

# Acknowledgements

## **Oliver:**

---

To my mother, Constance, for always encouraging me.

To my family, Lyn, Pascal, Roma and Francesca, for accommodating my pursuits.

## **Ian:**

---

Thank you to Lorraine, my partner, for the beautiful ways she finds to remind me how simple life really is.

Thank you also to all those teachers and managers that have taken the time to write and send examples of the fabulous ways they have translated our books into practice – in particular, Jo and 'Dick the Fish' in the South West, and Gerry and Trevor in Scotland.

## **Bill:**

---

To my mother and father, who launched me on my learning journey and have supported me at every turn.

To my wife, Janet, and my children and grandchildren who have brought so much richness to our shared lives.

And with thanks to all those pupils, students and colleagues who have challenged, encouraged, inspired and taught me a great deal about myself and the world. I am grateful to the teachers and mentors I have met through their books and in person. But for these human and humane contacts my life in education might have been a dull one.

# Contents

<b>introduction</b>	the content	<b>P8</b>
	the structure	<b>P10</b>
<b>section 1 context</b>	<b>CHAPTER 1</b> background	<b>P13</b>
	<b>CHAPTER 2</b> the iDesk model	<b>P21</b>
	<b>CHAPTER 3</b> the knowledge age	<b>P29</b>
<b>section 2 visuals</b>	<b>CHAPTER 4</b> visual tools and computers	<b>P35</b>
	<b>CHAPTER 5</b> visual literacy	<b>P41</b>
	<b>CHAPTER 6</b> tools to learn	<b>P49</b>
<b>section 3 meaning</b>	<b>CHAPTER 7</b> schemas	<b>P57</b>
	<b>CHAPTER 8</b> holographic-linear	<b>P67</b>
	<b>CHAPTER 9</b> constructing knowledge	<b>P75</b>
<b>section 4 language</b>	<b>CHAPTER 10</b> support for language	<b>P83</b>
	<b>CHAPTER 11</b> reading	<b>P91</b>
	<b>CHAPTER 12</b> writing	<b>P99</b>
<b>section 5 thinking</b>	<b>CHAPTER 13</b> thinking skills	<b>P105</b>
	<b>CHAPTER 14</b> questions	<b>P111</b>
	<b>CHAPTER 15</b> thinking in action	<b>P119</b>
<b>section 6 learning</b>	<b>CHAPTER 16</b> active learning	<b>P129</b>
	<b>CHAPTER 17</b> styles of learning	<b>P137</b>
	<b>CHAPTER 18</b> ability range	<b>P143</b>
<b>section 7 lexicon</b>	<b>CHAPTER 19</b> lexicon	<b>P151</b>

# Foreword

A multi-media world breeds sophisticated visual learners. Children who've been exposed from their earliest years to TV, video and computer displays respond naturally – and eagerly – to pictures, diagrams and other visual models. Yet in education we've been slow to recognise the potential of visual teaching strategies to enhance and accelerate children's learning.

Having recently conducted work for the National Literacy Strategy on using visual planning for cross-curricular writing (simple 'skeletons', on which children can organise their thoughts before starting to write), I'm convinced that this potential is enormous. When teachers or learners arrange their ideas on a timeline, spidergram or other visual skeleton, they are 'making thinking visible'.

This 'big picture' representation – which can be talked around and thought about – is an excellent preparation for writing. It allows children to sort out the content and organisation of their work first, before the difficult task of forcing their understanding into the linear straitjacket of written language. In fact, when you put a visual model in the centre of the teaching process, the boundaries between 'literacy', 'learning' and 'thinking skills' begin to seem increasingly artificial.

However, if we are to make maximum use of visual teaching strategies, we need first to be aware of the range of techniques and devices available to us. The skills involved must be defined, described and clarified. *Thinking Skills and Eye Q* addresses this task with enormous clarity, combining a theoretical perspective ('what is behind our understanding – how does the mind work?') with the practical considerations that underlie all good teaching. I believe it is a very important book, which teachers of all age groups will find a valuable and stimulating resource.

Sue Palmer, Literacy writer and trainer

## The content

### There has been a great deal of fuzzy thinking about thinking skills.

So, you have attended several thinking skills courses. You have even taught a thinking skills program to your students. More recently, you have highlighted the opportunities for challenging students' thinking in the context of your subject. You have understood, therefore, and agreed with the move from thinking skills to thinking schools. Infusion is your byword.

But, after all this manoeuvring, you are still not clear what thinking actually is. Yes, you can identify the various levels of thinking in several taxonomies. You are familiar with competencies ranging from systematic search to syllogisms. Cognitive conflict and metacognition are actively promoted in your lessons. Yet, underneath all the surface descriptions of the different types of thinking, operating at various levels, supported by a string of strategies and applied across a range of contexts, thinking itself remains unexamined.

