

1 *Teach Yourself to Think*

Summaries

2 (by [Edward de Bono](#))

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52 **Why ... Because ... What about feelings and values**

53 ***Why?***

54 I breathe.

55 I walk.

56 I talk.

57 I think.

58 I do not have to think about these things, so why should I think about thinking?

59 Thinking is natural.

60 You pick it up as you go along.

61 Intelligent people can think without having to learn to think.

62 Other people cannot think no matter what they do.

63 What is wrong with that view?

64 ***Because...***

65 Because thinking is the most fundamental human skill.

66 Because your skill in thinking will determine your happiness and your success in life.

67 Because you need thinking to make plans, take initiatives, solve problems, open up opportunities and design your way forward.

68 Because without the ability to think you are like a cork floating along on a stream with no control over its destiny.

69 Because thinking is fun and enjoyable – if you learn how to make it so.

- 70 Because thinking and intelligence are quite separate.
- 71 Intelligence is like the horsepower of a car.
- 72 Thinking is like the skill of the car driver.
- 73 Many highly intelligent people are poor thinkers and get caught in the 'intelligence trap'.
- 74 Many less intelligent people have developed a high degree of skill in thinking.
- 75 Because thinking is a skill that can be learned, practiced and developed.
- 76 But you have to want to develop that skill.
- 77 You need to learn how to ride a bicycle or drive a car.
- 78 Because traditional education at school and university only teach one aspect of thinking.

79 ***What about feelings and values?***

- 80 You may believe that feelings and values are the most important things in life. ...
- 81 You are right. ...
- 82 That is why thinking is so very important. ...
- 83 The purpose of thinking is to deliver to you the values you seek just as the purpose of a bicycle is to get you to where you want to go.
- 84 A bicycle uses less energy; gets you there faster and allows you to go much further.

- 85 So thinking allows you to enjoy your values more effectively. ...
- 86 You are locked in a room.
- 87 You desperately want to get out.
- 88 You want freedom.
- 89 Your feelings are very strong.
- 90 Which is the more useful, this very strong feeling or a key to the lock? ...
- 91 Feelings without the means to carry them out are not much good.
- 92 At the same time, the key without the desire to leave the room is also not much good. ...
- 93 We need values, feelings and thinking.
- 94 Feeling is no substitute for thinking.
- 95 Thinking without values is aimless. ...
- 96 This book is about thinking.
- 97 Values and feelings are equally important but insufficient without thinking.

98 Foreword

99 *A Simple Approach*

- 100 In writing this book I had to choose between writing a complicated and comprehensive book which would cover all aspects of thinking and writing a much simpler and more accessible book.
- 101 In the end, the decision was made by the title of the book: Teach Yourself to Think.
- 102 This was to be a book for anyone who was interested in further developing his or her skill in thinking.
- 103 Few people would be interested in picking up or reading through a complicated book.
- 104 So I have chosen to keep it simple and practical. ...
- 105 I know from experience that some commentators are terribly upset by simplicity.
- 106 Such people feel that something simple cannot be serious.
- 107 Such people are also frightened of simplicity because it threatens the complexity which it is their job to explain.
- 108 If something is indeed simple then they are without a job. ...
- 109 My preference has always been for simplicity.
- 110 I have always sought to make things as simple as possible.
- 111 That is why the thinking 'tools' that I designed have been taught equally to six-year-olds in rural black schools in South Africa and to the top executives of the world's largest corporations. ...

112 The very widely used Six Thinking Hats framework is very simple in principle but very powerful in use.

113 The framework provides a practical alternative to the traditional argument system that has been in use for 2,500 years.

114 That is why this framework is now being taken up both in education and in business and government areas. ...

115 The L-Game was invented as a result of a challenge by a famous Cambridge mathematician, Professor Littlewood, to invent a game in which each player had only one playing piece.

116 The game has now been analyzed on computer and is a 'real game' (no winning strategy which the first player could use).

117 I recently invented an even simpler game, The Three-spot Game. ...

118 Above all, simplicity is easy to learn and to use. ...

119 ***Who will be the readers of this book?***

120 Over the years I have written many books on thinking and it is impossible to predict who the readers will be.

121 The letters I have received suggest that the readers range very widely indeed.

122 The common thread is motivation and an interest in thinking.

123 I believe that the mass media (TV, radio and press) seriously underestimate the intelligence of the mass

market and believe that this market only wants fun and moment-to-moment distraction.

124 That has not been my experience.

125 ***There are people who are very
complacent about their thinking.***

126 Such people believe they have nothing to learn.

127 They usually win arguments and believe there is nothing further to thinking than having and defending a point of view; ...

128 There are people who are highly intelligent and do not make mistakes in their thinking.

129 They believe that intelligence is enough and that thinking without mistakes is good thinking. ...

130 There are people who have given up on thinking.

131 They have not done particularly well at school and they are no good at solving 'puzzles'.

132 So they come to believe that thinking is not for them.

133 They are content to get by, day to day, as best they can. ...

134 Complacency is the enemy of all progress.

135 So is resignation.

136 If you believe you are perfect, then you make no effort to get better.

137 If you have given up, you also make no effort. ...

- 138 This book is directed at those who feel that thinking is an everyday, practical, messy and confusing matter.
- 139 They want to improve their thinking in order to make it simpler and more effective.
- 140 They want to have thinking as a skill which they can direct to any matter they choose.

141 Some Basic Processes in Thinking

142 It is useful to have an overview of some of the most basic processes in thinking before we look in detail at each of the five stages.

143 These processes come in at every stage so it is useful to have a preview of them here.

144 The basic processes that are going to be considered here are:

145 1. Broad/specific

146 2. Projection

147 3. Attention directing

148 4. Recognition

149 5. Movement.

150 I am aware that these matters can be looked at in many ways.

151 Each of these broad areas could be subdivided and each subdivision could claim to be a basic process in its own right.

152 For the sake of simplicity I have made the above choice.

153 ***Broad/Specific, General/Detail***

154 Imagine a short-sighted person seeing a cat for the first time.

155 There is a blurry image and the person sees 'a sort of animal'.

156 As the cat gets nearer the details gradually emerge and now the person gets a true picture of a cat. ...

157 Imagine two hawks.

158 One of them has excellent eyesight but the other is short-sighted.

159 Both of them live on a diet of frogs, mice and lizards.

160 From a great height the hawk with excellent eyesight can see and recognize a frog.

161 It dives and eats the frog.

162 Because this hawk has such excellent eyesight it can live on a diet of frogs and soon forgets about mice and lizards. ...

163 The hawk with poor eyesight cannot do this.

164 This hawk has to create a general concept of 'small things that move'.

165 Whenever it sees a small thing that moves the hawk dives.

166 Sometimes it gets a frog, sometimes a mouse, sometimes a lizard and occasionally a child's toy. ...

- 167 Most people would immediately regard the hawk with superior eyesight as a superior hawk.
- 168 In some ways they would be wrong.
- 169 If frogs died out the first hawk would also die but the second hawk would carry on with very little disturbance.
- 170 This is because the poor-eyesight hawk has flexibility.
- 171 This flexibility arise' from the creation of the general, broad and blurry concept of 'small things that move'. ...
- 172 Some electronic students were given a simple circuit to complete.
- 173 Ninety-seven per cent of them complained that they did not have enough wire to complete the circuit ...
- 174 Only 3 per cent completed the circuit.
- 175 The 97 per cent wanted 'wire' and since there was no wire they could not complete the task.
- 176 The 3 per cent had a broad, general, blurry concept of 'a connector'.
- 177 Since wire was not available they looked around for another type of connector.
- 178 They used the screwdriver itself to complete the circuit. ...
- 179 Most of the advantages of the human brain as a thinking machine arise from its defects as an information machine.
- 180 Because the brain does not immediately form exact, detailed images we have a stock of broad, general and blurry images which become concepts.

- 181 These broad, general and blurry images are immensely useful in thinking. ...
- 182 Consider the difference between the following two requests:
- 183 • 'I want some glue to stick these two pieces of wood together.'
- 184 • 'I want some way of sticking these two pieces of wood together.' ...
- 185 The first is very specific.
- 186 If glue is not available then the task cannot be done.
- 187 It may also be that glue is not the best way of sticking the pieces together on this occasion. ...
- 188 The second request includes many alternative ways of sticking the two pieces of wood together: glue, nails, screws, clamps, rope, joints, etc.
- 189 This both allows for flexibility if glue is not available and also allows consideration of the other options. ...
- 190 Good thinkers have this great ability to keep moving from the detail back to the general, from the specific to the broad and then back again. ...
- 191 When we look for a solution to a problem we often have to consider it in very broad terms first. ...

