OFFPRINTS FROM
GROUP PLANNING AND
PROBLEM-SOLVING METHODS IN ENGINEERING
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CHAPTER 11

SYNECTICS

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The word *synectics* is from the Greek *syn* 'together', as in *synchronous*; and *ectics* which has been arbitrarily selected. It is an attempt to capture the essence of an invention where elements that previously seemed to have no relationship are brought together. The same thought is appropriate for group work. Often the members of a group do not have any relationship and find it difficult to cooperate.

Synectics® is used as the name of a company and also to represent a body of knowledge about the creative process, the dynamics of groups, and theories about individual difficulties with speculative as opposed to routine thinking. Synectics® differs from many other systems in that the process and theories were developed by studying tapes of people in groups working on real problems. The process is continually modified as we learn more about how people work more effectively. We have worked with about 10,000 people over the past 20 years.

BASIC PREMISES

Few of us use more than a fraction of the potential we have for good thinking. By systematic and knowledgeable manipulation of myself and the climate around me, I can substantially increase the amount of my potential that I use.

By modifying the way in which I deal with others in a group, I can greatly increase the probability of the group's success.

A REVEALING EXPERIMENT

Many of the problems that make group work difficult and less productive than it might be are not easily visible to the untrained eye. We are so accustomed to the mix of actions that we do not differentiate between those that encourage speculative thinking and those that discourage it. The children in the experiment that follows have not yet developed adult subtlety in their dealings with each other. You will be able to see their destructive as well as their supportive actions; these are the same as those found within an adult group, but more visible. We will later discuss the actions and appropriate measures for handling them. This case history will give you a concrete reference.

In the experiment we gave a three-day course in creative problem-solving to 12 gifted children, ages 9, 10, and 11, from the Needham, Massachusetts, school district. We treated them just as though they were adults. We applied our usual practice of considering our participants as equals and avoiding, so far as possible, any punishment. Our definition of equality was as follows: as soon as a person is able to take responsibility for him or herself, we are equal. That person knows things I do not, so in those areas I can learn from him; I know things that he or she does not, so he can learn from me in those areas. Neither of us has any right to punish the other. We avoid entering into win–lose discussions, although we are available to discuss and resolve differences. We also avoid the stance of being either one up or one down.

After brief introductions we split the group into two teams of six and asked them to take five minutes to organize themselves to work on a problem together. We then gave them an invention problem to work on.

This is an experiment we have run and videotaped thousands of times, so we know what to expect. One team did create an organization new to us. In the session rooms there are five large newsprint pads mounted on one wall. This team split and each of them pulled up a chair to a pad and went to work by himself. The leftover person, a rather shy little girl, worked on her own, using an $8\frac{1}{2}'' \times 11''$ pad.

We gave each person a copy of the specifications of the problem, told them that they had 15 minutes, and left. Like most adult groups, they had agreed to cooperate in several ways: Each would develop some ideas on his or her own; one person was selected to be chairwoman; when everyone was ready, she would guide the group while each person reviewed or presented his or her ideas; she would keep notes about the ideas.

As with adults, these agreements were substantially ignored. As some

discovered that they did not have an idea, they needed to discuss the specifications with others. As one would get an idea, he or she needed to tell everyone about it. No one paid any attention to the chairwoman who attempted to keep order. As an idea was explained, the two people who paused to listen first told the idea conceiver why his idea would not meet the specifications and then derided him for thinking such a thing. Often a half-listener would use the idea to trigger an idea of his or her own. Occasionally there was loud appreciation of an idea and everyone would pay attention, and most would leap on the bandwagon for a half-minute or so. Then the dissenter would demonstrate that this idea would not work. The difference was that the children were merciless and loud. Most of the 15 minutes was pandemonium.

We had planned to spend the next hour and a half presenting and discussing some of our findings about the blocks and hindrances to creative thinking. For example, we would say, "Let's look at the differences between routine thinking and speculative thinking. What are some of the characteristics you associate with routine thinking?"

Or we would say, "Self-censoring is a habit that all of us develop and it is probably necessary. How might it keep us from being speculative even when we want to be?"

This particular group of children was unwilling to participate in this kind of a discussion. Based on later observations, I believe that this group was *so* competitive that individuals did not dare expose themselves to certain ridicule if they were even slightly off target.

Early in this discussion I told the children some of my theories about left and right hemispheres of the brain and invited them to doodle using the colored pens that were furnished. They accepted the invitation and gave up the pretense that I had their full attention. Their nonverbal signals seemed to be telling me that they were bored and disinterested in what I was telling them. One boy got on his hands and knees with his back to me and concentrated on his doodling.

I had to keep reminding myself that these children were capable of thinking at a speed of 900 words a minute while I was talking at the rate of 150 words per minute, at most. So they needed to give me only a small amount of their attention.

We had a break and there was another marked contrast to adults. The action was fast and noisy. They made cocoa, opened soft drinks, and created quite a mess with spilled milk, sugar, and cocoa. I mention this because it has significance when compared to later behavior.

We then debriefed the videotapes of their meetings in the usual way: we played a few moments of their tape, asked them to describe what was

going on, took note of their observations, and then evaluated what they described. For example, one girl observed, "We were not listening to each other."

After writing this on a newsprint pad, I asked, "Will this increase or decrease the probability of success?"

"It will decrease it because we are not using each other's ideas to build on," said Mary-Alice, displaying a thumbs down signal.

"It will increase it because we are all thinking of ideas so we will have more of them," said Danny.

"It will decrease it because we are not using other's ideas to stimulate us," said Abby.

We spent the rest of the day observing the tape, evaluating actions, and inventing. We concluded by asking the participants to evaluate the activities of the day: "What did you like and find interesting about the day and what did you not like?" The two outstanding likes were, "It was great fun and not like school." They had not known that learning could be fun; it felt very good to be treated like adults and not like two-year-old morons. Their only dislike was that it ended too soon. My colleague and I were surprised. Their constant apparent inattention and occasional rudeness had suggested to us that they were bored and wishing they were somewhere else.

The following day we took them through the Synectics® process, modeled the various roles, and gave them some learning experiments in listening for ideas, for tolerance of the absurd, and other skills that I will discuss later in the chapter. We ended the day by repeating the starting experiment. This time we asked them to organize themselves to work on a problem together and run a meeting on one of their own problems. Each group did well in organizing, using what they had learned about the process.

When they started their meeting, I could not believe what I saw. It seemed that now that they knew all about destructive behaviors, they were skillful in applying them. The meeting was a disaster. I started down the hall to see if the other team was acting the same way. My colleague was starting up the hall to check with me. We were appalled. We quickly decided that it would be heavy punishment to debrief the tape as is usual. We would simply play the tape without comment.

As I watched the tape with my team I gradually became aware that there was a pattern in the destructive behavior. Each child had devised a strategy to compete with the facilitator. One boy would periodically look at one of the television cameras and shout, "It's moving!"

He would then go to the middle of the room and wave his arms at the camera. A girl had a Coke bottle that she used to blow into to make a

tune. Another boy folded sheets of paper into hollow balls that he would then burst. No one paid any attention to the girl facilitating except the girl whose problem was being discussed. Now and then one of the distractors would pause long enough to offer an idea, which the facilitator dutifully recorded.

The children's evaluation of the day was much the same as that of the first day. Our evaluation was too punishing to tell them.

The next morning we decided that the level of competition within the group was so high that most of the children were unwilling to let a peer take control. It felt to them like losing in a win–lose situation. We opened the day by explaining that in many situations people play small games of win–lose. When one person loses, he or she makes sure there is *another* small game in which *he* or *she* wins at the expense of the other person. In groups there is really no such thing as win–lose—it always becomes lose–lose as the first loser arranges to get even. We then explained the phenomenon of one up and one down. One boy asked for an example and another boy said, "Sometimes I am sitting in my father's chair and he comes in and says, 'Get out of my chair.' That is a put down."

Every hand in the room went up. Each child had an example that he or she wanted to tell. After that my colleague asked the participants to invent a signal that they could use to tell one another that he or she was getting into a win–lose position or doing a put down. They finally agreed that they would use the V for victory sign. My colleague suddenly said, "You know, we do not want to do that! We do not want to police each other. We want to take responsibility for ourselves. Let us forget the signal."

All agreed and we formed new teams. The assignment was to organize and then run another meeting, taking turns as facilitator while working on one of the participant's problems. We assured them that everyone would have a chance to be facilitator.

Both teams and each facilitator ran perfect Synectics® meetings. Individuals supported one another and there was no destructive behavior. At break time not only was the noise level down, but there were no spills or messes as they made cocoa and had soft drinks. In the large meetings most continued to doodle, but there was a vast difference in their nonverbal signals. I no longer had to comfort myself that they were attending. Their signals of boredom and inattention had disappeared.

After studying thousands of meetings I have become convinced that most of the destructive actions of a participant are grounded in a need to *apparently* win. I use the word *apparently* because in reality the kind of action I am discussing is not an achievement. No one really wins anything. For example, a group member offers an idea. It is not a perfect

idea, but it is a good beginning. A second member instantly points out the flaws in the idea and it is dropped. The action of the second member is often justified by, "We do not want to waste time on an idea that will not work." Groups that follow this policy are not nearly as productive and creative as a group that takes every idea as a beginning and attempts to build on overcoming the flaws.

An organic outline of some actions that we find discourage speculation and creativity is shown in Figure 1. When people see this outline they often say such things as, "Challenge! How can you list that as destructive? I use it very effectively with my subordinates."

It is true that challenging sometimes works as a stimulus. Perhaps 2 out of 10 people respond to it well; the other 8 tend to stop using their creative resources when the climate is challenging. They become quite safe in their thinking. Even with the two who deal well with challenge, it is more productive to support and cooperate than to challenge.

The usefulness of this outline lies in raising questions about practices that we have assumed to be harmless or even valuable. I have minutely studied hundreds of instances of these actions and their consequences. I have also experimented extensively with preventing the discouraging actions and stimulating the encouraging actions, and observed the con-

ACTIONS THAT DISCOURAGE SPECULATION/CREATIVITY

Be pessimistic	Nitpick	Correct
Preach/moralize	Interrupt	Name call
Be judgmental	Be bored	Blame
Assume no value	Misunderstand	Set up win/lose
Make no connections	Be inattentive	Be competitive
Put the burden of proof on other person	Act distant	Make fun of
	Pull rank	Be dominant
	Get angry	Command
Take ball away from	Disagree	Order
Ask questions	Argue	Direct
Cross examine	Challenge	Threaten/warn
Give no feedback	React negatively	Demand
Be noncommittal	Discount/put down	Do not listen
Put on a stone-face	Be cynical/skeptical	Do not join
Be critical	Insist on early precision	Use silence against
Disapprove		Scare
Be impatient	Point out flaws	

Figure 1 Actions that discourage speculation/creativity.

sequences of this. There is no doubt that the discouraging actions work against speculation and creativity. This is not to say that it is easy to operate without some of these actions.

