'The master of creative thinking'
Independent on Sunday

Think!

Before It's Too Late

EDWARD DE BONO

The internationally bestselling author of *Lateral Thinking* and *How to Have a Beautiful Mind*

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Vermilion
LONDON

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Author's Note

Apologies

There are a number of people whose names should be in this book. They have told me certain things, or done certain things, and I would like to acknowledge their contribution. Unfortunately I do not keep detailed records of all meetings and conversations. So I apologise to anyone who feels they should have been mentioned. Please write to me and indicate where and why your name should be included, and in the next edition of the book I shall see that your name is there.

In addition, if you have practical experience with my thinking in your own life or business, or in teaching the methods, and it is not included here, let me have details and, if appropriate, I will include them in the next edition.

Any omission of a name is unintentional and I apologise for it. I do want to give full credit to those who have helped me in my work.

Introduction

WHY DO WE NEED THIS BOOK?

This is not a nice book. It is not intended to be a nice book. You cannot shift complacency with niceness. We are completely complacent about the quality of our human thinking. We believe it to be wonderful for various reasons that I shall discuss later. We have done nothing about human thinking, outside of mathematics, for roughly 2,400 years, since the great Greek philosophers. I do not believe we should be so complacent. This book is about why human thinking is so poor. It also suggests what we can do about it. So it is a positive book even if the need for such a book is negative.

I come from the island of Malta, which is officially the oldest civilisation in the world. The earliest man-made structure on earth is a substantial Stone Age temple in Gozo (the sister island of Malta). So perhaps I have a mission to save the world from its complacency.

Think grey not green

It has become very fashionable to 'think green', and I am fully in favour of this. Climate change is a legitimate political theme, and any politician can express his or her concern with this matter and get votes as a result. This is excellent.

But there is a bigger and more urgent danger than climate change. That danger is the poor quality of human thinking. This requires even more urgent attention. Perhaps there should be an even more important slogan 'think grey'. The grey refers to our grey matter, or brains. Most of the problems, conflicts and fights in the world are caused by poor thinking. An improvement in human thinking would help solve such issues. If we get our thinking right then it becomes easier to solve not only environmental problems, but other problems too.

Consider the Israel / Palestine problem. Here we have some of the most intelligent people on the surface of the earth. For over 60 years they have been unable to solve their problem, and yet they know full well that it has to be solved some time. That is poor thinking.

Nothing is more fundamental or more important than human thinking. What about values? The purpose of thinking is to enable us to deliver and enjoy our values. Values without thinking are highly dangerous and have been responsible for the wars, pogroms, persecutions and appalling behaviour of the past. Thinking without values is pointless – for thinking then has no purpose.

Yet, amazingly, we have paid no attention to thinking for 2,400 years.

Emotion vs. thought

What about emotions? What about human behaviour? What about human nature?

There is a belief that thinking is academic and abstract and that what really drives action is human emotions and human behaviour. This is unfortunate nonsense that arises directly – and correctly – from our traditional methods of thinking, which have very little practical impact in conflict situations.

In the Karee platinum mine in South Africa there were seven tribes represented among the workers: Xhosa, Zulu, Sutu, and so on. As a consequence of the traditional hostilities between these tribes, developed over centuries, there were 210 fights every month between members of the various tribes. Susan Mackie and Donalda Dawson taught my perceptual thinking to these totally illiterate miners who had never been to school for even one day in their lives. They encouraged them to consider other people's points of view. The result was that the fights dropped from 210 a month to just four! Why had better thinking made this huge difference? Because this new thinking was concerned with perception – not logic.

Logic will never change emotions and behaviour. Trying to persuade people logically to change emotions is useless in practice, and most people have experienced this. It is

perceptions that control emotions and emotions control behaviour. Changes in perception will change emotions and therefore behaviour. If your perception changes, you have no choice: your emotions and behaviour change too.

THINKING SOFTWARE

Worldwide there are probably about 50,000 people writing software for computers. It is obvious that a computer cannot work without software. It is also obvious that new and more powerful software will allow the same computer to behave far more effectively.

How many people are writing software for the human brain?

The basic and traditional thinking software that we use was developed 2,400 years ago by the GG3. Who were the GG3? This was the Greek Gang of Three. They were Socrates, Plato and Aristotle.

Socrates was interested in asking questions (usually leading questions). He was also most interested in dialectic or argument.

Plato was interested in the ultimate 'truth' (he also considered democracy to be a silly system).