192 'We need some way of fixing this to a wall.' ...

193 Then we proceed to narrow down the broad to something specific. ...

194 In the end we can only 'do' specific things.

195 But the broad, blurry concepts allow us to search more widely, to be more flexible and to evaluate options. ...

196 This ability to move from the detail to the general is sometimes called abstraction – a term that is more confusing than helpful. ...

197 As we go through the five stages of thinking you will see the frequent changes from the broad to the specific and back again. ...

198 In thinking we are always urged to be precise.

199 This is one area where you are encouraged to be broad and blurry.

200 Of course, you have to be 'blurry' in roughly the right direction.

201 If you are looking for 'some way to fix something to the wall' it is not much use looking for 'some way to fry an egg'.

202 **Projection**

203 Imagine that you have a video player in your mind.

204 You press the button and you see played out in your mind a particular scene.

205 • Projection means running something forward in your mind.

206 • Projection means imaginings

207 • Projection means visualizing.

208 We can see things in the world around us.

209 Projection means looking inwards into our minds and seeing things there. ...

210 A car is painted white on one side and black on the other side.

211 Imagine what would happen if that car was involved in an accident.

212 In our mind's eye we can see witnesses in court contradicting each other: one declaring the car to be black and another declaring it to be white.

213 Most humor involves projection.

214 We need to imagine the scene. ...

215 Projection is a very basic part of thinking because we cannot check out everything in the real world.

216 So we have to 'see what would happen' and to check things out in our minds.

217 We may be wrong and we may not get a very clear picture but at least we can get some indication. ...

- 218 'What would happen if all public transport were to be free?' ...
- 219 Someone will imagine the benefits to poorer people.
- 220 Someone will imagine the overcrowding.
- 221 Someone will imagine the benefits to in-town shops.
- 222 Someone may even imagine the cost being put on everyone's taxes. ...
- 223 'What would happen if a block of ice floating in a glass of water melted?
- 224 Would the level of water in the glass go up, go down or remain the same?' ...
- 225 You would need some understanding of physics to answer that question.
- 226 Our imagination is limited by our knowledge and experience but we have to use it as best we can. ...
- 227 'What would it look like if we removed that circle and replaced it with a triangle?' ...
- 228 A designer always has to project and visualize what would happen if something were to be done. ...
- 229 The famous thought experiments used by Einstein depend on projection.

- 230 In a thought experiment you run the experiment in your mind and see what happens.
- 231 You may reach a point when you have to say to yourself that you do not know what would happen.
- 232 This now becomes a point for further thinking or for carrying out an experiment. ...
- 233 In some cases thinking is indeed carried out with figures and mathematical symbols on paper.
- 234 We may even play around with words.
- 235 But most thinking takes place within our minds, using our ability to 'project'. ...
- 236 What you project in your mind is not always right.
- 237 You may have left out something very important.
- 238 You may have insufficient knowledge or experience of the subject.
- 239 You should never be arrogant or dogmatic—about your 'projections'.
- 240 Be willing to accept that they may be wrong or limited.

241 *Attention Directing*

242 ▪ What time is it?

243 ▪ 'How old are you?

244 ▪ 'Did you like the soup?

245 ▪ 'Do you want some more coffee?

246 ▪ 'What is the current exchange rate between the US
 dollar and the Japanese yen?

247 ▪ 'At what temperature does this plastic melt?

248 All questions are attention-directing devices.

249 We could easily drop out 'questions' and instead ask
 people to direct their attention to specified matters.

250 ▪ 'Direct your attention to the time.'

251 ▪ 'Tell me the time.'

252 ▪ 'Direct your attention to your age and tell me what
 you find.'

253 ▪ 'Direct your attention to the melting-point of this
 plastic and tell me what you know.':

254 An explorer returns from an expedition to a newly
 discovered island.

255 The explorer reports on a smoking volcano and a bird that
 could not fly.

256 But what else was there?

257 The explorer explains that those were the two things that
 caught his attention.

258 That was not good enough.

259 So the explorer was sent back with specific instructions to
 use a very simple attention-directing framework.

260 'Look north and note what you see.

261 Then look east and note what you see.

262 Then look south and note what you see.

263 Then look west and note what you see.

264 Now come back and give us your notebook.'

265 The N-S-E-W instructions provided a very simple framework for directing attention.

266 Our attention usually flows in three ways:

- 267 1. What catches our interest or emotional involvement at the moment.
- 268 2. Habits of attention established through experience and practice.
- 269 3. A more or less haphazard drift from one point to another.

270 A great many of the deliberate processes of thinking involve a specific direction of attention.

271 Socratic questioning (Drucker) is just such a direction of attention.

272 There is nothing magical about it. ...

273 The CoRT Thinking Program for schools (to be described later) includes a number of attention-directing tools.

274 For example the OPV tool asks the thinker to direct his or her attention to the views of the other people involved.

275 Some thinkers might have done this automatically.

276 Most do not.

277 So there is a need for a deliberate attention-directing tool.

278 The important process of analysis is an attention-directing instruction.

279 ▪ 'Direct your attention to the component parts making up this situation.'

280 ▪ 'Direct your attention to the different influences affecting the price of oil.'

281 ▪ 'Direct your attention to the various factors involved in the effectiveness of a police operation.'

282 ▪ 'Direct your attention to the parts making up a skateboard?'

283 ▪ 'Direct your attention to the ingredients of our current strategy.'

284 Comparison is another fundamental 'attention-directing instruction'.

285 ▪ 'Direct your attention to the points of similarity between these two proposals.'

286 ▪ 'Direct your attention to the points of similarity and the points of difference between the two pipes of packaging.'

287 ▪ 'Direct your attention to the relative advantages and disadvantages of these two routes to the seaside.'

288 ▪ 'Compare these two microwave ovens. Direct your attention to how they compare on price, capacity, reputation of maker, service, etc.'

289 For attention-directing we can use a deliberate external framework (as with the CoRT tools) or we can use simple internal instructions such as analyze and compare.

290 Another form of attention-directing is the request to focus on some aspect of a situation.

291 ▪ 'I want you to focus on the political effect of raising the tax on diesel oil.'

- 292 ▪ 'I want you to focus on the security, arrangements at the banquet.'
- 293 ▪ 'I want you to focus on who is going to exercise this dog you want to buy.'
- 294 ▪ 'I want you to focus on the benefits of going to a technical college.'
- 295 ▪ 'I want you to focus on the disadvantages of taking this fixed-interest mortgage.'

296 In the Six Thinking Hats framework (to be discussed later) this focusing is obtained by an external framework.

297 For example, use of the 'yellow hat' implies an exclusive focus on the values and benefits in the situation under discussion.

298 Use of the 'black hat' implies an exclusive focus on the dangers, problems, drawbacks and caution points. ...

299 Although most people claim to carry out attention-directing internally, in practice they do not.

300 For example, in a group of highly educated executives one half were asked to judge a suggestion objectively and the other, random, half were asked to use the yellow and black hats, deliberately.

301 Those using the hats turned up three times as many points as the others.

302 Yet most of the others would claim always to look at the 'pros and cons' in any situation. ...

303 That is why it is sometimes necessary to have external, formal and deliberate attention-directing tools.

304 They may seem simple and obvious but they are effective.

305 ***Recognition and Fit***

306 A common child's activity toy consists of a box or board with different-shaped holes in it.

307 The child is required to put different-shaped blocks or pieces into the different-shaped holes.

308 Some fit and some do not fit. ...

309 Someone is coming towards you from a distance.

310 You have no reason to expect a particular person.

311 As the person gets closer you begin to think that you might recognize her.

312 She gets close and suddenly you are sure: recognition 'clicks'; there is a 'fit.' ...

313 A wine expert tastes wine from a bottle with a masked label.

314 After a while she declares that it is from the Casablanca region in Chile.

315 Recognition and identification have taken place. ...

316 The brain forms patterns from experience.

317 Actually experience self-organizes itself into patterns within the brain.

318 That is why we can get dressed in the morning.

319 Otherwise we might have to explore the 39,816,800 ways of getting dressed with just eleven items of clothing.

- 320 Without patterns we could not cross the road or drive or read or write or do anything useful at work.
- 321 The brain is a superb pattern-making and pattern using system (which is why it is so bad at creativity). ...
- 322 We seek to fit things into the appropriate pattern.
- 323 We seek to use the boxes and definitions derived from experience –just as Aristotle wanted us to do.
- 324 We usually call this recognition, identification or judgement.
- 325 Mostly it is extremely useful.
- 326 Occasionally it is dangerous, when we trap something in the wrong box or when we seek to use old-fashioned boxes on a changed world. ...
- 327 We set out to look for something.
- 328 We are very happy when we find something that 'fits' what we are looking for.
- 329 We look no further. ...
- 330 There is a sort of 'click' about recognition.
- 331 This really means that we have switched into a well established pattern and are no longer 'wandering around'. ...
- 332 I prefer the word 'fit' to the word 'judgement' because judgement has a much wider meaning.

