SERIOUS CREATIVITY

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Serious Creativity will seem a contradiction in terms for many people. Everyone knows that creativity has to be fun, lively, and crazy - so how can we have serious creativity?

It is precisely this misconception about creativity that has done so much damage and has held back the development of creativity for at least two decades. There are far too many practitioners out there who believe that creativity is just brainstorming and being free to suggest crazy ideas. I intend to show that this is inadequate.

Brainstorming was originated by Alex Osborne. It was designed for use in the advertising industry, which is a key point. In the advertising world, novelty, as such, can be a value. Suppose there were a discussion of ways of getting people to buy more wool. Someone suggests that sheep ought to be purple because purple is an expensive colour and that would give a prestige value to wool. You could indeed run an advertisement showing purple sheep. Such an advertisement would attract attention and might sell more wool. Novelty and gimmicky does attract attention and does have and advertising value. But in almost every other field, novelty by itself is insufficient: the creative idea must make sense and must work.

In my courses, I find that people who have a brainstorming background tend to perform rather poorly. This is because they are always looking for the way out, exotic idea and often miss the simple, practical idea which is at hand. It is as if during a brainstorming session each participant is trying to make the other participant laugh at the craziness of an idea. I would also like to point out that creativity does not have to be a group activity. Creative techniques can be used in a powerful way by individuals working entirely on their own.

Judgment, Patterns and Creativity

Everyone knows that instant judgment is the enemy of creativity. That is certainly true because judgment will force us back to our present position. The brain is not designed to think creatively but to set up routine patterns of perception and behavior and to make sure we do not deviate from these. Judgment is the powerful tool we have for keeping on these routine tracks. Judgment is like the stern father forbidding the playfulness of a child. So if judgment prevents creativity then all we have to do is to suspend judgment, defer judgment or delay judgment in order to be creative. So we believe it is sufficient to be crazy and free and nonjudgmental. Surely we will then be more creative? It is not as simple as that.

Children are often creative. Innocence can be creative. Ignorance can be creative. If you do not know the usual approach to a problem, you can more easily come up with a fresh approach. There is a story of a group of women being shown around a wartime factory. Someone mentioned that there was a problem in the sharpening of the carbon rods that were used in searchlights. In her innocence, one woman suggested the use of a pencil sharpener-it worked. When the Montgolfer brother flew the first hot air balloon in France, word reached the king in Paris. The king sent for his chief scientific officer (M. Charles, whose name we still use in the law of gaseous expansion with temperature) and demanded a balloon. Ignorant of what the Montgolfer brother had done, M. Charles proceeded to invent the hydrogen balloon using the newly discovered gas.

So if we think like children, will we not be more creative? If we take off our ties, sit on the floor, and play some fun games, will we not approach that childhood state of innocence in which everything is possible?

Then there is the matter of the right side of the brain. This is the more innocent side of the brain and has not learned "how things should be." In using the right side of the brain we tend to draw things as they are rather than as we know them to be. We believe the right side of the brain represents creativity, but it does not. It represents innocence, which may play a role in creativity-particularly in artistic expression.

So if we suspend judgment, feel innocent and childlike, and try to use the right side of the brain, should we not then be creative? We will certainly be more creative than before, but not very much more. We will be able to use our natural creativity. Unfortunately, natural creativity is not very powerful. As I shall try to demonstrate later, creativity is an unnatural process.

The Logic of Creativity

In 1969 1 wrote a book called The Mechanism of Mind. In that book I described how the nerve networks in the brain allow incoming information to organize itself into sequence or patterns.

What it amounts to is that there are two broad types of information systems: the passive system and the active system. Almost all our usual systems (including computers) are of the passive type. Information is recorded on a surface and lies there passively until it is used by some brain or central processor. The surface and the information or data are entirely passive. In the active system, on the other hand, the information and the surface are both active. All information changes the surface which then receives future information differently. This process eventually gives rise to self-organizing systems. Rain falling onto a landscape is a very simple example of such a system. The rain eventually gets organized into streams and rivers.

Self-organizing systems set up patterns. Such patterns are usually asymmetric. This means that we normally go along the main track without even noticing the side track. But, if-somehow-we get across to the side track, the route becomes obvious in hindsight. This is the basis of both humour and creativity.