Aristotle created 'box logic'. Something was in this box or not and could never be half in and half out. Although he was married twice, he never asked either of his wives to open their mouths so he might count their teeth. He

knew that men had more teeth in their mouths than women because with horses this was so. Creatures in the category of males (like horses) have more teeth than those in the category female – this was Aristotle-type logic.

The Renaissance and the Church

At the Renaissance, this wonderful Greek thinking spread across Europe. At that time schools, universities and thinking in general were in the hands of the Church.

The Church did not need creative thinking, or design thinking, or perceptual thinking, all of which I will discuss later. What the Church did need was argument, truth and logic with which to prove heretics wrong.

So argument, truth and logic became the core of our thinking in culture, in education and in the operations of society (such as law).

Creativity and inventiveness were left to individuals but never became part of education.

Argument, truth and logic proved so excellentin science and technology that we came to consider this thinking as perfect, complete and beyond any need for change.

Why have we not done more about software for human thinking?

Bookshops have a hard time deciding where to place my books. They get placed under Philosophy, Psychology, Business, Education and even Humour. There is no category for 'Thinking'.

There is no category called 'Thinking' in bookshops because we have always believed that thinking was well looked after by philosophy and psychology.

Imagine someone sitting at a table with a large sheet of white cardboard in front of him and a pair of scissors. With the scissors he cuts the cardboard into intricate shapes. Then he carefully puts all the pieces together again and smiles in triumph.

Philosophers do this. They describe the world in concepts, perceptions and values and then put these pieces together again.

Psychology arose from folk tales, myths, magic and astrology as a way of understanding people and predicting behaviour. But psychology understood that in order to become a real science there was a need for measurement. Measurement was the opposite of myth. So psychology became obsessed with measurement. Today, psychology is much concerned with putting people into boxes on the basis of some measurement.

Both philosophy and psychology are descriptive and analytical in nature. They are not operational. They do not provide practical tools for thinking.

So there should be a category called 'Thinking' because this is separate from philosophy, psychology and even mathematics.

I find it rather sad that when students who are interested in human thinking enter university, they choose to study philosophy. This is not about human

thinking at all, and effectively sterilises their minds. I studied psychology at Oxford, but it was not an operational subject – it was just the history of psychology.

I am currently Da Vinci Professor of Thinking at the University of Advancing Technology in Arizona. I am also professor of thinking at four other universities. Very few universities have a Faculty of Thinking.

My interest in thinking has resulted in me designing practical operational tools and frameworks for thinking. These are now used by four-year-olds in school and by top executives at the world's largest corporations. Tools have to be simple, practical and effective. I am providing what philosophy and psychology have never provided. I am providing new software for human thinking.

The mechanism of mind

For the first time in human history we can base the design for human thinking on an understanding of how the human mind actually works.

I graduated as a medical doctor and worked in the field of medicine for 48 years. I was doing research in addition to clinical duties. I had teaching positions at the universities of Oxford, London, Cambridge and Harvard. I had also graduated separately in Psychology.

In medicine I was doing research into the interaction of various systems: respiratory, kidney, heart, glands, etc. If you can understand what is going on, you can design treatments.

I once had a patient with Idiopathic Postural Hypotension. This is a rare condition but, for those with it, these unfortunate people spent their whole lives lying flat in bed because, if they stood up, they fainted. Various approaches, including Air Force G-suits, had been tried without much success. I figured out that the arteriolar tone going to the kidneys was poor, so, when they lay down, the kidneys acted as if there was too much blood volume and got rid of the salt and water. So they never had enough blood – and collapsed.

The cure was very simple. No medication and no operations were needed. All that was required were two six-inch blocks of wood under the head of the bed – one on each side. The kidneys now acted as if there was *not enough blood* so they held on to the salt and water. The patients were now able to live a 100 per cent normal life.

If you understand the system you can design appropriate action. That is what I did.

From my work in medicine I derived certain principles of 'self-organising systems'. I applied these principles to the neural network in the brain in order to understand how the mind worked.

In 1969 I wrote a book with the title *The Mechanism of Mind*. This book was read by the leading physicist in the world, Professor Murray Gell-Mann, who won his Nobel prize for discovering the quark. He also founded the Santa Fe Institute, which deals specifically with complex systems. He liked my book so much that he commissioned

a team of computer experts to simulate what I had written in the book. They confirmed that the system I suggested for the brain behaved exactly as I had predicted. Two other computer teams, elsewhere in the world, have also confirmed this.