333 Judgement may mean evaluation and assessment, which are specific attention-directing processes.

334 The word 'fit' is closer to 'recognition'. ...

335 In some ways the purpose of thinking is to abolish thinking.

336 Some people have succeeded in this.

337 The purpose of thinking is to set up routine patterns so that we can always see the world through these routine patterns, which then tell us what to do.

338 Thinking is no longer needed.

339 Some people have succeeded in this because they believe that the patterns they have set up are going to be sufficient for the rest of their lives.

340 There is no prospect of change or progress for such people.

341 But they may be complacent and content. ...

342 In thinking we try to move towards 'recognizing' patterns. ...

343 We note when we have a recognition.

344 We also need to note the value – or danger – of that recognition.

345 Using stereotypes of people or races is a form of recognition but one that is more harmful than useful.

346 ***Movement and Alternatives***

347 The basic thinking processes mentioned up to this point will be familiar to most traditional thinkers but movement will not be familiar. ...

348 'Movement' simply means 'How do you move forward from this position?' ...

349 In its most extreme form movement is used along with provocation as one of the basic techniques of lateral (creative) thinking. ...

350 In a provocation we can set up something which is totally outside our experience and even contrary to experience.

351 As a provocation we might say: 'Cars should have square wheels.'

352 Judgement would tell us that this is nonsense:

353 ▪ it is structurally unsound;

354 ▪ it would use more fuel; it would, shake to pieces; speed would be very limited;

355 ▪ tremendous power would be needed; the ride would be most uncomfortable, etc., etc.

356 Obviously, judgement would not help us to use that provocation because judgement is concerned with past experience whereas creativity is concerned with future possibility.

357 So we need another mental operation and this is called 'movement'.

358 How do we move forward from the provocation? ...

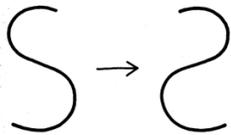
- 359 We might get movement from imagining the square wheel rolling (the projection process).
- 360 As the wheel rises on the corner point the suspension could adjust and get shorter so the car remained the same distance from the ground.
- 361 From this comes the concept of suspension that reacts in anticipation of need.
- 362 This leads on to the idea of 'active' or 'intelligent suspension', which is now being worked out as a real possibility. ...
- 363 Movement covers all ways of moving forwards from a statement, position or idea.
- 364 Movement can include [association](#).
- 365 We move from one idea to an association. ...
- 366 Movement can include [drift or day-dreaming](#), in which ideas just follow one another. ...
- 367 Movement also includes the [setting up of alternatives](#).
- 368 If we have one satisfactory way of doing something why should we seek out alternatives?
- 369 There is no logical reason therefore we have to make a deliberate effort to generate parallel alternatives.
- 370 This involves movement: '[How else can we do this?](#)' ...
- 371 The value of seeking further alternatives is obvious.

- 372 The first way is not necessarily the best way.
- 373 A range of alternatives allows us to compare and assess them and choose the best. ...
- 374 'Movement' may be directed by an [instruction](#) or [attention-directing request](#).
- 375 We may instruct ourselves to direct attention to 'other members of the same class'.
- 376 So we move to these other members. ...
- 377 Movement is a [very broad process](#) and [overlaps](#) with other processes. ...
- 378 Movement is also the basis of '[water logic](#)' which is described in my book Water Logic.
- 379 In water logic we observe the natural flow from one idea to another.
- 380 In the more deliberate process of movement we seek to bring about movement from one idea to another.
- 381 ▪ '[Where do we go to/from here?](#)'
 - 382 ▪ '[What alternatives are there?](#)'
 - 383 ▪ '[How do we get movement from this provocation?](#)'
 - 384 ▪ '[What follows?](#)'
 - 385 ▪ '[What idea comes to mind?](#)' ...

386 It could be said that the whole of
thinking is an effort to get
'movement' in a useful direction.

387 We use many devices for that purpose.

388 Consider a reversed 'S' shape.



Consider a reversed 'S' shape.

389

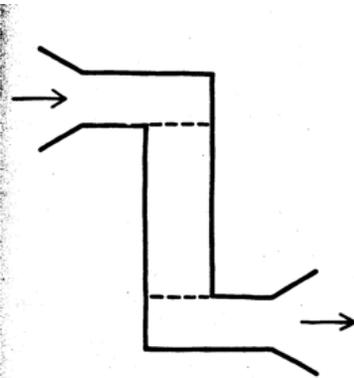
390

Consider a snake with an open mouth who takes in something at one end and puts out something at the other.



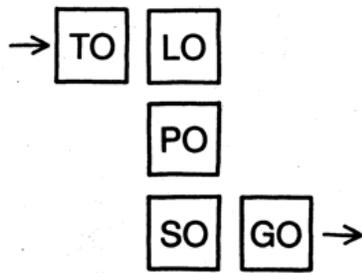
391

392 Consider a special type of coffee filter. You put in water at the top and the filtered coffee comes out at the bottom.



393

394 Following the perceptions on the previous pages look at the shape shown here.



395

396 Think of the five boxes as forming a sort of processing pipe.

397 You go in at the top with your intention to think about something.

398 At the bottom out come the results of your thinking.

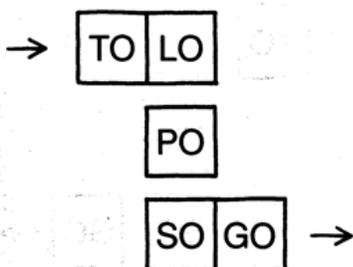
399 This is the basic diagram which we shall be using for the rest of the book.

400 Keep it clearly in your mind. ...

401 You may also regard the two top boxes (TO and LO) as the 'input' side.

402 The two boxes at the bottom (SO and GO) are the 'output' side.

403 The bridge or link between input and output is the PO box.



404

405 The Five Stages of Thinking

406 This book is based on a five-stage process of thinking.

407 These five stages are not based on an analysis of the normal thinking process.

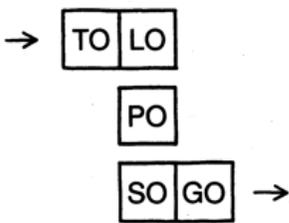
408 Analysis is useful for description but usually quite useless for operations.

409 It is a mistake to believe that analysis of the thinking process can provide the tools necessary for thinking.

410 Tools have to be practical and usable. In the same way, the five stages of thinking used in this book provide a formal framework for the practical operation of thinking.

411 The stages are designed to be practical.

412 The basic figure that has been considered in the last few pages is shown here again.



413

414 You enter at the top as shown by the arrow and you exit at the bottom as shown by the arrow.

415 Each of the five boxes contains the word associated with that stage.

416 What do these names mean?

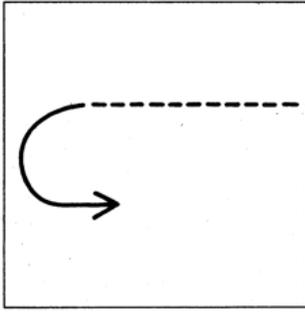
417 The names of the five stages are outlined below and will be considered much more fully in each section.