I believe that all or nearly all the destructive actions are expressions of competitiveness—an attempt to achieve one-up positions and put my "adversary" in a one-down position, to score a win and cause him or her to lose.

In the case of the gifted children their nonverbal signals of inattention and boredom, and their rudeness, were subtle attempts to put me, the teacher, one down in a way that was safe for them. Children spend most of their growing-up lives in a one-down position. It obviously feels bad and subtracts from their self-esteem. In order to generate *some* feelings of worth, they must win a few. So they devise competitive strategies that they can use to win or be one up without bringing about a real test of strength—which they would inevitably lose. When the gifted children emotionally accepted what they had intellectually observed, that my colleague and I were dealing with them as equals, then it was no longer necessary for them to play one-up games with us.

When they realized that there were ways in which they could operate with each other that were cooperative rather than competitive—equal rather than one up/one down—they adopted them. The acceptance of equality proved to be a powerful grounding for change.

PURPOSE OR GOALS OF SYNECTICS

The individual need to compete appears to be the largest deterrent to good group work. One of the objectives of Synectics® processes and skills is to turn competitive energy into cooperative energy and thus make available more of the creative potential that resides in each of us.

Another purpose is to generate insightful and inventive solutions to a problem. A third objective is to obtain commitment to a line of action. This can be particularly useful when some members of a group hold adversary positions.

Just as the demonstration and protection of equality enabled the children to shift energy from competing to supporting, the climate of a Synectics® meeting can help adults free their energy to make better use of themselves and their teammates.

In addition, Synectics® has evolved some thinking strategies that put people back in touch with imaginative speculative capacities that have inadvertently been repressed.

HISTORY

In the mid-1950s I was in charge of the creative department of an advertising agency. I became interested in how ideas happened and whether they could be made to happen more reliably. I spent time experimenting with artists and copywriters, exploring how they got ideas. I hired one psychologist to work with us full-time on learning more about idea getting. We hired another psychologist as a consultant because he had been doing some independent work in the area of creativity. We were using variations of the popular brainstorming method, with mixed results. It appeared to be better than no procedure, but arriving at a conclusion or solution that struck us as creative was an elusive achievement. But I was and remain greatly impressed with the achievements of Osborne's discovery that he could increase creative productivity by banning evaluation from the idea-getting phase—a major breakthrough in thinking about creativity. In addition, he was the first person to demonstrate that creativity could be deliberately stimulated.

In 1957 I read an article entitled "Operational Creativity" by William J. J. Gordon.[1] Mr. Gordon claimed to have devised a new systematic way to produce good ideas. It was the first new system I had heard of since brainstorming and I was fascinated. We experimented with the process but could not make it operational for us. Nevertheless, it was stimulating and much of what he said struck me as promising.

I visited Mr. Gordon soon after reading the article. At our first meeting we decided to pool our resources to discover everything about the creative process. I joined The Invention Design Group at Arthur D. Little in 1958. The mission of this group was to invent new products and processes for the clients of Arthur D. Little. We were a group of eight people and we prided ourselves on not writing reports but building working models. Sometimes we did well and had reason to be proud of our accomplishments; at other times we failed. We were interested in finding the causes for the failures. We hit on the notion of tape-recording all our conversations and meetings. The thought was that if the meeting or conversation produced a good idea, we could review the tape to learn what we were doing to make that idea happen. This proved to be an extraordinary research tool. We began to discover that successful problem-solving and invention sessions had some patterns. For example, jokes and laughter had a powerful stimulating effect. Quite often when we were stuck on a problem and low in energy and high in frustration, someone would re-energize and stimulate the group by suggesting an analogy that we could explore. In one session we were working on some problems of fish farming

and harvesting. One member said, "You know, if we had someone like cowboys in the old West, we could have our herds graze in the open ocean. We would not have to feed our stock—they would feed themselves." This stimulated a barrage of ideas. One was the thought of training porpoises to be our cowboys. It was through the examination of such things that we developed deliberate strategies for stimulating ideas. I will discuss these later, but first I want to describe more of our history.

In 1960 four of the members of The Invention Design Group decided to start their own invention company. We left Arthur D. Little and founded Synectics,® Inc. It was our intention to use our own process to invent products for other companies and also for ourselves. We would use our own inventions to start new companies. These were ambitious goals. Only one of our inventions grew to be a company—a foamed packaging system that came to be known as Instapak. We were more successful in our inventions for others. In the development of that service we gradually shifted from presenting finished inventions to involving the client company in the inventing.

There was an early recognition that when we did the inventing, we were putting the creative people in the client company in a put-down position. They felt competitive enough to make sure that our inventions were rejected after being accepted by the people who had hired us. We did not think of it as clearly as we can now, but we modified the service to solve that problem. The client brings the appropriate people to our laboratory in Cambridge. We are facilitators and keep people cooperating rather than competing, and they do their own inventing and problem-solving. This has been a successful, productive service. A second service we offered was selecting and training small invention groups to operate within a company. This is fully detailed in *Synectics* by Mr. Gordon.[2] This was the first report on our research and was based on our experiences with our own group and perhaps 40 or 50 trainees.

A third service we offered was a course to train facilitators. One effect of these three services was to provide us with a steady stream of people with real problems. We could use them as guinea pigs. We would tape and later videotape these meetings and use them to increase our understanding of the dynamics of the creative process and also of the interactions in the group. By 1970 we had worked with and studied 3000 or 4000 people. We had developed some effective procedures for stimulating creativity and learned a great deal about how to facilitate good meetings. I reported on this in *The Practice of Creativity* in 1970.[3] Mr. Gordon severed his ties with Synectics® in 1967.

In our courses and Problem Laboratories (the service that facilitates

problem-solving and invention by the clients) we were able to help people learn to use more of their creative potential, but the increase was in most cases temporary.

As participants returned to the competitive climates of home, they quickly slipped into their competitive ways. It has been my mission, with the help of my colleagues, to invent ways that will help people understand and deal with the forces that work against using the vast potential each of us has. These forces are both inside each of us and surrounding us. In 1970 I hired a therapist trained in transactional analysis (TA). TA is a form of therapy originated by Dr. Eric Berne.[4] The developers of TA had been studying the transactions between people to learn how they effect emotional health. I thought we could learn from their work. For the next few years we had five therapists of various schools of thought working with us. It was not my intent to go into the therapy business, and after we had absorbed as much as we could of their practices to help people think more clearly and effectively the therapists left us to go into business for themselves.

In the decade from 1970 I also experimented with courses for older people—over 65—to see what effect learning problem-solving techniques and cooperation would have on them. I have reported on this research in *Mindspring!*[5] At the present writing I have worked with and observed many thousands of problem-solvers. In addition, I have availed myself of some of the wonderful research that has been done on brain function. Whereas in the 1960s we used procedures and strategies because they worked, in the late 1970s we were better able to understand *why* they worked.

In the rest of this chapter I shall discuss some of the problems that reduce group and individual effectiveness, the Synectics'® processes and skills that are designed to help, and why I believe they work.

THINKING IN GROUPS

Each group depends for its effectiveness upon the capacities of the individuals who make it up, multiplied by the willingness of each person to cooperate and support every other person in the group. If this willingness is zero or low, the group will be ineffective. If it is high, the group will be synergistic—more productive and able than one would expect. If willingness and skill in cooperating is low, then group output may not be as great as any of the individuals could produce on his own.

This is one of those statements I can demonstrate but cannot prove. I can show tapes of a group with little willingness to cooperate and they

will demonstrate low output. I can show them after training and they will exhibit a greatly increased capability to accomplish. I can do this repeatedly and predictably, as can any of my colleagues, but this does not represent scientific proof of my statement.

The interrelationship of the individual and the group has a critical effect upon the productivity of the individual and therefore of the group. I want to examine some of the problems we have as individual thinkers and then relate this to group effectiveness.

GOOD THINKING

Good thinking is that type of thinking that is appropriate to the situation. It will range from routine at one end of the spectrum to speculative or creative at the other. Situations in which routine thinking is good thinking are those in which I have tested answers that work. There are many, many times when routine thinking is good thinking, for example, when my pilot is making a landing or takeoff, when I am filing something, or when a surgeon is operating.

On the other hand, there are situations in which I need to think speculatively—when tested approaches are not working in getting a raise, when my child is not doing well in school and nothing seems to help, or when I have a flat tire and my jack is far way propping up one end of my boat.

Nearly everyone I have worked with is quite good at routine thinking. It is when we need to speculate that most of us have trouble. I have repeatedly observed groups that have met to speculate and invent that were unable to go beyond routine thinking. Now I would like to examine the problems that tend to keep us thinking routinely.

THE THINKING OPERATIONS

The individual's thinking operations are the key to his or her performance. I have hypothesized that there are six distinct thinking operations that we use when faced with a problem. The easiest way to make these clear to you is to ask you to experiment with yourself. Pretend that you have been hired by the Thermos Company to invent for them a new stopper for their wide-mouth thermos bottle. The problem you must solve is that of losing stoppers. Mothers complain that when the stopper is lost, the bottle is no good. The company has tried using strings, chains, and hinges, but for some reason mothers do not find these to be satisfactory solutions.

The stopper must somehow be built in. Any solution must retain the wide mouth, be easily cleaned, and be thermally effective. Take a minute or two and develop a beginning idea. A beginning idea is one that does not need to work.

Here is what I believe happens: I wish for a new stopper. *Wishing* is the first thinking operation. Next, I retrieve from my stored experiences something I believe will help me. Let us say I retrieve a spice can that has a built-in sliding "stopper." *Retrieving* is the second thinking operation. Then I image my retrieval—I see it in my mind's eye. *Imaging* is the third thinking operation and it is used with all the operations. Many good thinkers use a split screen in their imaging. In my case I image the thermos on the left screen and the spice can on the right. Then I compare what I have with what I need. *Comparing* is the next operation. I see that the spice can is rectangular so I transform the slide to come all the way out to give a wide mouth. I add some thickness to it for insulation, and so on. *Transforming* is the fifth thinking operation. I recycle comparing, transforming, retrieving, and wishing until I have something that fits my needs and then I do the final thinking operation. I *store* this new concept.

THINKING OPERATIONS AND ROUTINE/SPECULATIVE THINKING

Both routine and speculative thinking involve these same operations. The only difference is that when the problem is routine—such as tying my shoe—my retrieval is usually close to a precise fit. I have little or no transforming to do, and since I do not develop any new connections, there is little or no storing or learning.

WHY SPECULATIVE THINKING IS DIFFICULT

Since the thinking operations are roughly the same for both ends of the spectrum, it should follow that if I am a good thinker in routine matters, I should be good in speculative situations. I believe there are four general reasons why this is not the case:

1. *My Divided Self.* There are two ways in which my self is divided so that I sometimes work against myself. One is physiological—the two hemispheres of my brain provide me with quite different processing functions. The other is cultural—as I interact with my parents, teachers, and other people in my life, I form two ways of operating, two "selves" that take on different views of the world.

