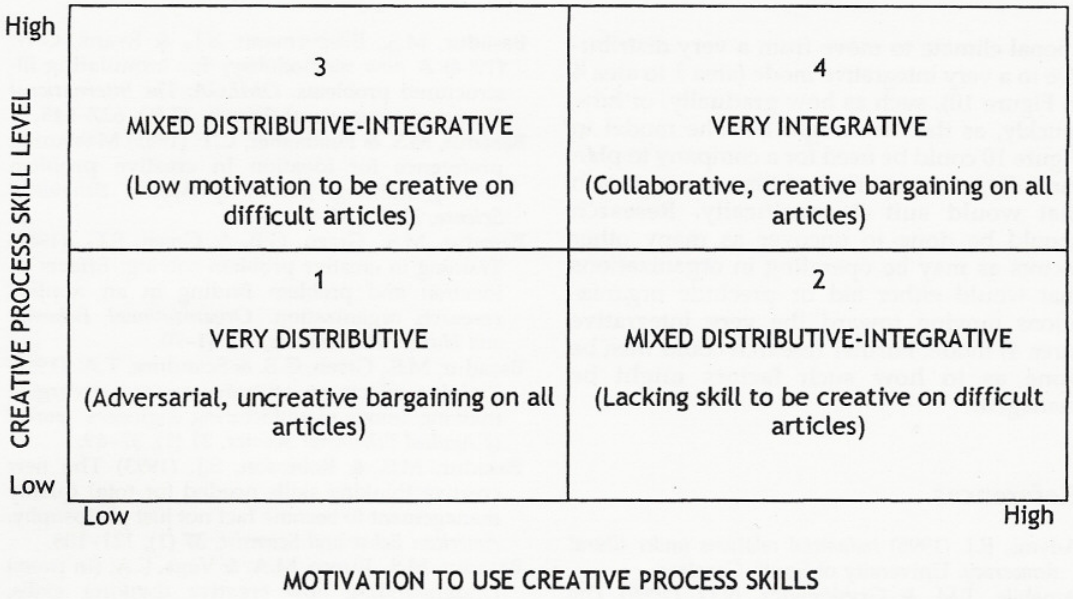

Figure 10. Skill – Motivation Model for Applying the Simplex Creative Process to Bargaining

that the Simplex process is important and wants to apply it but is somewhat frustrated because it does not have sufficient skill to use it well on all articles. On the less difficult articles they use it to achieve integrative bargaining. In area 3, the skill is high but the motivation to apply creativity to the articles is low. Thus, for articles which are perceived as relatively non-threatening and non-risky in the organization context, the Simplex process is applied and they are handled integratively. However, for articles which are perceived as risky, the team either just 'goes through the motions' or does not even try to use the technology. Instead, it handles these articles quite adversarially in a manner that has been expected by their constituencies in the past. In area 4, the team is both highly skilled in the creative process and has a high motivation to use it. Every article, regardless of complexity, emotionalism or riskiness is handled creatively. There is a trust that the respective constituencies will understand new creative, unusual solutions in a spirit of co-operation and experimentation. Thus, very integrative bargaining on all articles results.

Future Steps

This paper has endeavored to explain how the Simplex creative process can help achieve collaborative win-win solutions through the deliberate use of a creative process emphasizing problem definition. Three factors were identified that mediate the application of the process to union-management bargaining: complexity of the issue, emotionality of the issue, and motivation to apply to the issue given the organizational climate. It would be worthwhile to get additional organizations to attempt to use the Simplex creative process in their bargaining on monetary and other more complex, emotional issues and conduct research to understand better what it takes to get a very integrative mode (area 4 in Figure 10) in force in such organizations.

In the future, the model of Figure 10 could be used at the beginning of any experiment with using the Simplex process to improve bargaining between two parties. During a pre-consultation, both sides could assess themselves to what extent the organization's atmosphere/climate would permit creative problem solving technology to be used. They would also be able to make a good decision as to what skill level they would need. This would be tied into what extent they would desire to attempt distributive bargaining. For example, would there be certain articles on which they felt the motivation would be high? What skill level did they think was necessary to achieve on which articles? Which articles would they feel it would not be fruitful to attempt such a process either to the skill level needed or consistent with the organizational climate prevalent?

The organization could also make decisions about long range plans to improve organiz-

ational climate to move from a very distributive to a very integrative mode (area 1 to area 4 in Figure 10), such as how gradually, or how quickly, as the case might be. The model in Figure 10 could be used for a company to plan carefully, over a period of time, an approach that would suit it specifically. Research should be done to uncover as many other factors as may be operating in organizations that would either aid or preclude organizations moving toward the very integrative (area 4) mode. Further research could then be done as to how such factors might be managed.

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