418 For each stage there is both a word and also a symbol that indicates in a visual way the nature of that stage.

419 TO indicates the aim, purpose or objective of the thinking.

- 420 Where are we going to?
- 421 With what do we want to end up?
- 422 LO indicates the information available and the information we need.
- 423 What is the situation?
- 424 What do we know?
- 425 Perceptions come in here as well.
- 426 PO is the stage of possibility.
- 427 Here we create possible solutions and approaches.
- 428 How do we do it?
- 429 What is the solution? This is the generative stage.
- 430 SO narrows down, checks out and chooses from amongst the possibilities.
- 431 This is the stage of conclusion, decision and choice.
- 432 This is the result stage.
- 433 GO indicates the 'action step'.
- 434 What are you going to do about it?
- 435 What next?
- 436 What follows on from your thinking?
- 437 The symbols that accompany each stage are shown on the following pages.

438 **TO symbol**



439

440 The broken line indicates that we know where we want to go.

441 We pull back from that objective to where we are at the moment.

442 Then with the solid line we seek to move towards the objective.

443 So the symbol indicates a knowledge of the purpose of the thinking and the desire to achieve that purpose.

444 **TO 'Where am I going to?'**

445 What is the purpose of my thinking?

446 With what do I want to end up?

447 This stage of thinking is very important indeed.

448 We usually give this stage too little attention.

449 We need to be very clear on what we are thinking about and what we want to achieve.

450 We need to define and redefine the purpose.

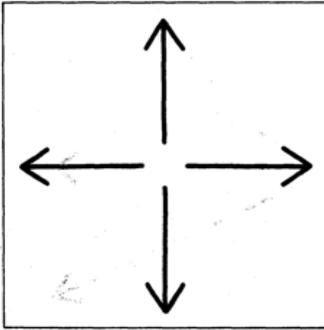
451 We need to seek alternative definitions.

452 We may want to break down the purpose into smaller ones.

453 There are two main types of purpose or focus.

- 454 In the traditional purpose focus we set out what we want to achieve.
- 455 This may be solving a problem, achieving an objective, carrying out a task or making an improvement in a defined direction.
- 456 In the area focus, we simply define the area in which we are looking for new ideas.
- 457 Keep very clearly in mind that solving problems and putting right defects is only one aspect of thinking.
- 458 There is far more to thinking than problem solving.

459 *LO symbol*



460

461 This symbol indicates looking around in all directions.

462 We are looking all around for information.

463 The arrows suggest looking in every direction.

464 What do we see?

465 What information is there?

466 **LO 'Lo and behold.'**

467 What can we see?

468 What should we look for?

469 In this stage we seek to gather and to lay out the information we need for our thinking.

470 The search for information should be very broad at times but at other times it may need to be focused.

471 There are fishing questions, where we do not know what answer will emerge.

472 There are shooting questions, where the answer is a 'yes' or a 'no' and we are checking things out.

473 Sometimes we need a guess or a hypothesis in order to know where to look.

474 Use such guesses but be careful not to be trapped by them.

475 Perceptions and values are an important part of this stage.

476 What are the different perceptions?

477 How can things be looked at differently?

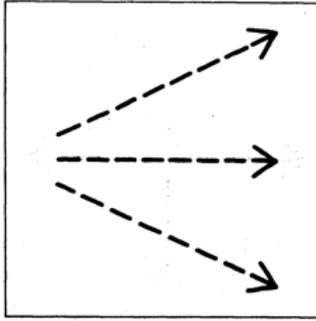
478 What values are involved?

479 Do different people have different values?

480 What is the thinking of different people?

481

482 ***PO symbol***



483

484 The broken lines indicate possibility.

485 This is the stage for creating multiple possibilities.

486 These are not yet lines of action but possibilities that have to be worked out and made solid.

487 There is an emphasis on more than one possibility.

488 **PO 'Let's generate some possibilities.'**

489 This is the creative, productive and generative stage of thinking.

490 It is in this stage that we put forward 'possibilities'.

491 It is this stage which links up the purpose of our thinking with the output of our thinking.

492 There are two thinking stages before and two afterwards.

493 This stage is the link between input and output.

494 There are four broad approaches that can be used in the PO stage.

495 **1. Search for routine.**

496 Here we seek to identify the situation so that we can then know what to do and can apply the action that has been established as the routine response to that situation.

497 This is the traditional approach to thinking.

498 **2. General approach.**

499 Here we link starting-point and desired result with a broad, 'general' concept.

500 Then we seek to narrow this down to give us specific ideas that we can use.

501 The Concept Fan is part of this approach.

502 We work backwards, in general terms, from where we want to be in order to produce ideas that we can use.

503 **3. Creative approach.**

504 Here we set out deliberately to generate ideas and then we seek to modify these ideas to fit our needs.

505 There are the formal techniques of lateral thinking such as provocation and the use of a random entry.

506 'Movement' is a key part of creative thinking.

507 We 'move' forward from a provocation to get a useful
idea.

508 ***4. Design and assembly.***

509 Here we lay out the needs and ingredients in parallel.

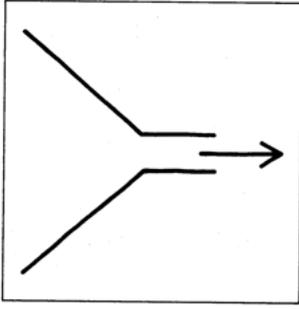
510 Then we seek to design a way forward to achieve the
'design brief'.

511 We seek to assemble or to put things together to give us
what we want.

512 The purpose of the PO stage is to be generative and to
produce multiple possibilities.

513

514 ***SO symbol***



515

516 The symbol suggests a narrowing down to one outcome.

517 This illustrates the forming of one usable outcome.

518 Multiple possibilities have now come down to one outcome or result.

519 **SO 'So what is the outcome?'**

520 The purpose of the SO stage is to take the multiple possibilities produced by the PO stage and to reduce these to a usable outcome.

521 There is the development stage, in which we seek to build up and improve ideas.

522 We seek to remove defects.

523 Then there is the evaluation and assessment stage, in which we examine each idea.

524 We seek to list the benefits and values.

525 We seek to list the difficulties and problems.

526 Next is the choice stage.

527 We now lay out all the competing ideas and choose between them.

528 There are various methods for making this choice.

529 We may use one method to narrow down the number of alternatives and then use direct comparison.

530 The decision process is concerned with whether or not we do something.

531 We need to consider the decision frame and the pressures.

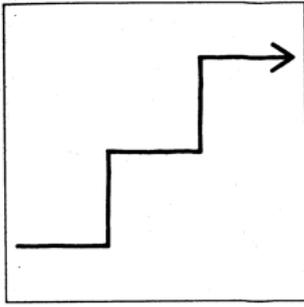
532 We must consider the need for the decision.

533 We must consider the risks.

534 At the end of the SO stage we may have an idea we want to use or we may have nothing.

535

536 **GO symbol**



537

538 This symbol suggests progressing forwards and upwards.

539 This implies positive and constructive action.

540 The symbols may be used interchangeably with the words for each stage.

541 The symbols provide a visual illustration of the process required at each stage. ...

542 When you are thinking with the help of written notes you can use the diagrams to illustrate the different stages of your thinking.

543 Later sections in the book will go through each of the five stages in thinking in much more detail.

544 **GO 'Go to it!'**

545 The GO stage is concerned with action.

546 How is the chosen idea going to be put into action?

547 What is the action design?

548 There are stages and sub-objectives.

549 There is the need to monitor and to check.

550 We use routine channels and we assess the uncertainties with if-boxes.

551 The people factor in its various forms is a key part of action.

552 People need persuading.

553 Ideas must be accepted.

554 There is a need for motivation.

555 People can be obstructive.

556 All these things need to be considered.

557 There is also the need to design in the energy of action.

558 Where is this to come from?

559 ***Simpler***

560 An even simpler summary would go as follows:

561 TO: What do I want to do?

562 LO: What Information do I have (and need)?

563 PO: How do I get there?

564 SO: Which alternative do I choose?

565 GO: How do I put this into action?

566 ***Backwards and Forwards***

567 The five stages of thinking are not sealed compartments.

568 When you have moved on from one stage to the next you can still go back to an earlier stage.

569 For example, when working in the PO stage you may find you need some specific information.

570 So you return to the LO stage.

571 Or you may find that you want to redefine the situation.

572 So you return to the TO stage.

573 Do not overdo this moving backwards and forwards or you will lose all the advantages of having set stages and you will return to the confusion of ordinary thinking where one idea follows another without any discipline or structure.

574 ***Thinking situations differ greatly***

575 In some situations you will need to spend much more time in one stage and in other situations the emphasis may be on another stage.

576 You do not need to learn or memorize the stages at this point.

577 When you get to the end of the book you will find that you can remember them very easily:

578 there is an input stage and an output stage and in between is a vertical stack of three thinking stages.