2. *Criteria.* From childhood I develop standards or criteria with which to evaluate my own performance. Without intending to do so, my criteria devalue speculative/creative thinking.
3. *Habits.* As I learn to get along with people, I form habits of dealing with my own thinking that are socially necessary, but they inhibit or even prevent speculative/creative thinking.
4. *Climate.* The climate around me and inside me—the signals that are sent to me, those I send to others, and those I send myself—have a profound effect on my willingness to use my potential for speculative/creative thinking. I want to examine each of these in more detail. The reason that each is important is suggested in Figure 2.

Optimists say that we use about 20% of our potential. Pessimists say it is more like 5%. Warren McCullough[6] suggests that it is even less than 5%. In any case, there is wide agreement that we do not use a large percentage of our potential thinking power. *The basic premise upon which*

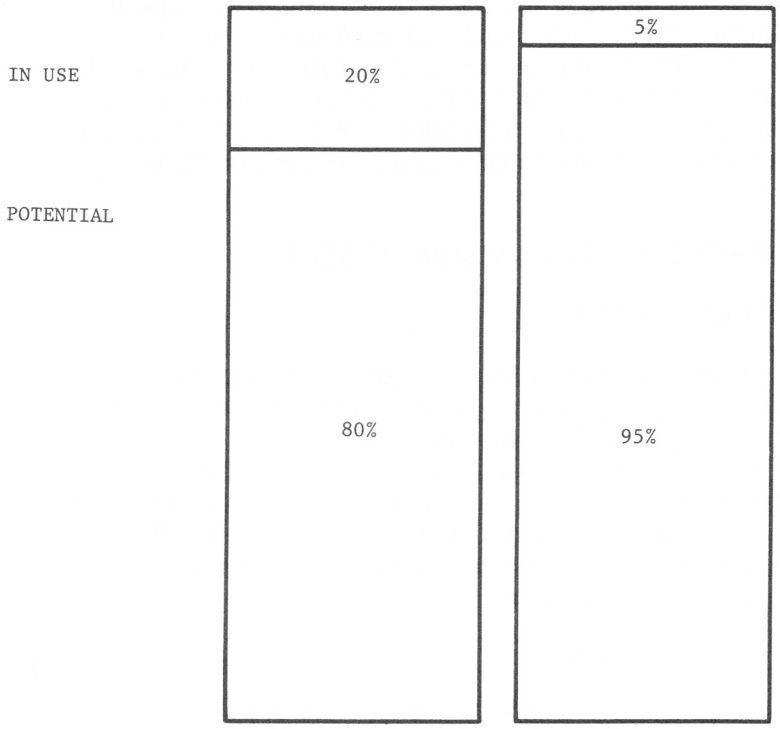

Figure 2 Percentage of potential for speculative/creative thinking.

Synectics is based is that by systematic manipulation of myself and the climate around me I can substantially increase the amount of my potential that I use.

The exciting promise here is that if every individual in a group learns to make greater use of his or her own potential and, in addition, is willing and skillfull at cooperating, the synergy will produce outstanding results. Let us now look at some of the opportunities.

MY DIVIDED SELF—THE EFFECTS OF PHYSIOLOGY

For almost a century we have known that human powers of speech reside primarily in the left hemisphere. Injuries on the left side cause speech damage, while right-hemisphere injuries leave speech intact. In spite of this understanding, we have only recently begun to appreciate how functions of the brain are actually divided between right and left hemispheres.

The real breakthrough in this understanding came in the 1960s when Dr. Roger Sperry and his students Michael Gazzaniga and Jerry Levy began their historic split-brain experiments. . . . They were able to test separately the thinking abilities of the two surgically separated halves of the human brain. They found that *each half of the brain has its own separate train of conscious thought and its own memories*. Even more important, they found that *the two sides of the brain think in fundamentally different ways* (italics Blakeslee's): While the left brain tends to think in words, the right brain thinks directly in sensory images.[7]

THE PHYSIOLOGICAL DIVISION OF SELF

LEFT HEMISPHERE

The left hemisphere controls the right side of my body. Its thinking is linear and logical. Its job is to interpet or translate observations into orderly and precise formulations.

It abhors confusion and ambiguity. It is in charge of language and mathematics. It is literal. If I ask a person who has lost the use of his right hemisphere, "How do you feel?" he answers, "With my hands." This hemisphere is in charge of reading, sequencing, putting in order. This is the boss hemisphere.

RIGHT HEMISPHERE

The right hemisphere controls the left side of my body. Its thinking is holistic—it sees in whole images. It has little language ability and processes observations in images and feelings. It is reached by such com-

munications as poems, rhymes, figurative language, parables, incompletenesses like the few lines of a caricature, scent, and aphorisms.[8]

This hemisphere processes music, is nonlinear, sees simultaneous images: It thrives on ambiguity and confusion. It recognizes patterns and jumps to unlikely, nonlogical connections. It is thought to operate like a hologram (a three-dimensional photograph produced with laser beams). It can take any small piece of a three-dimensional image and from it reconstruct the whole. For example, I can see a part of your face and mentally see the whole.

This brain reads nonverbals signals and interprets tone of voice. It is the main seat of my feelings. It is the subordinate hemisphere.

A SPECULATION

We all know quite a lot about the operations of our left hemispheres because that is our conscious way of thinking. I want to speculate about how the right hemisphere operates. Imagine a large cauldron of clear fluid: Mixed throughout it are millions of tiny electric points of light; drifting through it are clouds of mist. At any instant a few hundred or a few thousand of the points of light form a three-dimensional picture like a well-decorated Christmas tree, as I recall a past experience. A single light point may be part of several such pictures at the same time. In fact, part of one three-dimensional picture may make up a section of another quite different picture.

My right hemisphere takes nothing seriously. The grouping of lights is stimulated by left-hemisphere concerns or observations or its own observations and feelings. The grouping of lights is also for entertainment. The playing around with patterns is to enjoy as well as to help the left hemisphere. When a pattern pleases, or seems to have some relevance to something the left hemisphere is toiling with, the right hemisphere tosses it to the left. It comes to the left hemisphere without prior evaluation or refinement. The right hemisphere simply has the feeling that it is funny, pleasing, useful, or just interesting. It may be that the right side has taken a small portion of a pattern and jumped to a large pattern of conclusions. Easy confusion and a state of disorganized scanning, stirring up, and experimental rearranging—these are the right hemisphere's modus operandi. Ambiguity and confusion are essential to its efficient operation. It rearranges and rolls over many meanings from the same set of data and entertains simultaneously several mutually exclusive possibilities.

My left heimsphere is born knowing how to handle this barrage of insanities. Without anxiety, it speedily sorts, analyzes, rationalizes, and modifies until it uses what it needs to learn the new thing coming at it.

Much of the time it modifies an input and then sends it back for further disorganizing and reorganizing by the right hemisphere. As a result of this early, equal use, the child does whole-brain thinking and so learns and problem-solves with exquisite skill.

To a child of two, three, or four the world is a giant and fascinating unknown. In his wonder and openness he does not attempt to impose order or precision too early. He is comfortable with not understanding instantly. He has a drive to learn and one of the important sources of satisfaction and self-esteem is the accomplishment of learning itself.

As children are socialized, they use their learning skills to learn how to act like grown-ups. In this role there is a need for rules, and much attention is paid to precision, logic, analysis, right and wrong, and so on. The importance of left-hemisphere functions is continually underscored. They learn that honoring right-hemisphere inputs often means trouble and anxiety for them—they begin to employ a device known as selective inattention. Sullivan[9] describes this as the ability to exclude and not notice phenomena that cause anxiety.[10] They tend to become less and less aware of right-hemisphere contributions.

A LEFT/RIGHT BRAIN EXPERIMENT

You can quickly get a feel for the difference between left- and right-brain-dominated thinking. First, using the left side of the brain, think of ways that an automobile is like a child's wagon. After thinking of a few, switch to the right side of the brain and ask, "How is an automobile like a totem pole?"

Most people do the left-dominated comparison easily and comfortably—they come up with such likenesses as both have wheels, both steer, each carries things, and so on.

When people switch to likening a car to a totem pole, they tend to draw a blank. Often they laugh, as though it is a joke. Then likenesses begin to come: Both are worshipped, they are works of art, they are phallic symbols, and so on.

DIFFERENCES

There are qualitative differences between the outputs of the two hemispheres. Left-dominated connections are, as we would expect, logical, precise, and have a one-to-oneness. I hear your connection and agree that it *is* a likeness. When you state your right-brain connection, it may stimulate quite a different picture in my mind than in yours. In this sense there is ambiguity and a chance that a connection will be misunderstood or will be a "mistake."

POOR INTERNAL COMMUNICATION

My left hemisphere, through selective inattention, develops bad listening habits with right-hemisphere contributions. When I lost my childhood skills at whole-brain thinking, it is almost as if I stopped having a common language in which both hemispheres were fluent. As a result, many of the offerings of my right hemisphere are lost in translation or never understood by my left hemisphere. At the same time the left-hemisphere's requests for help go untranslated by the right hemisphere. The potential for synergy goes unrealized.

THE CULTURAL DIVISION OF SELF

The effects of culture overlap and reinforce the effects of physiology, and it has been useful to me to look at my divided self from both perspectives to appreciate the power of the forces that divide me.

SAFEKEEPING SELF/EXPERIMENTAL SELF

Freud hypothesized three selves: the ego, the id, and the superego. TA also postulates three: the parent, the adult, and the child. I find it useful to think of two selves: the experimental self and the safekeeping self. These are metaphorical conveniences—I really do not have two selves in my one skin.

I first began to examine my two selves in the Cincinnati airport several Christmases ago. The airlines had just started searches to prevent highjacking. I was at the end of a long line, feeling frustrated. An airline pilot passed the line, skipped the search procedure, and, looking trim in his blue suit with the gold stripes, disappeared in the distance. A small, timid voice in my head said, "Hey, George, let's get a blue suit, put some gold stripes on the sleeves, and we can save some time."

"You idiot," said a strong mean voice, "you will get us put in jail." After a long pause the timid voice said, "You know, we tell everyone else to be open-minded about ideas . . . How about you being more open-minded?"

"Oh, all right," replied the mean voice, "It would save us time . . . and it might save us money. We would not need a ticket. Also, it would not be difficult to implement—we already have a blue suit, so all we would need is some gold ribbon (long pause). What if they made us fly the airplane?"

I never did implement that idea, and I continued to think about that inner dialogue. There was such a difference in the way the two voices treated each other that I began to speculate about the personality and

functions that went with each voice. The two types of self are characterized as follows.

