

## **The Need for Different Thinking**

We are creatures of habit. Each day we wake up on same side of the bed. We put on the same type of clothes we wore the previous day, we eat the same type of breakfast, we sit in the same car and we take the same route to work or school. When we get there we think in the same way as we thought the previous day. Most of our thinking is in the same groove – it is analytical, convergent, critical, left-brain thinking. This is our normal mode of operation and it is hard to appreciate just how severely we hamper ourselves by restricting our thinking in this way. There are many other ways of thinking and of expressing our thoughts.

We express our thinking in words. It seems so natural to say things, to use words, to write routine memos, emails and reports that we rarely stop to ask if there is a better way to do things. But a mathematician expresses himself with equations, an accountant with numbers, an artist with pictures, a composer with music, an architect with drawings, an engineer with models, a movie director with moving images, a public speaker with oratory and stories. Why do we so rarely borrow any of their forms of expression?

In this book we will explore different kinds of thinking and other approaches to some of the mental challenges we face. Let's start with convergent and divergent thinking. Convergent thinking is our normal state. When we hear a suggestion our instincts are to examine it, criticise it and analyse its consequences with particular emphasis on what might be wrong with it. We are trained at school and university to summarise, scrutinize and evaluate the works of authors, historians, and scientists. It is easy and natural for us to focus in on a notion and examine it critically from various viewpoints. We bring our own assumptions and mind-set to bear and put the new idea into the framework of the world as we see it.

Divergent thinking, on the other hand, involves moving away from the core subject in a spread of directions. When we use divergent thinking we can generate all sorts of ideas that are not obviously connected with the original challenge or concept. We stretch the boundaries and let our imagination generate many different possibilities – including wild or unsound ideas. It is the counterpoint to convergent thinking where we focus sharply on one target and narrow down our options to arrive at a chosen solution.

Furthermore we have a very disturbing tendency to only see and gather evidence that supports only our existing beliefs and to reject or ignore evidence that conflicts with our beliefs. This was demonstrated in a famous psychology experiment by Peter Wason at the University of London. He showed undergraduate students a sequence of three numbers - 2, 4, 6 and said that they conformed to a rule that he had chosen. The student's task was to deduce what the rule was by trying sets of three numbers. For each try, Wason would tell them whether it conformed to the rule or not. They

could try a few times and then attempt to guess the rule. In almost every case the student would try a similar set of numbers – say 6, 8, 10. Watson would advise that this met the rule and the student would guess that the rule was that the numbers had to increase by 2. This was incorrect. The student would then try another set of numbers – say 3, 6, 9. Again Watson would say that this conformed to the rule. The student would then say the rule is  $1x, 2x, 3x$ . This was again incorrect and so it would go on. The students were fixated by finding a regular pattern of incremental numbers and always tried a set of numbers which met their anticipated rule. In fact the rule that Watson used was that the three numbers must increase in value – so 3, 29, 311 would be fine as would 978, 979, 67834. If you try this exercise with people you will almost always find that they quickly assume what the rule is and then check it by suggesting three numbers that conform to their rule. They keep getting positive responses but cannot find the rule. It is extremely rare for a player to test their rule by deliberately suggesting three numbers that would break it – e.g. 10, 10, 10.

This mentality reflects our view of the world. We have a set of beliefs and assumptions and we look for evidence that bolsters this mind-set. If we believe that all squirrels are grey then every time we see a grey squirrel it reinforces our conviction. But seeing another grey squirrel is a very poor test of the rule. What we should do is look to see if we can find a single squirrel that is not grey. That would disprove the rule and move our knowledge forward. The first reports that black swans had been seen in Australia were disbelieved in Europe – the evidence did not conform to the conventional view of the world so it was discounted.



Brilliant thinkers recognise that there are many different views of the world and that each is incomplete. Our current mind set frames how we view the world but we must be ready to admit that it is just one of many views; it may be a good system but it is partial and needs to be refreshed with new information. Sir Isaac Newton redefined our understanding of the world with his laws of gravity and motion. It was an excellent model and served Science well for centuries until Albert Einstein updated it

with his general theory of relativity. His view of the universe is constantly being examined and revised as new theories develop.

Einstein said, 'Imagination is more important than knowledge.' Divergent thinking allows us to use our imagination to explore all sorts of new possibilities. Convergent thinking allows us to use our knowledge to examine concepts and see where they fit. Unfortunately our natural tendency is to reject ideas if they are not aligned with our existing knowledge and belief systems.

Divergent thinking involves considering all sorts of points of view – including the unconventional, the unfashionable, the ridiculous and the outlandish. It is an essential skill which goes unpractised for many. There are times when we need the precision of convergent thinking and there are times when it is overly restrictive. The two main phases of a brainstorm meeting are good examples of how both methods can be employed in harmony. After the challenge has been defined, the group adopts a divergent thinking mode and generates a plethora of ideas. These will include many silly and unworkable notions but these are useful as stimulants to provoke further ideas. When a good list has been assembled the facilitator of the brainstorm will encourage the group to start using convergent thinking in order to evaluate the ideas and to select the best. It is vital that the two modes of thinking are used separately in each phase. If we mix convergent thinking with divergent thinking at the beginning then ideas are evaluated and criticised as soon as they emerge and the creative fountain will probably be extinguished.

The conventional thinker is normally stuck in convergent thinking mode but the brilliant thinker can use both these modes. There are times when we need to be analytical, calculating, critical and judgemental but if we use this approach too often then we become limited, constrained and even destructive in our thinking. We need to consider many possibilities, approach problems from different points of view, come at the problem laterally (literally from the side) if we are to be a brilliant thinker. We need to use divergent as well as convergent thinking. When Crick and Watson discovered the structure of DNA in Cambridge in 1953 they used divergent thinking to consider all sorts of possible patterns and arrangements. Then they used convergent thinking to narrow down to the one right answer – the double helix. When composers write an original piece of music they use divergent thinking to conceive innovative melodies and routes for the music to take. However, consciously or unconsciously, they use convergent thinking in structuring the piece with harmonies and chord sequences that are pleasing to the ear.

Convergent thinking is a useful tool but it should not be the only method in our mental toolbox. If we can add imagination and divergent thinking then we can become more creative and multiply the effectiveness of our thinking many times.

From

**How to be a Brilliant Thinker** by Paul Sloane

Published by Kogan Page

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