This asymmetry and hindsight access gives rise to a very serious problem: every valuable, creative idea will always be logical in hindsight. If an idea were not logical in hindsight, then we would never be able to appreciate the value of the idea. The idea would remain valueless. So we are only able to appreciate those creative ideas that are indeed logical in hindsight. Then we go on to say-as we have been doing for 2,400 years-that if an idea is logical in hindsight, then better logic should have found it in the first place. So we try to teach more logic instead of taking creativity seriously.

It is quite true that in a passive information system, an idea that is logical in hindsight is also accessible to logic in foresight. But this is totally untrue in an active, self-organizing system.

That is why an understanding of the basic behaviour of patterning systems is necessary in order to understand serious creativity. Cutting across patterns is what I have called lateral thinking. This has nothing whatever to do with right-left brain thinking.

In any patterning system there is an absolute and logical need for something like lateral thinking in order to cut across patterns. But cutting across patterns is not natural behaviour for the brain. The purpose of the brain

is to establish and use routine patterns. That is why creativity is not a natural process in the brain. In fact, it goes against the natural process of following patterns.

What I have written here may seem theoretical, but it is a necessary base for the understanding of creativity (changes in perception and concepts). From this base we can derive specific tools which can be used deliberately.

Practical Lateral Thinking Techniques

The first difficulty is to get time and space for creative thinking. There are those who think that creativity is only for special brainstorming sessions. There are those who believe that creativity is not for them but for artists, designers and inventors. This is a dangerous and limiting attitude. Just as the ability to use the reverse shift is part of every driver's driving ability, the ability to use creative thinking should be part of every thinker's thinking skill. Creative thinking is definitely not limited to special people or special occasions. The logic of perception demands the ability to think creatively so anyone who has to do any thinking must develop this ability.

In order to make creative thinking part of ordinary thinking, I developed the Six Thinking Hats system. There are six metaphorical hats. The thinker can put one on or take one off to indicate the type of thinking that is being used. This putting on and taking off is essential. The hats must never be used to categorize individuals, even though their behavior may seem to invite this.

White Hat: This covers facts, figures, information, asking questions, and defining information needs and gaps. "I think we need some white hat thinking at this point..." means "Let's drop the arguments and proposals and look at the data base."

Red Hat: This covers intuition, feelings and emotions. The red hat allows the thinker to put forward an intuition without any need to justify it. "Putting on my red hat, I think this is a terrible proposal." Usually feelings and intuition can only be introduced into a discussion if they are supported by logic. Usually the feeling is genuine but the logic is spurious. The red hat gives full permission to a thinker to put forward his or her feelings on the subject at that moment.

Black Hat: This is the hat of judgment and caution. It is a most valuable hat and the one we need to use most of the time. The black hat is used to point out why a suggestion does not fit the facts, the available experience, the system in use, or the policy that is being followed. The black hat must always be logical.

Yellow Hat: This hat finds reasons why something will work and why it will offer benefits. It can be used in looking forward to the results of some proposed action. It can also be used to find something of value in what has already happened.

Green Hat: This is the hat of creativity, alternatives, proposals, what is interesting, provocations, and changes.

Blue Hat: This is the overview or process control hat. It looks not at the subject itself but at the thinking about the subject. "Putting on my blue hat, I feel we should do some more green hat thinking at this point." In technical terms, the blue hat is concerned with meta-cognition.

An individual can ask another individual to put on or take off a particular color of hat. For example, if someone is being very negative about an idea, the other person might say: "That is great black hat thinking, now let's try some yellow hat thinking." In this way a switch is made immediately and without offense.

An individual can express his or her thoughts under the protection of one or the other hats. For example, someone might say: "Wearing my red hat, I think that idea is exciting. I cannot tell you exactly why, but I have that feeling about it." Someone else might preface a negative input by declaring that some black hat thinking is needed.

An individual can ask a whole group to adopt a hat for a limited period of time. For example, at a meeting someone might suggest: "What we need here is three minutes of green hat thinking."

I am not suggesting that in every moment in thinking there is a need to wear one of the hats. The hats provide an opportunity to switch thinking. In the course of an ordinary discussion someone might say: "Let's have three minutes of black hat thinking here." At the end of the three minutes, the discussion would resume as before.