579 Summary

580 At the beginning of the book I wrote that it was my
intention to put forward a simple and effective method for
thinking.

581 At different times it may have seemed to the reader that
matters were getting rather more complicated.

582 They need not be. ...

583 Think only of the basic framework.

584 That is what you need to use.

585 You can read and reread each section to learn more about
each stage.

586 Treat the sections as reference sections which you can go
back to. ...

587 It is best to use the framework in a very simple way at first
and then gradually to elaborate each stage.

588 This is much better than trying to use each stage in its full
sense from the beginning. ...

589 There are times when some of the thinking refers to
business situations rather than to personal thinking.

590 Those who are only interested in personal thinking should
ignore these items.

591 But many readers of the book will need to do some of
their thinking in the business world, so that aspect does
need attending to in the book. ...

- 592 The strategy for the reader is to be selective.
- 593 Pick out those things which you can understand and which you feel you can handle.
- 594 Be aware of the other material but do not feel you need to use everything at once. ...
- 595 It is not a matter of reading the book and then putting it down and never looking at it again.
- 596 You will need reminding.
- 597 You will not get the most out of your thinking unless you eventually do attend to the matters in the book.
- 598 A superficial knowledge is enough to get started, but not enough to build up an effective thinking skill. ...
- 599 As usual, some readers and most critics will assume that, because the bare bones of the framework are simple, the whole approach is too simple and is indeed something they have always done.
- 600 In my experience this arrogantly complacent attitude to thinking is always misplaced.
- 601 Many people who consider themselves to be good thinkers are using only one approach: analysis, judgement and identification.
- 602 This is only one part of thinking and leaves out the whole creative, generative and productive side of thinking.

603 Situation Coding

604 There can be a value, sometimes, in having a simple way of describing a thinking situation or thinking need to yourself or to others.

605 'It is this type of situation.'

606 'This is the sort of thinking that is required.'

607 'How would you describe the situation?'

608 'What thinking do we need here?'

609 In this section I intend to describe a simple type of situation coding.

610 This is a subjective coding and is not a formal classification of situations.

611 You use this coding to indicate how the situation seems to you.

612 Someone else might disagree and then you can both focus on the disagreement.

613 Even though you may start out coding a situation one way, you may find that you need to modify the code as you go along.

614 *The Coding*

615 For each of the five stages of thinking (TO, LO, PO, SO, GO) you apply a number from 1 to 9.

616 This 'rating' from 1 to 9 indicates the amount, the difficulty or the importance of the thinking that needs to be done in that stage. ...

617 For example, if you are asked to choose between a fixed set of alternatives then the PO stage does not require much thinking because the alternatives have been given.

618 So the PO stage gets a 1.

619 On the other hand, the SO stage is going to have to do a lot of work so this stage gets a 9.

620 The GO stage may also have quite a lot to do and gets a 6.

621 The TO stage does not require much work because the thinking purpose has been clearly set, so the TO stage gets a 1.

622 The LO stage is important because you need to explore perceptions and find information in order to make your choice.

623 So the LO stage gets an 8. ...

624 The overall coding now becomes 18/196.

625 The break after the first two digits is for ease of pronunciation: one eight / one nine six. ...

- 626 In another situation there seems to be confusion.
- 627 The information is present but you do not know what to do.
- 628 Perhaps the emotional factor is high.
- 629 The emphasis may now fall on the TO stage. ...
- 630 'Am I clear as to what I want to achieve?
- 631 What is the real purpose of my thinking?
- 632 With what do I want to end up? ...
- 633 So the TO stage gets a 9.
- 634 The information is mostly available, so the LO stage gets a 4.
- 635 The PO stage does require some work but if the TO stage is clear then the PO stage will not be difficult.
- 636 So the PO stage also gets a 4.
- 637 The SO stage may be important, especially if there is emotional involvement, so this stage gets a 6.
- 638 The GO stage may be straightforward and gets a 1. ...
- 639 So the final coding becomes: 94/461 (nine four / four six one). ...

640 On another occasion the sole purpose of the thinking is to obtain a specific piece of information.

641 The TO stage is clear, so this gets a 1.

642 The LO stage is all important and gets a 9.

643 The PO stage is also important because we may have to consider possible ways of getting the information.

644 So the PO stage gets an 8.

645 The SO stage may be simple if there turns out to be one clear way of getting the information.

646 But this may not be clear and there may be several ways to choose between.

647 So the SO stage gets a 5.

648 The GO stage is relatively simple and gets a 4. ...

649 The overall coding becomes: 19/854 (one nine / eight five four).

- 650 Another situation is a direct creative demand.
- 651 You are asked to come up with a good name for a book.
- 652 The purpose of the thinking is very clear, so the TO stage gets a 1.
- 653 The information stage is important because you need to know what is in the book, who it is meant to appeal to and where it will be sold.
- 654 You also need to know the titles of other books on the same subject.
- 655 So the LO stage is important and gets an 8.
- 656 Obviously, most of the work is going to be creatively in the PO stage, so this gets a 9.
- 657 The choice stage is going to be difficult.
- 658 How do we decide which title to use?
- 659 So the SO stage also gets an 8.
- 660 The GO stage is simple because if you have selected the title you simply use that title.
- 661 So the GO stage gets a 1. ...
- 662 The resulting coding is: 18/981 (one eight / nine eight one). ...

- 663 Only use the 9 rating once in the coding even if two stages both seem very important.
- 664 **The 9 should indicate the most important stage.**
- 665 The other figures should be used as often as you like. ...
- 666 Of course, all stages of thinking are important and you may be inclined to give a high rating to each of the five stages.
- 667 This would be to misunderstand the purpose of the coding.
- 668 A stage with a low rating does not mean that stage is unimportant.
- 669 It means that that stage will require less thinking work than other stages.
- 670 It is **relative**.
- 671 If you are set a specific task then the TO stage is simple.
- 672 If you simply wish to make a choice then the GO stage may be simple.
- 673 If you are working in a closed problem where all the information is available then the LO stage may be simple.
- 674 If you are presented with fixed alternatives then the PO stage may be simple.
- 675 If you clearly identify a situation in the PO stage then the SO stage may be simple. ...

- 676 In a negotiation situation the purpose may be clear: 'We want to end up with an agreement acceptable by both sides.'
- 677 So the TO stage is simple and gets a 1. ...
- 678 The information stage may have to explore a lot of information.
- 679 There will also be a need to explore values, fears, perceptions, etc.
- 680 So this stage will be important and the LO stage gets an 8.
...
- 681 The PO stage is key because it is here that the 'design' of possible outcomes has to be worked out.
- 682 There will need to be a lot of activity here.
- 683 So the PO stage gets the 9. ...
- 684 It is difficult to predict how much work will need to be done in the SO stage.
- 685 If one of the possible designs put forward in the PO stage is very good then there will not be much difficulty choosing this outcome.
- 686 But if there is no one outstanding design then the choice process is going to be hard work.
- 687 So the SO stage gets an 8. ...

- 688 The desired outcome of the thinking is an acceptable agreement.
- 689 But some thinking should also be given to its implementation.
- 690 So the GO stage gets a 5. ^m
- 691 The final coding becomes: 18/985 (one eight / nine eight five). ^m

- 692 If there is a problem to be solved then you may need to spend time defining and redefining the problem.
- 693 So the TO stage should not be automatic and deserves a 6.
- 694 This is particularly so if the problem has been around for a long time. ...
- 695 If the problem has been around for a long time the information may be well known, so the LO stage may also get a 6. ...
- 696 The generative effort has to take place in the PO stage so this gets the 9. ...
- 697 The SO stage may be simple if a solution has turned up in the PO stage.
- 698 If no solution has turned up then the 80 stage is also simple because all possibilities will be rejected.
- 699 So the SO stage gets a 5. ...
- 700 The implementation of the solution needs thinking through, so the GO stage gets a 7. ...
- 701 The final coding becomes: 66/957 (six six / nine five seven).

702 ***Should Be***

703 The coding is not just a simple description of what is the case but an indication of what you believe the situation 'should be'. ...

704 When you are given a problem to solve, the definition of the problem may also be given to you.

705 This could mean that the TO stage only merits a 1.

706 But if you feel that much more attention should be given to defining, redefining and even breaking down the problem then you should indicate a 7 or an 8- in some cases even the 9. ...