Professor Murray Gell-Mann has remained to this day a valued supporter of my ideas. It is interesting that when I am addressing groups of mathematicians or physicists, they fully understand and agree with what I am saying. They can understand the behaviour of self-organising systems like the human mind. All this is very far from the word games of traditional philosophy.

From this basis of understanding how the brain works I designed the formal and deliberate tools of Lateral Thinking. Later in this book I shall elaborate further on how the brain works.

I shall also show how the asymmetric patterning behaviour of the human brain gives rise to both creativity and humour.

For the first time in the history of the human race, we can relate ways of thinking, or software for the human brain, to how the information system of the brain actually works. This is very, very different from philosophers playing around with words and concepts but with no understanding of how the brain actually works. That is the difference.

WE HAVE SUCH EXCELLENT THINKING!

Is our thinking all bad? No! We have such excellent thinking, how can there be any suggestion that our thinking is inadequate?

Look at some successes:

- We can land men on the moon and watch them walk around in real time (Buzz Aldrin is actually a friend of mine).
- We can fly faster than the speed of sound (Concorde).
- We can pick up a mobile phone in Australia and get to talk to a particular person in the USA.
- We have computers, from the simplest to the most complex.
- We have devised the Internet, which connects up millions of people around the world.
- We have nuclear energy.
- Global television can send pictures and live stories around the world.
- We can transplant a human heart.
- In the past, pneumonia was often fatal. Today it is a minor ailment treated with a short course of antibiotics.
- Tuberculosis was a major cause of death less than a century ago. Today it has virtually been eliminated in developed countries.
- We can alter the very genes themselves of plants, animals and humans.
- We can clone animals (and soon people).
- We can store a huge amount of data on a tiny microchip.

These are but a small sample of our wonderful achievements. They are the results of excellent thinking.

Different

A scientist holds a piece of iron in his hands. The properties of iron are known, permanent, constant. He puts the iron together with something else and the result is technology.

You call someone an idiot. Immediately that person is offended, changes and is no longer the same person you called an idiot. In human affairs there are interactive loops. Things do not remain the same. Human affairs are unpredictable.

Then there is the huge importance of perception in human affairs. Perception is far more important than logic, but has been totally neglected.

So, unfortunately, our excellent thinking in scientific and technical matters does not carry over to other areas. But our pride in our thinking does carry over – with the unfortunate result of complacency.

Excellent – but not enough

We are very complacent and satisfied with the excellence of our thinking because we have produced great achievements in science, technology and engineering (space, mobile phones, medicines, etc.). Yet in other, more human, areas, we have made no progress at all. We still seek to solve conflicts with 'judgement' instead of designing the way forwards.

There is a chef who cooks an excellent omelette. It is the best omelette in the world. It cannot be faulted. The chef is no good at cooking anything else. Here we have excellence, but it is not enough.

The rear left wheel of a particular motor car is excellent. It cannot be faulted or attacked on any grounds. But that wheel by itself is not enough. If you believed that all you needed on a car was one wheel, there would be something wrong with your thinking – not with that rear left wheel. We also need the other wheels. The rear left wheel is excellent – but it is not enough.

An educated man speaks English flawlessly. But when he is in France, he finds that although his excellent English is still excellent, it is not enough.

I believe that our existing thinking methods are excellent when applied to certain areas, and inadequate (and even useless) in other areas.

If the English-speaking person in France speaks more loudly and more forcibly, this does not make him better understood. Insistence on traditional thinking does not make it more adequate.

If a diner wants something other than an omelette, the fact that the chef can create a perfect omelette is excellent but will not work for that diner.

These thinking methods are excellent, but not enough. I believe that our thinking culture, methods and habits are excellent. Like the rear left wheel they are excellent in themselves. But they are not enough. We need to supple-

ment them with creative thinking, design thinking and perceptual thinking (among other things). Unfortunately, our existing traditional thinking habits insist that you must attack something and show it to be bad before you can suggest a change. It is much more difficult to acknowledge that something is excellent and then to ask for change because although it is excellent, it is not enough.

MY THINKING

Throughout this book I shall use the term 'my thinking' to refer to any of the thinking methods and software that I have designed. This is simpler than spelling out in each case the particular method that is in use. To use just the word 'thinking' would be misleading, because it might be understood as referring to traditional thinking, critical thinking, and so on. The term 'my thinking' refers directly to the new thinking methods I have designed.