Sometimes it is possible to put together a formal sequence of hats in order to think productively about some matter. The actual order of the sequence will vary with the situation. For example, with a new matter, the sequence might be: white (to get information); green (for ideas and proposals); yellow followed by black on each alternative (to evaluate the alternatives); red (to assess feelings at this point); followed by blue (to decide what thinking to do next). On the other hand, in discussing a well known proposal, the sequence might run: red, yellow, black, green (to overcome the negative points), white, and then blue.

The Six Hats System is not directly a creative technique, but it makes time and space for creativity. Many people ask me how they can introduce creativity at a particular level if the whole corporate culture does not encourage creativity. The Six Thinking Hats system is a specific way of doing this. Once creativity is there as an expectation and a demand, people will notice that they are not very good at it-and may try to get better.

The Logic of Provocation

In humor the storyteller suddenly places us on the side track and immediately we can see our way back to the starting point. In humor the punchline serves as the bridge between the main track and the side track. With lateral thinking, however, there is no storyteller to make the jump for us. So we have to devise a practical means for cutting across the tracks. We can do this by using a combination of provocation and movement.

I invented the word "PO" which stands for a provocation operation. It signals that what follows is to be used directly as a provocation (that is to say, used for its movement value). A PO provides the some sort of value that has been provided historically by accident, mistake, eccentricity, or individual bold- mindedness. The PO (provocation) serves to take us out of the comfort of an existing pattern.

Provocations in Action

I once asked a group of youngsters how they might estimate the height of a tall building that stood near some open ground. They offered several sensible alternatives: ask the caretaker, who might know the height; lower a weighted string and then measure the string; measure the height of one floor and multiply the number of floors in the building; time the drop of a stone and estimate the height by formula; pace out fifty yards, measure the angle to sight the top of the building, and use trigonometry. One youngster wanted to be facetious and suggested that the simplest way was to put the building on its side and then to pace out the

length. The idea of placing the building on its side was intended as a silly idea. But if we choose to treat it as a provocation (PO), we can get some practical ideas from it.

We can physically try to place the building on its side. We can do this in a photograph by cutting the building out of a photograph and placing it on its side. But before taking the photograph, we place a large cardboard box twenty yards from the base of the building. In the photograph the distance of the box from the base of the building will represent twenty yards, so by proportionality, we can easily work out the length (height) of the building. Another way is to put a model of the building on its side. This can be done by holding up a stick so that the top end of the stick is aligned with the top of the building and the bottom end with the base of the building. The bottom end of the stick is kept on the base of the building and the top of the stick is now turned ninety degrees so it is horizontal. A note is made of where the top of the stick hits the ground. The distance between this point and the actual base of the building can be paced out to give the height of the building. Yet another approach is to say that perhaps the building is already on the ground-if there happens to be a shadow, you measure the length of your own shadow and compare this to your known height. Then you take this ratio and use it to multiply the length of the shadow of the building.

With this example the thinker chose to treat a silly idea as a PO. When lateral thinking is used as a deliberate tool, the thinker must be able to set up deliberate provocations (PO) and not just wait for them to appear. There are indeed formal ways to set up provocations. These include escape, reversal, exaggeration, distortion, and wishful thinking. Using such step-by-step methods, the lateral thinker can set up a provocation to provoke his or her own thinking. There is no need to wait for someone else to set up a provocation.

The PO that, "the factory should be downstream of itself," led to the idea of making the input downstream of the output in order to increase consciousness of pollution.

Movement is a crucial part of lateral thinking. Provocation without movement is useless. The apparently crazy idea is not an end point, but only the first stage. It is what happens next that really makes all the difference.

Movement is not just a suspension of judgment. Movement is an active mental process. There are steps that can be learned, practiced, and used. With judgment, we look at an idea and compare it to our experience. If the idea does not fit our experience, we reject it. With movement, we use the idea for its movement value to go for- ward to a new idea.

> **Movement is not just an intention or a positive attitude of the mind. There are five formal ways of getting movement:**

1. Extract a principle or feature and work forward from that.
2. Focus on the difference.
3. Look at the moment-to-moment effect of putting the idea into practice.
4. Focus on the positive aspects.
5. Figure under what circumstances there would be direct value.