707 In this way the suggested coding becomes not only an indication of the situation but also a 'strategy' for dealing with the situation. ...

708 If you really feel that a thorough information search is going to solve the problem then you would want to give the 9 to the LO stage. ...

709 If you really feel that only creative effort will solve the problem then you give the 9 to the PO stage. ...

710 If you feel that there are already enough possibilities and choice is required then you give the 9 to the SO stage. ...

- 711 If you feel that the action design will be most important (an acceptance difficulty) then the GO stage gets the 9. ...
- 712 A 91/811 situation means that the thinker believes that a clear definition of the thinking purpose is all important.
- 713 The information is simple and available.
- 714 There is a need to generate possibilities.
- 715 The thinker believes that a satisfactory possibility will be forthcoming so the SO and GO stages will be simple. ...
- 716 An 18/195 situation seems to be a decision situation: perhaps a go/no go situation.
- 717 The purpose is clear.
- 718 Information is important.
- 719 There is little need to generate possibilities.
- 720 The SO stage is all-important and the action stage is moderately important.

721 **Summary**

722 In this section I have suggested a simple form of descriptive coding for thinking situations.

723 This coding consists of assigning a 1 to 9 rating to each of the five stages of thinking.

724 The higher the rating the more 'thinking work' there is to be done in this stage. ...

725 The coding indicates what you think should be the case.

726 The coding indicates your intended thinking strategy. ...

727 You can use the coding to describe a thinking need to yourself or to describe it to others. ...

728 The coding becomes a way of thinking about and talking about a whole situation.

729 Frameworks

730 I intend to outline here two frameworks which I shall be referring to from time to time in the rest of the book.

731 There is no need to know these frameworks.

732 You can simply ignore all references to the frameworks when you come across them.

733 The book will work just as well without them. ...

734 There is, however, a need to mention these frameworks in the book because many people familiar with my other work in thinking will wonder how the frameworks they know fit in with this particular book.

735 But making this connection might confuse those readers who did not know anything about the other methods.

736 They would get annoyed and confused when they came across a reference that did not make sense to them.

737 So I am outlining the frameworks here so that readers of this book will be prepared for the references.

738 They can then ignore them if they wish. ...

739 It is also possible that readers may then wish to follow up these references and also acquaint themselves with the other material. ...

740 At this point you can skip the rest of this section and simply ignore all future references which you do not understand.

741 That will not affect the usefulness of the book.

742 ***The Six Thinking Hats***

743 This very simple and powerful framework is now in use in schools and also in business around the world.

744 There are many reasons why the framework has been so widely adopted.

745 1. It provides an alternative to traditional Western adversarial argument.

746 2. It is usable across a very wide range of cultures which do not accept Western argument.

747 3. It is much more creative and constructive than traditional argument.

748 4. It is very much quicker (an IBM lab reported a reduction in meeting times of 75 per cent).

749 5. It gets the best out of people.

750 6. It allows the thinker to do one thing at a time and to do it very thoroughly – instead of trying to juggle all aspects of thinking.

751 7. It removes the ego and politics from thinking.

752 8. It provides the 'parallel' thinking needed to design the way forward when traditional 'boxes' are no longer adequate.

753 9. It is very easy to learn and to use.

754 10. It is practical.

755 There are now certified trainers worldwide in the teaching of the Six Hats method.

756 Peter and Linda Low in Singapore have t trained over 3,000 people in a very short time.

757 There are also special courses for schools.*
sm

758 There are six imaginary thinking hats.

759 Only one is used at a time.

760 When that hat is used then everyone in the group wears the same hat.

761 This means that everyone is now thinking in parallel in the same direction.

762 Everyone is thinking about the subject-matter and not about what the last person said.

763 **The White Hat**

764 Think of white paper and computer printout.

765 The white hat indicates an exclusive focus on information.

766 What information is available?

767 What information is needed?

768 What information is missing?

769 How are we going to get the information we need? ..

770 All information is laid down in parallel even if it is in disagreement.

771 The quality of information may range from hard facts which can be checked to rumors or opinions which exist.

772 **The Red Hat**

773 Think of fire and warm.

774 The red hat allows the free expression of feelings, intuition, hunches and emotions without apology and without explanation.

775 The red hat asks a person to express his or her feelings on the subject at this moment in time (later the feelings could change).

776 There must never be any attempt to justify or give the basis for the feelings.

777 Feelings exist and should be allowed into the discussion provided they are signaled as feelings and not disguised as logic.

778 Intuition may be based on a great experience of the field and may be very valuable. ...

779 For further information on formal Six Hats training and schools material, please fax London 0171-602 1779 or write do Penguin Books.

780 **The Black Hat**

781 Think of a judge's robes, which are usually black.

782 The black hat is for caution and stops us doing things which are dangerous, damaging or unworkable.

783 The black hat is for risk assessment.

784 The black hat is for critical thinking: why something does not fit our policy, our strategy, our resources, etc. ...

785 The black hat is a most useful hat but, unfortunately, is very easy to overuse.

786 Food is good for you but overeating is bad for the health.

787 This is not a fault of the food but of its overuse.

788 In exactly the same way the black hat is very useful and the fault lies only in its overuse.

789 The tendency to overuse the black hat arises directly from the Gang of Three, where Socrates felt it was enough to be negative and the truth would eventually emerge.

790 So there are people who feel that it is enough to be negative.

791 **The Yellow Hat**

792 Think of sunshine and optimism.

793 The yellow hat is the logical positive hat.

794 Under the yellow hat the thinker seeks out the values and benefits.

795 The thinker looks to see how the idea can be made workable and put into practice. ^m

796 The yellow hat is much harder than the black hat and requires much more effort.

797 The brain is naturally tuned to point out what is wrong and what is not as it should be.

798 In order to avoid danger and mistakes we are naturally cautious.

799 The yellow hat requires effort.

800 Often this effort is well rewarded.

801 Suddenly we see values and benefits which we had never noticed before.

802 Without the yellow hat creativity is almost impossible because we would never see the benefits of an emerging idea.

803 **The Green Hat**

804 Think of vegetation, growth, energy, branches, shoots, etc.

805 The green hat is the creative hat.

806 Under the green hat we put forward alternatives.

807 We seek out new ideas.

808 We modify and change suggested ideas.

809 We generate possibilities.

810 We use provocations and movement to produce new ideas. ...

811 The green hat is the action hat.

812 The green hat opens up possibilities.

813 The green hat is the productive and generative hat.

814 At the green-hat stage things are only 'possibilities'; they have to be developed and checked out later.

815 **The Blue Hat**

816 Think of blue as sky and overview.

817 The blue hat is the control hat.

818 The blue hat is concerned with the management of the thinking process.

819 The conductor of the orchestra manages the orchestra and gets the best out of the musicians.

820 The ringmaster in a circus makes sure that there is no confusion and that things follow in the proper sequence.

821 So the blue hat is for looking at the thinking process itself.

822 The blue hat is concerned with defining the problem and what is being thought about.

823 The blue hat is also concerned with outcomes, conclusions, summaries and what happens next.

824 The blue hat sets up the sequence of other hats to be used and ensures that the rules of the Six Hat framework are adhered to.

825 The blue hat is the organizer of the thinking process.

826 Use Of The Hats

827 There are two broad methods of using the hats.

828 A single hat may be used on its own in a meeting or discussion to request a particular type of thinking for a defined time.

829 For example at a certain point further alternatives may be needed.

830 So the facilitator of the meeting asks for 'three minutes of green-hat thinking'.

831 This aligns the thinking of the members of the group so that for three minutes every one of them is seeking to find further alternatives.

832 At the end of the three minutes they return to the discussion.

833 Later there is a need to consider an action proposal so the facilitator requests 'three minutes of black-hat thinking'.

834 For that three minutes everyone focuses on the dangers and potential problems of the action proposal. ...

- 835 In this 'occasional' use the hats become symbols that allow a particular type of parallel thinking to be requested.
- 836 Everyone now thinks in parallel instead of in the adversarial mode.
- 837 In the sequential use, a sequence of hats are used one after the other.
- 838 The sequence may be pre-set at the beginning or may evolve.
- 839 With an evolving sequence the first hat is chosen and then when this has been done the next hat is chosen.
- 840 For inexperienced groups it is much better to use the pre-set sequence to avoid long arguments over which hat is to be used next. ...
- 841 There is no one fixed sequence in which the hats can be used.
- 842 The sequence will vary with the situation and also with the participants in the thinking.
- 843 There are some general guidelines which are given in the certified trainer's course.
- 844 In general, start with a blue hat and end with a blue hat and choose any reasonable sequence in between.