Many readers will know of my work in lateral thinking and may assume that all references are to this method. This is not the case. There are several other methods. There is the exploratory method of the Six Hats and parallel thinking (instead of argument). There is the perceptual thinking of the CoRT (Cognitive Research Trust) method designed for schools (some of the basic tools of which are designed in more detail later in Chapter 10). There are also programmes for simplicity

and value scanning. All these methods and more come under the term 'my thinking'.

There are times when my thinking is totally different from, and even contrary to, traditional logic (for example, with provocation). In general, however, I have no quarrel with traditional thinking. I merely think it is incomplete and inadequate in some areas. I would like to see my methods used to supplement traditional thinking – not to replace it.

How new thinking has worked

Over the last 40 years I have worked in 73 countries. These have been mainly seminars and lectures with some conferences and meetings.

I have taught thinking to four-year-olds and 90-year-olds (Roosevelt University has a special programme for seniors). I have taught thinking to top business executives and illiterate miners. I have taught thinking to Down's Syndrome youngsters and to Nobel Laureates. I once lectured to 8,000 Mormons in Salt Lake City. In Christchurch, New Zealand, I lectured for 90 minutes to 7,400 children (aged six to 12) who had been brought together by mayoress Vicki Buck.

Over the years I have been invited to talk to a large number of business corporations including BA, BAA, Bank of America, Barclays, BP, Citicorp, Ericsson, Exxon, Ford, GM, IBM, Kuwait Oil, Microsoft, Motorola, Nokia, Philips, Shell, UBS and many others. I have also been

- As a student, Ashok Chouhan was travelling from India to Europe. He had three dollars in his pocket. His plane was diverted to Paris. He had some time at the airport and went into the bookshop. He bought a copy of my first book (in English). At an evening lecture I was giving in Delhi, he told me he kept this book in his briefcase for 30 years. Today he has $3 billion in his pocket; he founded Amity University in India; and he was, at one time, the largest investor in East Germany. He believes that 80 per cent of his success was triggered by that book.

- I was once giving a seminar in Barcelona. After the seminar a man from the island of Tenerife came up to me. He told me that when he was younger he had not been any good at school subjects. Then he read one of my books – I do not know which one. Today he owns seven companies in Holland and Spain.

- The Olympic Games in Montreal in 1976 lost a great deal of money (perhaps $1 billion). After Montreal, no city in the world wanted to host the games. Eventually, Moscow agreed to host the games in 1980. After Moscow, again no city wanted the games. Finally Los Angeles agreed to host the games. Instead of a loss, they made a profit of $250 million. As a result of this, today every city wants the games and competes to get them (there have even been allegations of bribery

where cities are desperate). When Peter Ueberroth, the organiser of the LA games, was interviewed in the *Washington Post*, he attributed his success to his ability to generate new ideas through the use of my lateral thinking and he gave examples. I wrote and asked him where he had learned this. He reminded me that he had been my host in 1975 at a 90-minute lecture I had given to the YPO (Young Presidents Organisation) in Boca Raton, Florida. From that 90 minutes he had remembered enough to use the processes effectively nine years later.

- I was on the Innovations Council of the State of Victoria in Australia. After a meeting of the council, Professor Doherty came up to me to tell me how he had read my first book. This had changed his thinking and, as a result, he won the Nobel Prize.

- The Atkey organisation is an independent organisation that, for several years, has been introducing my work into schools in the United Kingdom and doing research. They have shown that teaching my thinking as a separate subject increases performance in every other subject by between 30 and 100 per cent.

- A town council that had been taught my methods by Vicki Cavins reported that in the first year they had saved $84 million on a single project.

- Unemployed youngsters on the New Deal scheme in the United Kingdom were taught my thinking for just five hours by the Holst Group. The employment rate among those taught increased 500 per cent. A year later, 96 per cent of those were still in employment. This was more successful than anything that had been done before.

- In Australia, Jennifer O'Sullivan was in charge of two job clubs, which were made up of groups of unemployed youngsters. The normal rate of employment out of such clubs was 40 per cent. She taught them my thinking and she got 70 per cent employment out of one club and 100 per cent out of the other. And every one of her youngsters was completely deaf.

- I have been told that Siemens (the largest corporation in Europe) has reduced product development time by 50 per cent by using my thinking.

There are many such examples. I have written these things to show that there has been a lot of experience with these methods. They are easy to teach, easy to use and very practical. If nothing else, the books I have written reassure people that their unusual thinking is perfectly valid.

Some people seem more curious than others. Some people seem to enjoy creativity and new ideas more than others.