Safe-keeping Self	Experimental Self
Censors	Feels
Evaluates	Takes risks
Reassures and supports	Breaks rules
Analyzes	Makes connections
Guides	Recognizes patterns
Is realistic	Plays
Looks at consequences	Speculates
Is logical	Curious
	Sees the fun in things
Alert to possible danger	Likes surprises
Avoids surprises	Open to anything
Avoids wrongness	Makes impossible wishes
Avoids risks	
Makes rules	Does not mind being wrong
Is serious	Does not mind being confused
Cautious	Images
Suspicious	Is intuitive
Fearful	Is impetuous
Punishes mistakes	In touch with unconscious mind
Punishes wrongness	In touch with total experience
	Uses seeming irrelevance
Probably punishes anything my parents disapproved of	Uses dreams

You will immediately see that there is some correspondence between the safekeeping self and the functions of the left hemisphere, and also a relationship between right-hemisphere functions and the experimental self. I prefer not to make any attempt to establish a one-to-one relationship because I believe that the two concepts are basically different in how they develop and how they work within me. They tend to reinforce the dividedness of myself.

In an attempt to better understand how my selves interact I have built several theoretical models. The one that best captures the ways in which I think I work with myself is illustrated in Figure 3.

Figure 3 The mind going from total experimental self to total safekeeping self.

Figure 3 illustrates my mind going from total experimental to total safekeeping. I am sure that I operate somewhere in between, with movement either way, depending upon the situation and how I am feeling. For example, if I am working in a high-risk, punishing climate I will tend to be dominated by my safekeeping self. If my surroundings are friendly and supportive, my experimental self will have a chance to emerge.

We know from the observation of groups that a punishing person greatly reduces the quality and quantity of ideas. Punishment, in this sense, interrupts, and is perceived as a put down. Extrapolating from that, I wondered if this might apply to my two selves. If I have a punishing safekeeping self looking over my shoulder and finding fault with what I do, will my experimental self tend to shut itself down? There is no question, that we can increase the productivity of a group by reducing punishment to a minimum. If I reduce self-punishment to a minimum, will I enjoy an increase in personal productivity?

For the past three years I have worked with myself and about 400 volunteers in groups, not all at once. I experimented with ways of learning to reduce self-punishment. The general procedure is to identify a specific instance of self-punishment. I assume the punishment was at one time functional and I ask what are the possible benefits that I am getting from this specific example. I then explore the possible damage of that punishment and then problem-solve to get all the benefits without the actual punishment.

There is evidence that self-punishment is an important factor in keeping my experimental self leashed. There is also evidence that with some effort self-punishment can be greatly reduced. About a third of the subjects in the punishment reduction experiment reported significant changes in their friendliness within themselves and their willingness to take risks and be experimental.

To conclude this section the phenomenon of the divided self is a serious handicap when it comes to using more of my potential. There are two ways of reducing or overcoming this handicap. In the case of my physiological division I can relearn to communicate fluently between right and left. Many of the idea-getting strategies of Synectics® are aimed at this. Much of our research effort is aimed at developing more direct and effective ways of doing this.

The second way is to learn to share time between the safekeeping and experimental selves. If you will image my self model, when I need an idea, safekeeping, by agreement, turns off. Experimental is free to develop any wildness imaginable. As soon as there is a glimmering, safekeeping turns on full blast—except for punishing—and lends its considerable talents to guidance and help. When new modifications are needed, safekeeping turns off. This rapid oscillation allows me to use much more of myself than if I have a relatively fixed proportion of each self available.

IMPLICATIONS FOR GROUP WORK

Obviously the group will benefit from every improvement in individual effectiveness. In addition, appreciation of the dividedness within a single

person can lead to a better understanding of the importance of interaction between separate persons. The ideal group member will develop ways of listening to and watching other members that allow them to reach and respond to both hemispheres and both selves.

CRITERIA

My criteria or standards determine how I evaluate the effectiveness of my thinking. They are developed, paradoxically, without much conscious thought. Until I reexamined my criteria, I was unaware that there are fundamental differences between routine and speculative thinking. These differences are not so much in the thinking operations as they are in the characteristics of the two kinds of thinking. My criteria or standards tend to lead me to a kind of thinking with the characteristics of routine and away from the kind of thinking with the characteristics of speculation.

Before bringing my criteria or standards into my awareness, I was unconsciously taking an absurd position: New thoughts and ideas delight; the process of *getting* them (speculation) has many characteristics that are abhorrent. For example, in a traditional meeting we have agreed to speculate about how we might develop a more effective room service for a hotel building client. A member suggests that we examine how bees and birds handle *their* problems of fast feeding. Such an excursion from the subject would probably be criticized as a waste of time. "Hey, we are talking about hotel room service for people, not bees and birds."

That person's criteria for effective thinking leads him away from the kind of thinking that is most apt to bring some newness to the problem. In order to clarify and modify my criteria so that I can encourage myself and others to speculate when it is appropriate, it is useful to examine the characteristics of routine and speculative thinking.

I have asked many groups to give me their thoughts about this. The following is a composite list for the two types of thinking: It is meant to be suggestive rather than exhaustive.

Some Characteristics of Routine Thinking

1. Logical.
2. Empirical.
3. Few mistakes are tolerable.
4. Focus is on completing the task.
5. There are specific guidelines.
6. Boundaries.
7. Predicatable.
8. Comfortable.

9. Familiar.
10. Low risk.
11. Socially acceptable.
12. Supported.
13. You know where you are going and there are roadmarks along the way.

Some Characteristics of Speculative/Creative Thinking

1. You do not know where you are going.
2. You do not know whether you are going to get there.
3. Focus is on the process as well as getting there.
4. Many mistakes are necessary.
5. Much confusion.
6. Much uncertainty.
7. High risk.
8. Not provable in advance (and sometimes not after the fact).
9. Makes you anxious.
10. Unpredictable.
11. *Appears* inefficient and wasteful.
12. Easy to reject as impractical or impossible.

This helps explain why some of the process of getting new ideas is abhorrent. Confusion, uncertainty, and wrongness are states of mind that many of us are taught *not* to seek. It is bad practice to pursue a line of thought when I do not know where it is going. Yet if I am to speculate, I must dwell in these states and pursue lines of thought without knowing where I am going. If I deny confusion and uncertainty, I am feigning a routine situation and will do the kinds of thinking that go with it.

IMPLICATIONS FOR THE GROUP AND THE INDIVIDUAL

Innovative thinking—the kind of thinking that produces new approaches and new products—requires *both* routine and speculative thinking. Productivity will be increased if each individual helps the group develop explicit new criteria for good thinking together. Such criteria will recognize that the standards for good logical, realistic thinking will be quite different from the standards for good confused, mistake-ridden thinking. Each learns not to apply the criteria for one type of thinking to the other.

HABITS

The next area of opportunity is habits of thought. Most of these habits are not bad in the sense of being destructive to others or myself. In many

ways they are good and necessary to protect me from offending others and making mistakes that can hurt me. But unless I can learn to deal with them, to use them appropriately, they limit my ability to use the speculative/creative areas of myself and this reduces the use of my potential. Each of us, without much conscious thought, has developed many of these semiautomatic, limiting habits. I want to discuss only three. As you encounter other habits you can invent ways of delimiting them when appropriate.

SELF-CENSORING

This habit is established when young. As a child I say anything that comes to mind. I may ask a guest of my parents, "Why are you so fat?"

I learn that this is unacceptable. I find that sometimes my parents laugh at what I say in a friendly way. At other times their laughter hurts. I begin to develop a mechanism to stop doing something before I do it—a censor. In the process of learning to be comfortable with people I find that there are a great many impulses I must cut off at the pass before they get me in trouble. My censor gets more and more powerful and inhibiting. Like any efficient, growing operation, it automates some of its activities. Some of my censor stays under my conscious control. *I* still make the decisions about whether to express the thought. The other part goes underground into my unconscious. It makes decisions without consulting me. Based on criteria of danger, it may refuse to release associations, beginning ideas, impulses, and intuitions into my conscious mind. When I need a beginning idea and I "draw a blank," I know my underground self-censorship is being too strict.

Some of the consequences of self-censorship are obvious. If I work with a group in which there is a punishing climate, I tighten my conscious censorship. I express fewer ideas. This has repercussions in my unconscious. It gets the signal "This is a dangerous environment, batten down the hatches." Fewer beginnings are allowed to see the light of my conscious mind. I literally do not have the flow of ideas I normally would. I reduce the use of my potential.

Conversely, in a cooperative, supportive climate the opposite happens. I loosen the specifications, I express more ideas. My unconscious gets the message, and the flow of ideas into my awareness increases. This is another phenomenon we can demonstrate but not prove. Once a person has experienced this, he or she needs no proof.

Each of us has to some extent devised ways to outwit our censors. A few strategies are to ask other people—they say things outside of my thinking pattern and a censored idea can connect with that; to doodle on a piece of paper and after a while look for a pattern or image and relate

it to the problem; to listen to music and sing about the problem, making up the words, and there are many others. One that everyone uses because they have found that it works is to turn away from the problem—do something else, sleep on it, go get some physical excercise, and so on. We observed that this practice was so effective that we made it a part of our procedures as an idea-getting strategy.

We call it an Excursion. I will examine it in detail later, but an example here will make the strategy clear. Suppose, earlier, when you were working on the thermos closure problem that you had drawn a blank. Realizing that your censor was being too strict, you might say to yourself, "Forget all these specifications for a moment. Think of examples of built-in closures on your body (or in your house, or in nature, etc.). Chances are good that you would think of your eyelid, various sphincters, your throat, and others. Any one of these is a beginning idea that you can then modify (by comparing, retrieving, and transforming). An excursion, by changing the specifications of acceptability, confuses and relaxes my censor.

The major consequence of self-censorship is that I do not avail myself of my vast storehouse of experience. To get some idea of the richness of that storehouse, I built on some calculations of Carl Sagan[11] to estimate that stored in my brain is the equivalent of 7000 volumes of the *Encyclopaedia Brittanica*. My self-censor restricts me to using only a tiny fraction of these for each ten years of my life.

ELIMINATING POSSIBLE CONNECTIONS

This is a habit so established and reinforced that I am hardly aware of it. With the huge amount of data coming at me from outside and inside myself, I have to ignore a lot of it or I will go crazy. What I tend to do is to be automatically inattentive to that which is or seems to be irrelevant to the task at hand. Intruding thoughts and associations are ruled distractions and banished. Like the other habits, this one is essential and important in routine situations and at certain times when speculating. If I permit it to operate across the board, I defeat speculation. This brings me to another hypothesis. Retrievals, associations, distractions, intuitions, connections, and observations will fall somewhere on the spectrum shown in Figure 4. In a routine problem my retrieval will be a precise fit to the problem. In a problem in which I do not know the answer my retrievals will be approximate or, many times, irrelevant. When I am working on a problem in which speculation is necessary, the thought that comes to mind will, at best, be approximate. It is quite difficult to be certain whether such a thought is going to be useful or not. My programming pressures me to consider it irrelevant if it does not instantly have

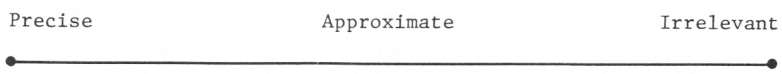

Figure 4 Spectrum of degrees of fit to problem area.

some precise fit to my problem. This effectively keeps me in a routine thinking mode.