845 *The CoRT Thinking Program*

846 This program* was designed specifically for the direct teaching of thinking as a school subject.

847 *For information on the CoRT Thinking Program please fax London 01 71--602 1779.

848 We have had over twenty years of experience with the program, which is now widely in use around the world in various ways (Canada, USA, Mexico, Venezuela, UK, Ireland, Italy, South Africa, Malaysia, Singapore, Australia and New Zealand).

849 The use may vary from being mandatory across a whole country, as in Venezuela, to use in certain schools or school districts.

850 In Malaysia the MARA senior science schools have been using the program for ten years. ...

851 The essence of the CoRT Thinking Program is the tool approach. ...

852 This is a very direct approach to the teaching of thinking.

853 Students practice the tools on a variety of short thinking items.

854 They build up skill in the use of the tool, which can then be used on any other situations.

855 Students often take the tools home to help them help their parents make decisions and plans.

856 It is the transfer aspect of the tools that is most important. ...

857 The best research on the use of the CoRT program has been done by Professor John Edwards at James Cook University, Queensland, Australia. ...

858 The CoRT program is designed to be simple and practical.

859 Teachers can quickly learn to teach it and students love it.

860 Whenever CoRT thinking is formally on the curriculum students always choose it as their favorite subject.

861 Perhaps because there is little else in the curriculum that allows free thinking. ...

862 The CoRT program is divided into six sections each of which deals with one aspect of thinking.

863 Each section contains ten lessons.

864 CoRT 1 - Breadth

865 CoRT 2 - Organization

866 CoRT 3 - Interaction

867 CoRT 4 - Creativity

868 CoRT 5 - Information and feeling

869 CoRT 6 - Action

870 CoRT 1 contains certain basic 'attention-directing' perceptual tools.

871 These are now very widely used.

- 872 Each tool is assigned a name so that the tool can be learned and used deliberately.
- 873 These names have a useful perceptual purpose.
- 874 The names are derived from the initials of the process that is being requested.
- 875 The basic tools are as follows: ...
- 876 PMI Plus, Minus and Interesting.
- 877 Direct your attention to the Plus points, then the Minus points and finally the Interesting points.
- 878 The result is a quick assessment scan. ...
- 879 CAF Consider All Factors.
- 880 What should we take into account when we are thinking about something?
- 881 What are the factors involved? ...
- 882 C&S This directs attention to the 'Consequences and Sequels' of the action.
- 883 The request is for a forward look at what will happen later.
- 884 Different time-scales can be requested. ...
- 885 AGO What are the Aims, Goals and Objectives?
- 886 What are we trying to do?
- 887 What are we trying to achieve?

888 Where are we going? ...

889 FIP First Important Priorities.

890 Direct attention to those things which really matter.

891 Not everything is of equal importance.

892 What are the priorities? ...

893 APC Alternatives, Possibilities and Choices.

894 Create new alternatives?

895 What are the possibilities?

896 What are the choices? ...

897 OPV Direct attention to Other People's Views.

898 Who are the other people involved?

899 What are their views?

900 The tools are used explicitly and directly.

901 They are a formal way of directing perceptual attention in a defined direction.

902 'Do a PMI here.'

903 'Let's start with a CAF.'

904 'What's the AGO''

905 'Time for an APC.'

906 All this may seem artificial but it works.

- 907 Thinking sometimes has to be made artificial and deliberate otherwise we take it for granted and assume that we do things when in fact we do not do them at all.
- 908 Most people would claim to look at the consequences of an action but experiments show that a deliberate request to look at consequences with a formal C&S request produces a far better scan.
- 909 Attention does need directing deliberately.
- 910 Far too many people assume they are good thinkers when they are not.

911 ***Enjoy Your Thinking Skill***

- 912 Thinking does not only have to be about complicated problems and puzzles.
- 913 Thinking is not only valid when matters are very difficult. ...
- 914 Enjoy thinking about simple things where you will get answers.
- 915 In that way you will build up your skill in thinking, your confidence in that skill and your enjoyment of that skill. ...
- 916 Because something is easy does not mean that it is not worth doing.
- 917 It is better to do something easy and to do it really well than to seek only to do difficult things and not to succeed at all. ...
- 918 Far too many people are put off the enjoyment of thinking because they have been led to believe that thinking should be difficult.
- 919 It does not have to be.

920 Introduction

921 *I advise you to skip this section.*

922 It is rather more complicated than the rest of the book and may give you the wrong impression about the rest of the book. ...

923 For some readers, however, I need to include this section to point out why our traditional thinking habits are excellent but inadequate. ...

924 The rear wheels of a motor car are excellent but inadequate on their own. ...

925 We have developed one aspect of thinking and we are very proud of this and very happy with this.

926 It is time we realized that this aspect is excellent but inadequate. ...

927 This introduction is also necessary to frame the rest of the book.

928 Imagine a kitchen in which a lot of food is piled up on a table in the centre of the room.

929 The cook proceeds to cook or 'process' the food.

930 The cook is very skillful and makes a good job of it.

931 There are no mistakes in the cooking. ...

- 932 Then we ask: how was this food chosen; how was it grown; how was it packaged; how was it brought to the kitchen?
- 933 In other words we shift attention from the cooking process to the ingredients themselves. ...
- 934 It has been the same with thinking.
- 935 We have paid a lot of attention to the 'processing' part of thinking.
- 936 We have developed excellent mathematics, statistics, computers and all the various forms of logic.
- 937 You feed in the ingredients, the processing takes place and out comes the result.
- 938 But we have paid far less attention to where the ingredients come from.
- 939 How were they chosen and how were they packaged?
- 940 The ingredients for thinking are provided by perception.
- 941 Perception is the way we look at the world.
- 942 Perception is the way we carve up the world into chunks that we can handle.
- 943 Perception is the choice of matters to consider at any one time.
- 944 Perception chooses whether to regard a glass as half empty or half full.
- 945 Most of everyday thinking takes place in the perception stage of thinking.
- 946 It is only in technical matters that we apply such processes as mathematics. ...

- 947 In the future, computers will probably take over all the processing aspects of thinking, leaving to humans the extremely important aspect of perception. (See the manager and the moron) ...
- 948 The excellence of processing in computers will not make up for inadequacies in perception. ...
- 949 So the perception part of thinking will be even more important in the future. ...
- 950 Most of the errors of thinking, outside puzzles, are not errors of logic at all but errors of perception.
- 951 We see only part of a situation.
- 952 Or, we see a situation only in one particular way. ...
- 953 Yet we have persisted in believing that logic is the most important part of thinking and have done almost nothing about perception.
- 954 There are reasons for this. ...
- 955 When Western thinking habits were being established at the end of the Dark Ages and the beginning of the Renaissance, much of the thinking was being done by church people, since they were the only group that had maintained throughout the ...
- 956 Dark Ages an interest in scholarship and thinking.

- 957 Also, at that time, the church was very dominant in society and ran universities, schools, etc.
- 958 So the 'new thinking' that came in with the Renaissance was mainly applied to theological matters and to dealing with heresies.
- 959 In such areas there were tight definitions of 'God', 'justice' and such matters.
- 960 It became a matter of working 'logically' with such fixed definitions.
- 961 So perception was not an important part of this sort of thinking.
- 962 Perception was also far too subjective in such theological matters.
- 963 There had to be basic agreement on the starting terms. ...
- 964 We have also believed that logic itself should be able to sort out perceptions.
- 965 This is rubbish because logic is an enclosing system which can only work with what is there.
- 966 Perception is a generative system which opens up to what is not there.
- 967 This misconception about the power of logic is one of the major faults of traditional thinking.
- 968 The misconception arises from the failure to distinguish between foresight and hindsight. ...
- 969 It is perfectly true that in hindsight logic can point out inadequacies in perception but that is not the same as pointing out these inadequacies in the first place. ...