This does not mean that those who do not have this temperament cannot be creative. They can learn the deliberate skills of lateral thinking just as they might learn the basic skills of mathematics. Everyone can learn to add up numbers and multiply them.

The argument that creativity cannot be taught is usually based on pointing to extreme cases of creativity and talent, such as Einstein, Michelangelo, Bjorn Borg. But imagine a row of people lined up to run a race. The starting signal is given and the race is run. Someone comes first and someone comes last. Their performance depended on their natural running ability.

Now if all the runners have some training on roller skates, they all finish the race much faster than before. However, someone still comes first and someone still comes last.

So if we do nothing about creativity then obviously creative ability depends only on 'natural' talent. But if we provide training, structures and systematic techniques, then we raise the general level of creative ability. Some people will be much better than others but everyone will acquire some creative skill.

Then how is this skill to be acquired? Exhortation and example do have some effect, but only a weak one. There is a need for specific mental tools, operations and habits,

in a garden, the chances of you proceeding another step down the path are much more likely than of you wandering off the path.

How the brain forms patterns is described in my book *The Mechanism of Mind*.

We can even represent a pattern by that path. At each moment we are more likely to take the next step in one direction than move down the path in any other direction. Under given circumstances a certain 'state' in the brain is more likely to be followed by one particular other state than by any other.

Asymmetry

Patterning systems tend to be asymmetric, though.

As above, we can represent a pattern by a path, since at every next step the highest probability is to move along the path rather than stop and consider every side track. Point A is at the beginning of the path towards point B; point C is at the end of a side track. All this means is that the route from A to C is not the same as the route from C to A. You can go from A to C (you follow the usual routine or path towards B and in a roundabout way you come round to the other end of the side track, i.e. C) whereas, if you were to enter the side track from another point at point C, route C to A is very straightforward (you go straight down the side track to the main path or route).

I prefer to use six. That leaves one unused category should experience indicate that there is a real need for another category. It has not done this so far.

20 The Right to Think

As far as I know, and subject to correction, I believe that 'the right to think' is not spelled out in the UN Declaration of Human Rights.

There are several possible explanations for this. There is no specific right to walk, to talk, to eat or to breathe. So it is assumed that thinking is a natural function and there is no need to spell out any specific right to do so. This is a very bad mistake. At a primitive, animal level, there is some natural thinking, but that is very simple and crude. It consists mainly of recognising situations and applying the right routine.

Another possible explanation is that it is assumed that thinking comes naturally under the heading of 'education'. This is another bad mistake. The thinking taught in education, at best, is about judgement, analysis and debate. This is only a small part of thinking. To be sure, there are some schools and even countries where thinking is now taught explicitly, but they are few.

INSTRUCTION

You might have the right to play tennis or to play the piano, but unless someone teaches you how to do it, that right is meaningless. Everyone knows that children need to be taught how to read and write. It would never be enough to say, 'You have the right to read and write – now get on with it!'

Of course, it will be argued that if 'instruction in thinking' is mentioned, then totalitarian regimes will instruct youngsters how to think according to the rules of that regime. This is not to be encouraged. Yet we have to realise that all religions have done this since their inception.

It is no more difficult to teach thinking in a neutral manner than it is to teach mathematics. Around the world there are various regimes of different political natures that are happily teaching my thinking in their schools. This is the case in Christian countries, Islamic countries, Buddhist countries and in the old days of Communist countries. Thinking is a skill, like mathematics, and is not political.

PERMISSION TO THINK

In the Republic of Ireland, Jim O'Sullivan decided to teach my thinking to his employees at an electronics company. They saved so much money that he could afford to pay them more. At one point some people from the shop floor

designed a new computer keyboard in which they subsequently invested $5 million – and it was a sales success.

I have told elsewhere the story of the Argentinian who ran a textile company. He gave his staff 'permission to think' and instruction on how to do it. At that time the company was half the size of its nearest competitor. Today, a few years later, the company is 10 times the size of that competitor.

There is a huge human resource potential in employees if they are given permission to think – and some simple instruction on how to do it.

ABSURD

It is an absurd and antique attitude to believe that thinking is natural and therefore needs no instruction.

It is an absurd and antique attitude to believe that normal education teaches sufficient thinking.

There is a real need to teach thinking deliberately and directly as a separate subject in education (both schools and universities). This means thinking in its fullest sense, not just logic and argument. Judgement is an essential part of thinking, just as the rear left wheel is an essential part of a motor car – but it is not sufficient: excellent, but not enough!

How is it that we have progressed so far without this realisation?