This programming starts early. I recall an experience with one of my sons when he was about three. He saw his first horse. "Daddy!" he said, clutching my hand, "There is a big cat." I laughed and said, "No, that is a horse."

In our culture we punish such approximate thinking and pattern recognition in the name of teaching our children to be precisely right. Actually, skill in guessing and connection making, leading to pattern recognition, are the heart of speculation (and learning). As a result of thousands of mild punishments like the one I have described, most children learn to leave their speculation motor safely in neutral and ask questions. They seem to be saying, "OK, if you do not want to practice making connections and inventing, I will stop. It was fun. It kept proving to me that I can think and problem-solve, but if it bothers you, I will give it up."

The speculation muscle gets pretty flabby. There is not much exercise in asking questions.

Today I hope I would deal with my son's connection quite differently by saying, "That was a good approximation. It does have four legs like a cat. What else is like a cat?" and then "this is a horse. What is different from a cat?"

He would thus learn to differentiate, and I would avoid bringing about a damaging change in his learning procedures. The precise–irrelevant hypothesis had for me another usefulness. It clarified a thinking characteristic shared by the really great thinkers and discoverers: their capacity to repeatedly use seemingly irrelevant observations and data to give them breakthrough connections about the problem they were working on. Archimedes used his overflowing bath to lead him to the theory of displacement. Fleming used a spoiled culture to lead him to penicillin. Pasteur used a patch of grass that seemed too green to lead him to the cause of endemic anthrax.

In the history of science these are referred to as happy accidents. I do not believe they are accidents at all. With an outstanding thinker it is a habit of thought: When in the searching, speculative mode anything that captures his attention is relevant until he cannot force a connection out of it. This is the opposite of eliminating possible connections. When he

shifts to the rationalizing mode of discovering the logic, such thinkers are noted for their intense concentration. Here again we see the capacity to oscillate: The willingness to be wholeheartedly speculative and approximate, coupled with the ability to be routine, logical, and precise when it is appropriate.

A further important usefulness of this precise–irrelevant hypothesis is that if I can bring myself to appreciate the value of approximate thinking, I can instantly make approximately relevant and helpful many thousands more of the experiences stored in my head. For most of us this storehouse is so rich and varied that we have *some* experience that will illuminate, with approximate understanding, nearly *any* problem or learning task we face. I have experimented with many individuals and groups to test this point. When a participant is willing to use approximately relevant experiences, he or she readily understands complex, strange to his expertise problems in his or her own terms and is able to contribute to their solution. This approximate understanding does not usually lead to precise ideas for solving the problem; it *does* often lead to approximate ideas that expertise can transform.

LISTENING TO EVALUATE

As an inhibitor of speculative thinking, this is the most serious habit of all. And when I am able to modify it, it becomes one of the most powerful speculative and building tools in my whole arsenal. It is rooted in a lesson I learned early that is continually reinforced: When I make a mistake, I will get punished. This is not literally true. I am certain many, perhaps even most, mistakes are not punished. I am *emotionally* convinced otherwise. The fear of making mistakes becomes so deeply ingrained that I not only want to avoid making mistakes myself but I do not want to be associated with the mistakes of others. I begin to live by Mahr's law of limited involvement: *Don't get any on you.* I listen to every idea and proposal with my ear tuned for flaws. If there is anything mistaken about the idea, I discard it. I also develop a strong need to point out the flaws to the owner; I justify this by explaining that I do not want him to make a mistake. A much more powerful motivator is that I want to make it clear that I am *not* supporting or associating myself with this erroneous line of thought. I don't want to get any on me!

Pointing out flaws has two consequences. Beginning ideas tend to be dropped rather than transformed into possible solutions. Just as important, idea getters learn to be so cautious that to avoid the punishment of having their flaws pointed out many promising beginning ideas never see the light of day.

I can overcome both these drawbacks by considering listening for flaws as the first step in a three-phase procedure. Step one, I listen with an open mind, that is, I hear both the useful implications of the idea and also the flaws (I will discuss later how to keep your mind open in spite of flaws). I focus my attention on the flaws. Step two, I invent ways to overcome the flaws and am ready to build them into the idea when the owner is finished. The third step, I use the idea, however flawed, as a stimulus to retrieve a beginning idea without those particular flaws.

This is a form of mental and emotional jiujitsu. I use the very force that would eliminate the idea, the flaws, to stimulate thinking that will make that idea stronger and to produce a second idea potentially stronger than the first.

IMPLICATIONS OF THE HABITS FOR GROUP WORK

The importance of learning to modify these habits is clear for the individual. The implications for group work may be less evident. My posture as a traditional group member, even assuming good will, might be characterized as *judgmental/safekeeping/helpful*, in that order. When a member ventures to offer an idea, I listen to evaluate or judge it. If I decide that it is safe to support the idea, I then help him with his idea. When I modify my habits as suggested above, it reframes my posture. It now becomes *responsibility for success*. I have an obligation to use myself and my team. This means that if I have a glimmer of a thought, I tell them in case they can use it. When one of them has such a glimmer, I use it like Archimedes used his overflowing bath—relevant unless I cannot make it so. When an idea is offered, I go into my three-step procedure to wring out of it every possibility. This, of course, is the stuff that synergy is made of.

Such a posture has a critical impact on the climate of a meeting and within a group. And paradoxically, this posture appears to be practical only if the climate supports it.

CLIMATE

I am here using the word *climate* to represent all the elements that affect a person. What is going on inside me—whether I feel good, healthy, and ready to take a few risks or whether I feel unwell and vulnerable—will have a lot to do with how I operate. What is going on around me also affects how I operate. I want first to look at external climate.

This is governed by three communication channels: words, vocals, and nonverbals. We are all familiar with words. Vocals refer to things done with the voice: They include tone, hesitation, and emphasis. Nonverbals are all stimuli that do not make noise and are not communicated as words, for example, the way in which a person dresses, the way in which a room is decorated, unwritten rules and customs, gestures, exressions, muscle tension, and so on.

Albert Mehrabian did some experiments to establish the relative impact to these channels in face-to-face communication.[12] If total impact is 100%, he asserts that words account for only 7%. Vocals convey 38% of my meaning, and nonverbals 55%. I believe what is important in these figures is that a heavy burden is carried by vocals and nonverbals. It does not matter whether words are 7 or 50%; two channels that I do not know much about are far more important than I thought.

Yet it makes sense. Consider how many ways you can say the words "that is a good idea." Using vocals and nonverbals you can make them into anything from a great compliment to a stinging insult.

We have discovered that there is, practically speaking, no such thing as a neutral action in communication. Everything makes a difference. Either the action helps create a climate in which it is safe to speculate, or it hurts the climate. This becomes critical when we see that climate is the basic determinant of the level of speculation/creativity that will be possible in any given group.

At one end of the climate spectrum are actions that are punishing and competitive, at the other are acts that are supportive. The capacity for problem-solving and creativity is such that even when the climate is punishing, people are productive. As the climate shifts from punishing to supportive, we know from thousands of observations and experiments that there is a significant increase in creative productivity. Figure 5 shows some of the actions referred to that make or break climate.

The reaction of many people to these outlines is first the one I described earlier: "What do you mean a challenge is destructive!"—a general denial that these actions *are* that destructive. The second reaction which comes after there is some acceptance (usually after seeing a few videotapes of themselves in action) is, "If I pay the necessary attention to these, I will not have time for anything else."

This protest has my sympathy. I shared this impatience as I was doing the research. In the course of our development we first identified actions that worked. For example, a group would offer an analogy and the group would come alive and make progress. In one case the group was stuck for ideas on how to persuade and convince a potential alcoholic that he

ACTIONS THAT ENCOURAGE SPECULATION/CREATIVITY

- Listen
- Paraphrase
- Stay loose until rigor counts
- Protect vulnerable beginnings
- Take on faith
- Temporarily suspend disbelief
- Assume it can be done
- Share the burden of proof
- Connect with
- Accept
- Be open to
- Join
- Build on
- Speculate along with
- Share the risk
- Set up win/wins
- Make it "no lose"
- Support confusion/uncertainty
- Acknowledge
- Credit
- Value learning from mistakes
- Be attentive
- Be interested
- Show approval
- Give early support
- Eliminate status/rank
- Be optimistic
- See the value in
- Focus on what is going for the idea
- Assume valuable implications
- Take responsibility for understanding
- Waste no energy evaluating early
- Jump to favorable conclusions
- Use ambiguity
- Give up all rights to punish or discipline

ACTIONS THAT DISCOURAGE SPECULATION/CREATIVITY

- Be pessimistic
- Preach/moralize
- Be judgmental
- Assume no value
- Make no connections
- Put the burden of proof on other person
- Take ball away from
- Ask questions
- Cross examine
- Give no feedback
- Be noncommittal
- Put on a stone-face
- Be critical
- Disapprove
- Be impatient
- Nitpick
- Interrupt
- Be bored
- Misunderstand
- Be inattentive
- Act distant
- Pull rank
- Get angry
- Disagree
- Argue
- Challenge
- React negatively
- Discount/put down
- Be cynical/skeptical
- Insist on early precision
- Point out flaws
- Correct
- Name call
- Blame
- Set up win/lose
- Be competitive
- Make fun of
- Be dominant
- Command
- Order
- Direct
- Threaten/warn
- Demand
- Do not listen
- Do not join
- Use silence against
- Scare

Figure 5 Actions that encourage speculation/creativity and actions that discourage speculation/creativity.

was in danger. Nothing new was developing and the group's energy was low. A member said, "You know, a religious conversion must be an example of total persuasion."

There was a charge of energy I could feel. Another member exclaimed, "Jesus! (laughter) if you will excuse the expression. My image of religious conversion is that the convert suddenly sees his future if he continues without God. How could we do that to a 'potential,' except only make him see what will happen if he continues with alcohol?"

"How about using a fortune teller?" said another member.

"Right! have the fortune teller tell the guy some truths about his past and then make some predictions."

The group was off and running. When we recognized that analogies did not *necessarily* work, I undertook to find out why. By studying tapes of instances in which analogies did not "work," I observed that quite often, as the analogy was offered, a member would take some action that might seem innocent but that, in effect, killed the effectiveness of the analogy. He might ask a question about it, or simply disagree that it *was* an analogy, or make fun of it.

When I began examining analogies that worked, a definite contrast was apparent. The working analogy elicited early support—an exclamation, a quick connection.

This led us to the protection of analogies. We would intervene to prevent or turn away or counteract those actions we thought might be damaging. This increased the likelihood that the analogy would work. There are still times, even when there are no destructive actions that can be seen, when analogies and other idea-getting strategies do not work. We are dealing with probabilities.