It is an emphasis on the formal steps of movement and also the formal steps of setting up a provocation which are so different from traditional brainstorming.

Movement is not a technique but an operation. It is a mental operation that requires confidences and practice. The trick is to think slowly. What movement might we get from PO: 'cars should have square wheels'? Taking

the large surface in contact with the ground, we move forward to develop a concept of an inner tire and high pressure surrounded by an outer tire and at low pressure-to increase grip on the ground. With square wheels you would not need a hand broke when parking. This leads to a special set of wheels for braking on heavy goods vehicles. These wheels would not normally touch the ground, but would touch down when strong braking was required.

If we imagine a square wheel rolling (moment to moment) we see that it rises on the point of the square. This would lead to a bumpy ride unless the suspension got shorter at the same time. This leads to the idea of an active suspension which actually lifts the wheels over bumps. This type of suspension is about to become a reality in the auto world.

I am not suggesting that movement is easy. It requires a lot of careful practice and coaching. But deliberate steps can be used.

The random word is the simplest of all creative techniques. It is so very simple that it is hard to believe that it works. I first suggested it many years ago and various people have borrowed the process since then.

You have a need for a new idea relating to some situation. You simply introduce a random word. How? Pick a slip of paper out of a pile of slips on each of which there is a word. Or, think of a page number in a dictionary and then think of a position of the word on that page (say, page 1 27, tenth word down); continue to the first noun which will then be your random word.

Let's look at a sample. The subject was cigarette. The random word was traffic light. From that quickly came the suggestion of putting a red band around cigarettes so that the smoker had a decision zone. If he or she stopped at the red band, then the smoker was gaining control over his or her smoking habit.

How can such a simple technique work? At first it seems absurd. By definition, a random word is unconnected to any subject and so any word would work for any subject. In a passive information system, this would be total nonsense. But in an active (patterning) system, the random word provides a new entry point. As we work back from the new entry point, we increase the chances of using patterns we would never have used if we had worked outward from the subject area. This is why we need to understand something about the information handling system of the brain before trying to devise better thinking techniques.

Beneficial Effects

What sort of effects would one expect from training in creative thinking? The 1984 Olympic Games in Los Angeles were a great success. So much so that the organizer, Peter Ueberroth, was chosen as the Time magazine "Man of the Year." In an interview in the Washington Post (September 30, 1984) he was asked how he had generated the new ideas needed to make the games a success. The whole interview is about his use of lateral thinking. He had learned these techniques in 1975 at a one-hour seminar I had given to the Young President's Organization in Boca Raton, Florida. It is not often that a short lesson has such a powerful effect nine years later. This sort of effect is possible because the techniques are simple to learn, practice, and remember. They can be used deliberately when a new idea is needed.

In 1987, I did a lot of work for the industrial products division of DuPont. They subsequently bought several of my videos and sent people to a "train the trainers" session of mine. This is what David Tanner had to say about the effects: "At DuPont we have many good examples of how our technical people have applied Dr. de Bono's

lateral thinking techniques to successfully solve difficult problems. This has resulted in reduced operational costs and in accelerating movement of new products to the marketplace."

In general I have found three levels of effect:

1. A change in attitude toward creativity. A willingness to look for further alternatives, the acceptance of provocation, willingness to try and listen to green hot thinking, and willingness to re-examine things that have always been done one way.
2. Use of the label of lateral thinking. Willingness to point a finger at a specific focus and to ask for lateral thinking. Willingness to pause and see if there might not be a totally different approach. Tentative use of techniques-in particular the random word technique.
3. Fluent and deliberate use of lateral thinking techniques. Skill in setting up provocations using movement and organizing concepts with the concept fan.

At first, the specific techniques and even the six hats system seem strange and artificial-that is an important part of their value. Creative thinking is different from normal thinking. It is not just normal thinking that is more free. Once the methods are used, then the switch to the different mode of thinking takes place. Attitude then follows from the use of the methods.

It is not enough to be innocent and uninhibited and to have a creative attitude. The normal behavior of the brain in perception is to set up routine patterns and to follow these. In order to cut across patterns we can use deliberate techniques (provocation, movement, random entry). These techniques can be learned, practiced, and used deliberately. The Six Thinking Hats system is a convenient way of switching thinking, and particularly for making time and space for creative effort.