- 970 Every valued creative idea will always be totally logical in hindsight. ...
- 971 The numbers 1 to 100 can be added together in about five seconds using an idea that is completely logical in hindsight – but getting to that idea needs creativity. ...
- 972 What are the chances of an ant on the trunk of a tree getting to one particular leaf?
- 973 At every branch point the chances diminish because the ant might have taken one of the other branches.
- 974 In an average tree the chances are about 1 in 8,000.
- 975 Now imagine the ant sitting on that leaf.
- 976 What are the chances of that ant getting to the trunk of the tree?
- 977 The chances are 1 in 1 or 100 per cent.
- 978 If the ant simply goes forwards and never doubles back there are no branches.
- 979 It is exactly the same with hindsight. ...
- 980 What is obvious in hindsight may be invisible in foresight.
- 981 The failure to realize this is responsible for many of our misconceptions about thinking. ...
- 982 Perhaps the main reason why we have not paid more attention to perception is that until about twenty years ago we had no idea how perception worked.

- 983 We believed, quite wrongly, that perception and processing both worked in passive-surface information systems.
- 984 In such systems the information and the surface on which the information is recorded are passive and have no activity of their own.
- 985 There is a need for an external processor to organize the information, to move it around and to extract sense from it.
- 986 We now believe that perception occurs in a self-organizing information system operated by the nerve networks in the brain.
- 987 This means that the information and the surface have their own activity and the information arranges itself as groups, sequences and patterns.
- 988 The process is similar to rain falling on a landscape and organizing itself into streams, tributaries and rivers.
- 989 Those interested in such processes should read my books *The Mechanism of Mind** and *I am Right - You are Wrong*. Jonathan Cape, 1969, Penguin Books, 1977. tViking. 1992; Penguin Books, 1993. ...
- 990 **The Gang of Three**
- 991 After the fall of Rome in AD 400 there came the Dark Ages in Europe.
- 992 The learning, thinking and scholarship of the Roman Empire was largely lost.
- 993 For example, Charlemagne, who at one time was the most powerful ruler in Europe, could not read or write.
- 994 The Dark Ages ended with the Renaissance, which was triggered by the rediscovery of classic Greek and Roman thinking (partly through Arabic texts coming into Europe through Spain). ...

- 995 This 'new' thinking was a powerful breath of fresh air.
- 996 Humankind was given a more central position in the universe.
- 997 Humankind could use logic and reason to work things out instead of having to accept everything as part of a religious faith.
- 998 Not surprisingly this new thinking was eagerly embraced by the Humanists or nonchurch thinkers.
- 999 More surprisingly, this new thinking was also embraced by church thinkers.
- 1000 So this new/old thinking became the dominant thinking of Western culture and has remained so to this day. ...
- 1001 What was the nature of this new/old thinking?
- 1002 We need to go back to the Gang of Three who fashioned this thinking.
- 1003 They lived in Greece in Athens between about 400 DC and 300 BC.
- 1004 This Gang of Three was made up of Socrates, Plato and Aristotle.
- 1005 ***Socrates***
- 1006 Socrates never set out to be a constructive thinker.
- 1007 His purpose was to attack and to remove 'rubbish'.
- 1008 Most of the arguments in which he was involved (as written up by Plato) ended with no positive outcome at all.
- 1009 Socrates would show that all suggestions offered were false but would not then offer a better idea.
- 1010 Essentially he believed in argument (or dialectic).

- 1011 He seemed to believe that if you attacked what is wrong, then eventually you would be left with the truth.
- 1012 This has left us with our obsession with criticism.
- 1013 We believe that it is much more important to point out what is wrong than to construct what is useful.
- 1014 **Plato**
- 1015 Plato was an Athenian patrician who, as a young man, knew Socrates.
- 1016 Socrates never wrote anything but Plato wrote up Socrates as a character in dialogues.
- 1017 Plato did not much believe in Athenian democracy, which he believed to be a rabble too easily swayed by populist arguments.
- 1018 Plato seemed to be an admirer of the very fascist Sparta.
- 1019 Plato was influenced by Pythagoras, who had demonstrated ultimate truths in mathematics, and Plato believed there were ultimate truths everywhere if only we looked hard enough for them. ...
- 1020 Plato was also reacting against the 'relativism' of some of the Sophists, who believed that something was not good or bad in itself but only in relation to a system.
- 1021 Plato realized that society could never be run on such a complicated basis.
- 1022 Plato was a fascist. ...
- 1023 From Plato came our obsession with the 'truth' and the belief that we could establish this logically.
- 1024 This belief has been a powerful motivator to all subsequent thinking.

1025 **Aristotle**

1026 Aristotle was a pupil of Plato's and also the tutor of Alexander the Great.

1027 Aristotle tied everything together as a powerful logical system based on 'boxes'.

1028 These were definitions or classifications based on our past experience.

1029 So whenever we encountered something we had to 'judge' into which box that thing fitted.

1030 If necessary, we analyzed the situation down into smaller parts to see if we could fit these into standard boxes.

1031 Something was either in a box or 'not' in. lox.

1032 It had to be one or the other and could not be anything else.

1033 From this came a powerful logic system based on 'is' and 'is not' and the avoidance of contradictions. ...

1034 In summary, from the Gang of Three came a thinking system which was based on:

1035 • analysis

1036 • judgement (and boxes)

1037 • argument

1038 • criticism.

1039 We find our way around by fitting new experiences into the boxes (or principles) derived from the past.

1040 This is perfectly adequate in a stable world where the future is the same as the past—but totally inadequate in a changing world where the old boxes do not apply.

1041 Instead of judgement we need to design our way forward.

- 1042 While analysis does solve a great many problems, there are other problems where the cause cannot be found and if found cannot be removed.
- 1043 Such problems will not yield to yet more analysis. ...
- 1044 There is a need for design.
- 1045 We need to design a way forward, leaving the cause in place. ...
- 1046 Most of the major problems in the world will not be solved by yet more analysis.
- 1047 There is a need for creative design. ...
- 1048 The traditional thinking system is very lacking in constructive energy, creative energy and design energy. ...
- 1049 Description and analysis are not enough. ...
- 1050 If this traditional system is indeed so limited, then how is it that Western culture has made such tremendous progress in science and technology?
- 1051 Plato's search for the truth has been a prime motivating factor.
- 1052 Aristotle's classification has also helped.
- 1053 Socratic questioning and attack has played a part.
- 1054 But by far the most important factor has been the possibility system.

- 1055 This is an immensely important part of thinking.
- 1056 The possibility system gives hypotheses in science and visions in technology.
- 1057 That is what has driven Western achievement.
- 1058 Chinese culture, which was far ahead of Western technical culture two thousand years ago, came to a halt because they moved into description and never developed the possibility system.
- 1059 Even today in schools and universities very little attention is given to the 'possibility' system, which is so very important a part of thinking.
- 1060 This is because there is the belief that thinking is all about the 'truth' and 'possibility' is not truth.
- 1061 Later in this book I intend to give a lot of attention to the possibility system because it is so very important.
- 1062 Argument is a rather poor way of exploring a subject because each side soon becomes interested only in winning the argument rather than in exploring the subject.
- 1063 At best there might be a synthesis of thesis (one side) with antithesis (the other side) to give a synthesis, but this is only one possibility amongst many which would otherwise have been designed. ...
- 1064 Instead of argument we can have parallel thinking
- 1065 (*Parallel Thinking Viking, 1964) in which all parties seek, in parallel, to explore the subject (for example with the Six Hat framework -- Six Thinking Hats, Penguin Books, 1985.
™
- 1066 So we have a traditional thinking system which is excellent as far as it goes but inadequate for the following reasons:

- 1067 1. It does not adequately deal with 'perception', which is by far the most important part of thinking in everyday affairs.
- 1068 2. Argument is a poor way of exploring a subject and sets up unnecessary adversarial positions.
- 1069 3. The 'boxes' derived from the past may not be adequate to deal with a changing world, which is very different from the past.
- 1070 4. Analysis is insufficient to solve all problems. There is a need to supplement it with design.
- 1071 5. The notion that criticism is enough and that somehow useful progress will be made is absurd.
- 1072 6. There is insufficient attention to the generative, productive, constructive and creative aspects of thinking.
- 1073 7. The huge importance of the possibility system is largely ignored.
- 1074 Nevertheless, I do want to emphasize that the traditional thinking system has value and excellence and its proper place.
- 1075 The danger lies in assuming that it is sufficient and allowing the system to dominate all our intellectual effort.
- 1076 I believe that our civilization would have been at least 300 or even 400 years further advanced if we had not been trapped by such an unconstructive thinking system.
- 1077 You do not have to agree with me.