It was through the study of strategies that usually work that I learned about actions that cause them not to work. I was dismayed at the number of these actions, subtle and crude, which in the hands of a competitive participant could keep a group from being productive. No single action can do this, but if there are many, that becomes the style of the group. It seems to be catching.

I have gone into some detail about this, because it is a basic issue in group work. Cleaning up the transmissions to reduce the destructive actions to a minimum takes time, understanding, and effort. The payoff is not instantly visible. Most group members will have operated in the midst of nearly all the destructive actions and still accomplished much. But unless group members are willing to *invest* in climate, it will not be possible to experience the synergy that is one blessing of a cooperative/supportive climate.

INTERNAL CLIMATE

I have become persuaded that many of the actions in Figure 5 apply to the way in which I treat myself. For this to make sense and be manageable I use my concept of safekeeping self and experimental self. I experience my safekeeping self as dominant, reacting negatively, devaluing, and correcting—in fact, using most of the discouraging actions on my experimental self. I have been able to modify this by having role-playing dialogues between these two selves. I assume that everything my safekeeping self does is with good intent, even though often outspokenly negative and criticial. Safekeeping's mission is to keep me safe, not to do good thinking. I have my two selves problem-solve as though they were two different people, to invent a way of working together that takes into account *both* of their missions. This is one reason the metaphor of two selves can be useful. It allows me to manipulate and improve my ways of using my inner resources by imitating, within me, the processes of a well-trained group.

SUMMARY

In the first part of this chapter I have attempted to show some of the problems and opportunities in both individuals and groups. I will spend the rest of the chapter discussing the methods Synectics® has developed to capitalize on some of these opportunities.

SYNECTICS METHODS

In our research our first steps were toward finding procedures that helped us get new ideas. When we saw something that did this, we incorporated it experimentally. We kept studying it and modifying it until it worked quite well, or we dropped it. We did not spend a lot of energy in discovering *why* a procedure worked. This tended to make us dogmatic. "This works most of the time, so do it this way."

As we understood *why* some of our procedures worked (i.e., increased the probability of success), we realized that there were many other ways to get the results we were getting. We became more relaxed.

In 1962 we were teaching a group of chemists an excursion. It is one we now call The Example Excursion. "Give me an example of a built-in closure from the world of your body." (I have changed the words to those used in a formal excursion). One of the participants challenged me, "I

find it more effective to just choose some object around me, almost at random, and use that to give me ideas."

I remember feeling defensive and slightly angry. "OK, show us." He selected the banister of a staircase in one corner of the room: "Let me see . . . those spokes, or whatever, form a border around the air . . . I will have to make it hold better than air . . . I will stretch a rubber sheet between the spokes . . '. so my thermos closure will be a foamed rubber sheet, with a lip or flange all around. One side is fastened to the bottle, the other is free to be lifted."

I attempted to equate this with an Example Excursion. Today, realizing that what he was doing was exactly the kind of thinking we want, I would welcome his verson and perhaps invite the group to experiment with selecting an object at random. The point I want to emphasize is that the Synectics® methods I will introduce are *one* way to solve some of the problems outlined in the first part of this chapter.

ROLES

In every meeting there are three basic roles that are played. These can be most easily defined in a meeting called to solve a problem. First, there is the person who owns the problem. Then there is the person who is running the meeting. Finally, there is the participant. If we had a role-play experiment and asked three people to play purely one role, the problem owner would state his or her problem, the process person would limit himself to process. After the statement of the problem, he might say, "Now it is time for ideas. Any ideas?" The participants would then supply ideas. The problem owner would absorb these. The process person might after a while say, "Now it is time to evaluate the idea you like best, problem owner."

Meetings do not work this way. Role responsibilities are not explicitly assigned. Each of us feels perfectly free to assume any of the three roles. For instance, the chairman might say, "It is time for ideas." I would feel free to interject, "Before we go to ideas, I need a little more background."

Or, when evaluation time was at hand, even though I am simply a participant, I evaluate and give my opinion of the problem owner's decisions. This free-flowing model has the advantage of maximum involvement for all members and in fact, *when all members thoroughly understand and respect the basic role responsibilities*, it makes for an excellent meeting. When group members are at that point, they need only agree about how they are going to operate in this meeting. For example, at one meeting they may agree that everyone will be responsible for process. At

another, in which they expect a lot of emotional involvement, they may agree that one of them will be facilitator and have charge of process.

STRUCTURE AND INTERACTIONS*

Every meeting is conducted on two levels. One level is the structure. It is needed and important, and if that is all that is taken into account, the meeting will be inefficient. The quality of interactions between members determines the climate, and climate determines (the quality and quantity of) ideas. An example will clarify this point.

This group is working on the problem of automobile safety. The process facilitator has asked the team to develop a variety of ways of approaching the problem, a step in our structure called goal/wishing.

Jim: I wish for a seat belt that fastens itself.

Joe: That doesn't really solve the problem. The basic problem is safety and that is only one aspect of it.

Joe has just issued an invitation to a win–lose situation. If this were allowed to pursue its course, Jim and Joe would each spend some energy justifying his position. This would make no contribution to the problem-solving and would end with one or the other feeling as though he had lost the discussion. The loser would therefore stop cooperating with the winner and use more energy in setting up a second win–lose situation that he would win.

The process facilitator recognizes Joe's invitation.

Facilitator: Joe, it sounds as though you have a goal/wish with a different objective than Jim's. Please frame it as a wish while I write up Joe's. Then I will get yours.

The facilitator is not dealing with structure here; he is handling an interaction so that instead of getting a win–lose situation, the team gets a win–win situation.

Throughout my discussion of the Synectics® methods I will be concentrating more on facilitating interactions than on structure.

CLIENT

We call the problem owner a client. We want to make explicit the fact that the team is working for this person. We will really win only if we give the client what he or she needs.

* For a more detailed discussion see "The Practice of Creativity."[13]

The client's overall responsibility is to get from the team as much of what he or she needs as is possible. All of his or her actions are aimed at that. His or her interactions with team members will be designed to increase their involvement. I will be more specific about this as we go along. Now, the responsibilities are the following.

1. *Give the Team Enough Information About the Problem or Opportunity So They Can Begin to Work.* We have found that a brief period (about five to seven minutes) to cover all answers to the following questions will generally serve: (1) What is the background of the problem? (b) Why is it a problem? (c) What are some of the things you have thought of or tried? and (d) What do you wish to get from the group in the time available? In addition, it is important to make clear to the group what your personal stake in the problem solution is.

2. *Contribute to the Meeting as Though a Participant.* It can be particularly useful if the client offers a far-out, wishful goal/wish to demonstrate openness to such goal/wishing on the part of others.

3. *Be Alert for Opportunities to Show Appreciation for Good Thinking.* When a participant makes a pleasing contribution, use words, vocals, and nonverbals to let him or her know about your pleasure. Do not attempt to fake this.

4. *Resist the Temptation to Comment on the Contributions When They Do Not Please.* You have complete control over the direction in which the team will go. When making choices, simply ignore those that do not aim where you want to go.

5. *Listen Approximately.* Many of the suggestions made will not be precise fits to your problem. Exercise your skill in three-step listening. Listen for flaws, listen to overcome flaws, and listen to get an idea without flaws.

6. *Model the Ways You Wish Participants to Act.* For example, practice crediting: When someone says something that stimulates a thought in your mind, let her or him know. "Sally, when you said that, it gave me the idea that. . . ." Basically, if you check the outline of actions that encourage speculative thinking and do whatever you can to conform to that in your operations, you will fulfill this responsibility.

7. *Prove That You Are There to Find Ideas That Will Work for You.* For example, in the goal/wish phase the facilitator will be getting from the team a mixture of ideas, wishes, beginning ideas, and directions. During this period, if a new idea that appears feasible is offered, it will be written up by the facilitator. Even though you have not been com-

menting on the offerings as they happen, you can say something like, "Hey!, there is a new one I could experiment with next week." You may not choose to do so, but you have let your team know that you are alert for ideas that will be useful to you.

8. *Indicate the Sort of Direction That Interests You.* Here, again, you will not be reacting to every goal/wish, but when a goal/wish suggests a direction you particularly like, let the team know.

9. *Be Decisive.* When the facilitator asks you for directions, give him what he needs. If you need time to consult, take all you want, but when through, be definite.

10. *When You Are Not Getting What You Want, Let the Facilitator Know.* If the team is way off base, ask for a break and discuss your feelings with the facilitator privately. Often you can express what you want in a goal/wish, for example, "I wish I could get more ideas on how to get distribution."

11. *When Evaluating an Idea Use Itemized Response.* This is a procedure that gives the members of the team a balanced evaluation that educates them about the kind of thing you are looking for and are concerned with. If you choose to proceed with developing ideas, they know just what needs to be worked on. In the itemized response you articulate three or four advantages or positive aspects of the idea and then you shift your attention to the concerns or gaps in the idea. These are aspects that need further inventing. If possible, you phrase your concerns as *how to's*.

For example, in a car safety problem, suppose you are the client and the idea to be evaluated is a padded mechanical bar that lowers to embrace the occupants of both seats, much like the bar on a ski lift.

Jane: I like the relative simplicity of that, and another plus is that it would be easier for the user to pull it down and put it in place than the seat belt. It would be easier to automate than a seat belt. Another thing I like—and this may be sneaky—we could make it so that in the up position it would get in the way of driving. The user would almost *have* to put it on.

My concerns are how can we make it comfortable, like a belt and how can we prevent sideways slipping. I guess my only worry is how can we make it simple—not a big mechanical deal.

In summary, the client is the reason for the meeting. Satisfying him or her is the clear objective of each member. How the client interacts with the individuals and ideas will have a profound effect on the productivity of the group.

FACILITATOR/LEADER

The overall responsibility of the facilitator is to manage the process of the group in order to get for the client what he or she needs. To this end the facilitator guides the team, *mindful* of structure, but not bound by it. He or she uses his or her judgment about what he is after. The facilitator's primary job is to create and protect the climate. Here are some specifics about how this can be done:

1. *Make Yourself Thoroughly Familiar With the Actions Outlined in Figures 5 and 6—Those That Discourage Speculation and Those That Encourage It.* I will be suggesting some ways of intervening or avoiding the discouraging actions, but the best way to facilitate is to improvise in your own style to create and protect the climate.

2. *Listen to Team Members.* This is the foundation upon which nearly *every* encouraging action is built. Permit the speaker to paint any picture he wishes; your aim is to understand from his point of view. If in doubt, or if you think that the team member may be in doubt, paraphrase to be sure that you understand to his satisfaction. This sounds easy, but it is not. You will catch yourself making judgements, tuning out, listening to your own thoughts, and otherwise failing to really comprehend what the speaker is saying.

The importance of listening cannot be overemphasized. Skill in good listening has a pervasive effect on the team's productivity because it directly affects climate.

You will also on occasion have a member who tries to dominate the meeting. He will have immediate responses and go into endless detail if you permit. These people are usually bright and valuable, but they can ruin a meeting. You will need to control such a person without alienating him (he may be your boss). Here are three ways of dealing with this—there are others and you can invent your own:

When you believe you understand the point, interrupt to say, "Thank you, I've got it," and move quickly to someone else.

Avoid the compulsive talker's eyes when asking for a response.

More drastically, when you ask for a response, look at someone else and hold your hand to the talker in a casual stop sign.

3. *Keep the Energy Level High.* This may seem an impossible assignment, but it is not if you use the tools available to you. There are a number of things that affect the energy in a group, including some that are beyond our control, such as a member's hangover. But there is a lot

you *can* do. Here are some suggestions:

Your interest, alertness, and intensity are contagious, so when you take over as facilitator, give it your best. Use your natural body language: Move around, move close to a speaker, use your hands—anything that is comfortable for you.

Use excursions lavishly when the group is tired. It is often like an actual vacation from the problem and members return refreshed and with renewed material banks.

Keep the pace fast but not hurried. Do not linger on any one step too long. When group members give signals of boredom, do something different.

Humor can be invaluable. If amusing associations occur to you, bring them out. When a member jokes, show that you enjoy it too—if you really do. You are probably not a stand-up comic and so do not push yourself to become one. Just be yourself, encourage humor, but do not let the meeting degenerate into a joke-telling session.

Surprise the group. After running a few excursions that are alike, run an excursion they do not expect. I will give you some examples later in the chapter, but you can make up excursions of your own.

Have a plan to shake things up for the session right after lunch, and for later in the afternoon. These are low-energy times.

4. *Keep Your Eye on the Client.* When members are giving ideas, watch your client with great care. If he or she shows interest, check to see if he or she would like to pursue that line of thought. When in doubt about what kind of content your client wants, ask him or her: "Client, we have 20 goal/wishes. Would you like to select one to pursue or would you like some more goal/wishes?"

5. *Rotate the Facilitator Role.* Like the Pony Express changed horses, it is wise to change facilitators to keep up the pace. It has other benefits: This is a demanding role and until everyone has tried it, they will not appreciate the importance of their cooperation as a participant.

6. *Do Not Pussyfoot.* Because climate is such a critical element, facilitators often believe that being very gentle and hesitant establishes a climate that encourages actions that foster speculation. There is nothing the matter with gentleness or hesitance if you are stuck for the right word, but you can be crisp and definite in intervention to protect the climate. It is your responsibility and you have the authority to carry it out. You will demonstrate that you are in charge of process.

In summary, the facilitator/leader role is complicated and demanding. You are like the conductor of the orchestra. You do not play any instrument and you are responsible for making beautiful music.

PARTICIPANTS

Participants are the heart of any meeting. All the skills of the facilitator and the constructive responses of the client are designed to help each participant make his unique contribution. To emphasize the true relationships in a meeting we view the leader as a servant to the group. The group is, of course, servant to the problem. The client is the problem's representative and except in matters of behavior his opinions are honored. Differences with him are welcome too. They are aired, written, and the decision of how to use them is left to the client.

The basic responsibility of a participant is to use his or her wits to help the client get what he or she needs. The best way to do this is to dig as deeply into your personal potential as you can. Here are some specifics:

1. *Pay Intense Attention to Yourself and to Your Impulses.* You think at the rate of about 900 words a minute. People talk at the rate of 125 words per minute. Use only a small part of your energy in attending to what is being said. Use most of your energy in following the thoughts stimulated by the speaker. Even when your images and thoughts seem irrelevant to the problem, note them and attempt to connect them.

2. *Use Your Pad.* When you are "out listening," that is, out of the meeting, listening to yourself, keep notes on your pad. This way you need not interrupt, yet when the time comes you will have your ideas ready. When you get an idea, note it then rejoin. Do not depend on your remembering.

3. *Do Not Censor Something That Feels Important Even If It Does Not Make Sense.* Let the group hear it. They will listen to it as a stimulus and may be able to make a connection that you were not making.

4. *Make Three-Step Listening Your Modus Operandi.* (a) Listen for flaws. (b) Listen to overcome flaws. (c) Go for an idea without the flaws.

5. *Practice Open-Mindedness.* This means that when you are listening to an idea, you pay attention to the positive implications of the ideas as well as to the flaws. If you find yourself unable to find any positive implications, you know that you are closed to that idea.

6. *Know the Actions That Discourage Speculation and Police Yourself So You Do Not Slip into Any of Them.* Know the actions that encourage speculation and use them at every opportunity.

7. *Cooperate With Your Facilitator.* Even when you do not understand exactly what he or she is asking, cooperate as best you can. Guess, and do it. After the session you can ask questions.

In summary, as a participant, your responsibility is to bring to the meeting your whole self and use as much of it as possible.

STRUCTURE

Structure in a meeting furnishes guideposts for the facilitator so that he or she can lead the group from the beginning of the problem through to a solution, without missing any essential steps. On the other hand, knowing the structure permits the facilitator to ignore it. He can pay less attention to formal structure and focus on the activity that will most help the client at any given moment. For example, the group may be doing goal/wishes. When the second one is offered, the client says, "Wow! I never thought of that and I would like to explore it."

The facilitator skips several steps in the structure and goes to an immediate evaluation, first assuring the members that he will come back and get the goal/wishes they have developed.

GENERAL PURPOSE

The first step is to develop an understanding of the problem. We have found that this phase is most effective when we get both an analytical understanding and a speculative understanding. As you have seen, we ask the client to give a brief explanation of the problem. As that is going on, we ask the participants to be translating the explanation into goal/wishes. At this stage we want the thinking to be unfiltered by reality. If the client says, "Potential alcoholics refuse to believe that they are," we want participants to be thinking of goal/wishes as wishful and unreasonable as, "I wish we could give a potential some truth serum and have him talk to himself," "How to inoculate a potential to make him immune to alcohol," "I wish a potential would turn green one day a week to persuade himself."

We are "exploring" the problem to give the client as many different ways of seeing it as we can. We are not interested in precision at this stage.

The next step is focusing on one direction. The client selects one or two of the goal/wishes that appeal to him or her, and the team explores *that*. For example, an adventurous client might choose, "How to make

a potential turn green." The team then develops more goal/wishes aimed toward the specific, "How to give him a litmus paper that tells him the truth," "How to make a potential instantly recognizable to everyone," "I wish that whenever a potential looks in a mirror, he is reminded of the truth."

The third step is to focus again on a specific. The client might now pick the mirror goal/wish. The team develops ideas that might make something like the mirror goal/wish practical. For example, in this case the team developed the idea of giving the potential access to a lie detector. He answers a series of questions. Whenever he denies his addiction to alcohol, the machine tells him he is lying.

DEALING WITH IDEAS

The most profitable way to use an idea is as a stimulant. The least profitable is to evaluate. During the session we ask participants to practice three-step listening until it is time to evaluate. When that time comes, the client itemizes the advantages implicit in the idea and then voices his concerns as how to's. The client may ask the team to join him in his itemized response.

Then, if the client wants the help of the team, he selects one of his concerns and the team gives him ideas on how to overcome it by adding to or modifying the original idea. When the client decides that his concerns are overcome, we go to the next phase.

NEXT STEPS

The final step in the process is to record whatever next steps the client wishes to take to proceed with the implementation of the possible solution.

IDEA-GETTING STRATEGIES

The excursions are specifically designed to help participants originate beginning ideas. While this is their primary objective, excursions can do far more than that for the team. Over the years I have asked groups to tell me what excursions have done for them. Below is a list of some of their responses:

1. Gets me around a mental block.
2. Facilitates the nurturing of other's ideas as well as my own.
3. Changes my synapses.

4. It gives me permission to be irrelevant.
5. Broadens my tolerence for approximations.
6. Recharges my enthusiasm/fun batteries.
7. Makes me feel good.
8. Makes nothing off limits.
9. Builds confidence and trust in the group.
10. It helps me appreciate the thinking of others in my group.
11. Makes me less nervous and anxious.
12. Sponsors an "I can" frame of reference.
13. Helps me see that it really is possible to look at this problem in a new way.
14. Helps me to mine my right hemisphere.
15. It is a model of nonpunishment for any kind of a contribution.

An excursion, unless it interrupts a promising line of thought, is nearly always a good investment in climate. The signals that tell me an excursion is a must are (1) the team does not have *any* beginning idea, (2) the team is recycling ideas that have no newness, (3) the team is sending signals that they are bored or restless, (4) people are finding a lot wrong with what is going on, (5) people are being very precise, and (6) my team is not having fun.

SOME SAMPLE EXCURSIONS

The team is working on the problem of convincing potential alcoholics that they really are alcoholics. (Some personality profiles and people have a much higher than average chance of becoming alcoholics. They are skillful at rationalizing their behavior to keep themselves believing that they are simply social drinkers.)

Example Excursion

Facilitator: Team, give me an example of persuasion from the world of rocks.

Sam: A landslide.

Facilitator: Tell us a little more, Sam.

Sam: A landslide is overwhelmingly persuasive. It sweeps everything in its path, or it buries it.

Janet: A volcano. The molten rock gradually persuades the mountain that it has to give, and suddenly BOOM!

Jim: A diamond.

Facilitator: How so, Jim?

Jim: You know what they say . . . a diamond is a girl's best friend? (Laughter) Well, that makes a diamond pretty pursuasive.

Facilitator: OK, team, let's examine landslide. What comes to mind when you image landslide?

Jim: Tremendous leverage . . . it can take only a sneeze to start the thing.

Sally: It is a huge force but it is made up of small pieces . . . pebbles, dirt, even boulders are small compared to the overall force.

Sam: It gives the impression of moving slowly, almost slow motion. Actually it is racing along very fast . . . I'd guess it is 40 miles an hour.

Facilitator: Now, team, let's take these examination thoughts and go to our problem of persuading potential alcoholics that that is exactly what they are. Use this material the way Archimedes used his overflowing bath. Make it give you new beginning ideas.

He waits. . . .

Sally: Overwhelm him with the facts, but do it a little at a time.

Jim: I have a build on that . . . make the facts not general ones about what happens to alcoholics, he can "outrun" those. Somehow make these facts specific to *him*, personally.

Kitty (the client): You know it would be possible to *do* something like that . . . the part about facts. We know with quite a lot of detail and precision what is going to happen to the problem drinker.

Sam: Get his wife or a friend to give you background on him so you know where in the cycle of alcoholism he is. Then you begin to tell him what is going to happen to him next. Giving us his name is the sneeze that starts us on the way to overwhelming him.

Facilitator: Kitty, are you ready to paraphrase the idea that is coming out?

Kitty summarizes the idea, making it fit her precise knowledge of what her treatment center can actually do. Briefly, the program starts with a call or visit from a spouse or concerned friend. A case history is taken,

and 10 predictions are developed from the case history and center's knowledge. Once a month the potential alcoholic gets a note predicting some specific event that will happen to him or her in the coming month. For example, the note might say, "In the month to come you will find it increasingly difficult to remember what you had for dinner the night before. This is the pattern followed by a person who is oversensitivie to alcohol. When you decide you might be ready to explore ways of normalizing your life, call: (and number is given).

Imaging Excursion

The wish the team is working on is, "How to have a voice in his head keep telling him that he is a potential alcoholic."

Facilitator: Now, team, I want to go on an excursion using the word "voice." Put the problem out of your mind and focus on the word (he writes it on one of the large pads in the front of the room). Let it stimulate an image in your mind. Scan that image until you see something in it that intrigues you. Give me one word for the intriguing something. . . . Sally?

Sally: Dog.

Facilitator: (writes *dog* under *voice*, then covers *voice* with his arm) Sam, do the same for dog . . . and if you pull a blank, just say "Pass."

Sam: Attack.

Facilitator: (writes *attack* under *dog* and covers *dog* with his arm.)

As with all excursions, this one invites right-brain activity. There is a tendency for a team to slip into associations rather than imaging. This will not ruin the excursion, but it is not as effective. The idea is for a participant to look at his or her image and be sensitive to the feeling of being intrigued (I believe this is exercise for intuition). When she gives her word, the team images with her and attempts to make a connection to the previous word—good right-brain activity. If you get associations, ask that the participants give you a "once removed" association. For example, looking at *dog* my impulse will be to say, "Cat"; I resist this and think of a second, more distant association like "days."

The facilitator collects a word from each member.

Facilitator: Now, select your favorite word from this list. Write it at the top of a clean sheet of paper. Let that word stimulate an image in your mind's eye. Turn on the movie in your mind—all that means is that you animate your image—let things happen and make notes on your pad about what happens.

The Facilitator allows two or three minutes.

Facilitator: OK, team, let's go back to the problem. How to have a voice in his head keep telling him he is a potential alcoholic—take the material you have written that seems totally irrelevant and use it like Archimedes used his overflowing bath. Make it give you a beginning idea. Remember that a beginning idea does not need to work, but if it did, it would help us.

The Facilitator allows two or three minutes.

Jim: The idea is to get a skillful neurolinguistic programmer to make a tape that will program the listener to seek help at one of your centers.

Facilitator: Great! Where did you get that, Jim?

Jim: I picked the word *attack*. My movie was about the Trojan war and some Greeks were pushing one of those big towers toward the Trojan fort. The tower was high and overlooked everything. I wished I could have something in the potential alcoholic that would "overlook" him all the time. I thought of a conscience to direct him to your centers and I thought of Milton Erickson. He was a psychiatrist who was very skillful at transmitting directions understood by the right brain or unconscious while having an ordinary conversation with the left brain. This is what neuroliguistic programming is.

Kitty (the client): What a marvelous thought! We know that the potential alcoholic turns to alcohol for comfort. We can have the tape program him to come to our centers for comfort instead of to the bottle. And perhaps we can train our therapists to reinforce what the tape promised.

OTHER EXCURSIONS

There is no limit to the number of different excursions. Chapter 6 in *The Practice of Creativity*[14] introduces some in more detail, you will find others in the *Journal of Creative Behavior*,[15] and perhaps the best source of new excursions is yourself. You can design them to suit you. The important elements are (1) participants must put the problem out of their minds, (2) your instructions lead them to use some right-brain functions (imaging, connection making, pattern recognition) apparently uncon-

nected with the problem, and (3) participants use the seemingly irrelevant material back on the problem.

OTHER KEY SYNECTICS® STRATEGIES

GOAL/WISHES

I have mentioned this earlier and it is such an important tool that I want to discuss it further. History: in early problem-solving sessions it seemed that each participant, before attacking the problem in earnest, felt the need to restate or redefine the problem in his or her own terms. We made this part of the process. After the problem statement and analysis we asked each participant to restate the problem as he or she understood it. The facilitator wrote these restatements as part of the notes.

We then discovered that after everyone had a restatement, some wished another chance to restate. Since each of these restatements was somewhat different from the others, we welcomed as many as we could take time for. It became apparent that these varied points of view were helpful to the client (sometimes) in understanding his problem differently. It happened almost as a joke that people offered restatements that were absurd, impossible, or very wishful. The effect of these wishful Goals was much like that of an analogy—they stirred up unusual energy and stimulated a different kind of thinking. We began to encourage them and called this element goal/wishes.

Many people have trouble with wishing. I asked a business friend why he found wishing difficult and distasteful. "I have spent my adult life doing my best to be realistic and deal with situations the way they *really* are, not the way I *wish* they were," he said.

"If you don't wish about a situation, how do you know how it ought to be?" I asked.

"You have a point, but I do not call that wishing. I call that having a goal or objective—it is not a wish, it is something possible to achieve. Wishing, by my definition, is hoping for something to happen that you *know* cannot happen," he replied.

It is understandable that practical people have trouble tolerating wishfulness. However, wishing may be seen as an additional form of exploratory thinking, of goal setting. Because it is not concerned with reality, it has the capacity for opening one's eyes to new possibilities. If one is constantly realistic and precise in wanting (goal setting), one automatically rules out exploring many lines of thought that might be profitable.

When we look at the history of various developments, we see that someone must have once indulged in the following unrealistic and impractical wishing:

I wish I had a carriage that would propel itself.

I wish I could make instant drawings of happenings I want to remember.

I wish I did not have to wait to see the photograph I take. (Dr. Edwin Land can document this wish. It was made by his daughter and led to the Polaroid camera and film.)

I wish I had a magic drain in my sink so that garbage, bones, and waste would go down it and disappear.

You get the idea.

ITEMIZED RESPONSE

Sometimes called an open-minded evaluation, this procedure is one of the most valuable in Synectics.® Although I briefly described this earlier, I would like to add that itemized response is based on the assumption that I am seldom dealing with fools. If someone offers an idea, it must have seemed useful to the offerer or she or he would not have presented it. It is not only polite to deal with the idea courteously, it is prudent and economical. When I am looking for ideas, it does not make sense to throw out any without examination. *After* examination, if appropriate, I can discard.

This procedure in itemized response is simple. When I understand the idea (having paraphrased it if there is any doubt) I smother my natural inclination to point out the flaws. I will not ignore or forget the flaws, I will deal with them, but *not first*. First, I focus on the advantages of the idea, both explicit and implied. When I have spoken of these, I turn my attention to the flaws or my concerns about the idea. I express these as how to's, thus making it clear that these are problems that we could overcome if we chose to pursue this idea.

When the itemized response is completed, I make a decision about whether to go further with it or to put it aside.

This procedure recognizes that most ideas, even the great ones, begin with many weaknesses. If I let my natural safekeeping inclinations make my decisions for me, I will not pursue anything but the sure winners—and when an idea is a sure winner of that sort, it will have been around for a while, it will not be new. Itemized response presses me into a

behavior that recognizes that strong ideas are built by inventing ways to overcome the flaws in beginning ideas.

FORCE FIT

Force fit is a term we coined to describe the moment of truth in speculation: When I take the seemingly irrelevant observation or material and I use it as Archimedes used his overflowing bath, I make it give me a connection. It is the most difficult step in the process. To make it work I must be truly free to move from one end of the thinking spectrum to the other, free to oscillate from irrelevant to precise, open to confused images and impulses from my right brain as well as logical, realistic inputs from my left brain, in short, to be good at force fitting I need my whole self operating at its cooperative best.

When Jim explained where his neurolinguistic programming idea came from, he was describing his force fit. The important elements are the following: (1) He developed his Trojan War attack scene without consciously thinking of its possible application to the problem; (2) he shifted gears back to the problem and went into a delicate, tolerant, tentative mode—totally open, and not in any hurry to nail down a practical idea, he considered his material to see what specific appealed to him or caught his attention; (3) when the tower seemed interesting, he took time to image the tower and how it seemed—very tall and kind of rickety . . . higher than anything else in his image . . . it overlooked everything; (4) he shifted his attention back to the potential alocholic and asked, "What is this tower trying to tell me about this person?" and the overlooking idea became someone looking over the shoulder of the potential alcoholic; (5) He found the beginning idea to be almost in place. He asks himself how he can make it more practical? He thinks of conscience as something to work with. He asks himself how he can make conscience work on the problem? He thought of hypnotism . . . the right direction, and he did not see how to make it practical. He remembered reading of the effectiveness of a neurolinguistic recording. That was the link he needed, and the idea was ready to give to the group.

If the tower had not resulted in an idea, Jim would have returned to his image and picked another aspect that interested him and repeated his force fit thinking. Each such cycle actually takes less than a minute to explore for promise. Developing the promise into an idea may take a little longer.

I found that as I became more skillful at using myself, I would shift into force fit thinking whenever anyone was explaining an idea. I am often able to develop builds and even new ideas this way.

SUMMARY

From observation and experiment with several thousand problem-solvers, Synectics® believes that nearly all of us have enormous potential for good thinking. Because most of us are in a constant competition with each other, we do not cooperate with and support each other as much as we could. We must spend a good deal of our energy in protecting ourselves and in win–lose contests. Synergy in groups, if it happens at all, is at a low level.

We are convinced that each of us, by systematically manipulating ourselves and the climate around us, can markedly increase the amount of that good thinking potential that we use. In addition, we can profit together from the deliberate synergy we create. Not the least of the blessings that flow from wholehearted cooperation and support is that they make meetings more exciting and more fun.

REFERENCES

1. W. J. J. Gordon, *Operational Creativity*, Harper and Row, New York, 1957.
2. W. J. J. Gordon, *Synectics*, Harper and Row, New York, 1961.
3. George M. Prince, *The Practice of Creativity*, Harper and Row, New York, 1970.
4. Eric Berne, *Games People Play*, Grove Press, New York, 1964.
5. George M. Prince, *Mindspring!*, in press.
6. Warren McCullough, *Embodiments of Mind*, MIT Press, Cambridge, Mass., 1965.
7. Thomas R. Blakeslee, *The Right Brain*, Anchor Press/Doubleday, New York, 1980.
8. George M. Prince, "Putting the Other Half of the Brain to Work" *Training*, Vol. 15, No. 11, November 1978, pp. 57–58, 60–61.
9. Harry Stark Sullivan, *The Interpersonal Theory of Psychiatry*, W. W. Norton, New York, 1953, pp. 170, 233–234.
10. *Mindspring*, p. 112ff.
11. Carl Sagan, *Dragon in Eden*, Random House, New York, 1977, p. 44.
12. Albert Mehrabian, "Communication Without Words", *Psychology Today*, Vol. 2, No. 4, September 1968, p. 52.
13. George M. Prince, *The Practice of Creativity*, Harper and Row, New York, 1970.
14. Ibid.
15. George M. Prince, "The Mindspring Theory: New From Synectics Research," *Journal of Creative Behavior*, Vol. 9, No. 3, 1976, p. 175.