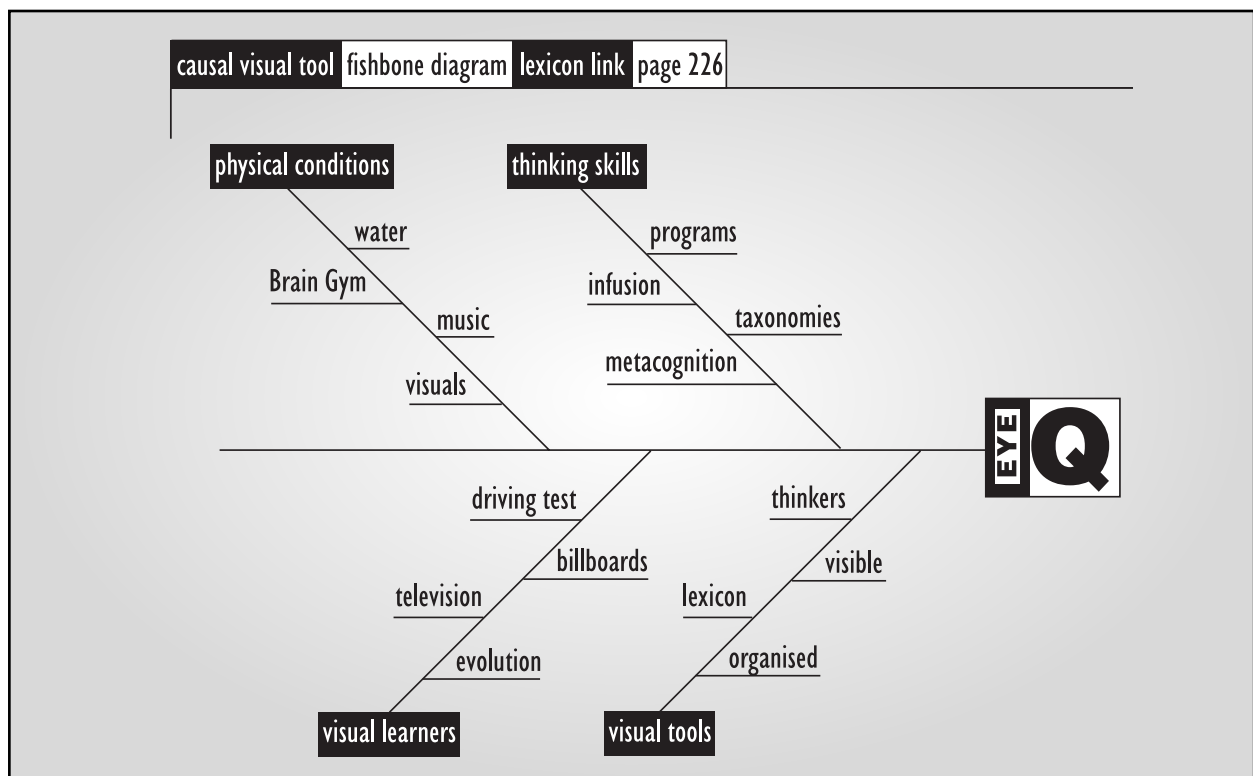


Eye Q aims to analyse, reveal and explain the basis of thought.

### Accelerated Learning deals with the conditions for learning.

Your students are well watered, oxygenated from their Brain Gym, and relaxed thanks to ambient music. You have developed a positive learning environment with warm, respectful relationships, and vibrant, visual classrooms. Your teaching incorporates visual, auditory and kinesthetic modalities. Children have opportunities to demonstrate their prowess across a range of intelligences. Your skilful use of neuro-linguistic programming principles promotes success.

Yet, while you confidently apply these highly effective Accelerated Learning techniques, are you clear what is actually happening in the heads of your students when they are learning? Can you articulate your sense of what the 'ah ha!' moment – when a learner grasps a concept – actually consists of?



### All learners are visual learners.

When people learn to drive, do they manage to do so with their eyes closed? Do companies spend millions of dollars on advertising in the expectation that only a third of the population will notice, still less be influenced by, billboards and television? Can you easily and successfully communicate complex diagrams just by talking about them?

Our brains, as Robert Ornstein points out in *New World, New Mind* (Ornstein and Ehrlich, 1991), are the evolutionary product of humans living for millennia in conditions far removed from what we know as civilisation. They became finely tuned to detect rapidly what was wanting to eat us, and what we wanted to eat. For humans, visual proficiency correlated directly with life span. No-one could afford to opt out because using their eyes was not their preferred modality!

These conditions shaped the structure and processes of our brains. We retain this overwhelmingly visual orientation.



### Visual tools make thinking visible.

When we think, we organise our thoughts in particular ways. We treat our thoughts much as we treat real objects – we manipulate them, move them about and even forget where we put them. The only difference with our thoughts-as-objects is that we cannot see them. They are invisible. As such, we have a correspondingly lower awareness of them, much like our forgetfulness of any physical object permanently hidden from view.

Much of the trouble students have with thinking is due to its invisible nature. When people can see what they are thinking, they immediately become better thinkers. When they no longer have to strain to remember the specific locational arrangement of their thoughts in their heads, their mental energy is released to examine the combination of thoughts themselves. This is known as high-level, reflective thinking.

Visual tools make students' thinking visible. Beware, because they make your thinking visible too. When thinking is visible, it also becomes public and interactive.



### Eye Cue raises your IQ.

Thinking can be transformed from being a private, abstract and invisible act, to one that is public, concrete and visible. Visual tools are cues for your eyes. With such cues, your thinking is stimulated, challenged and supported. The basis of intelligence is thinking. Behind all the various models of intelligence lies the act of thinking. By becoming better thinkers through the eye cues of visual tools, students raise their intelligence.

### Visual tools need to be identified, labelled, organised and taught.

Humans have always used marks to depict their thoughts. We now have a vast array of maps, diagrams, charts and matrices available to us. However, their uses are spread around a range of disciplines – mathematics, information architecture, logic, business and illustration, for example.

In education there is no categorisation, or 'lexicon', of visual tools. They have never been 'gathered together'. Teachers need to know what tools are available, to be able to name them, to understand their different functions, to appreciate the match of tools to contexts, and to find them in an organised filing system. *Eye Q* contains this first-ever comprehensive lexicon of visual tools for teachers.

## The structure

### **Traditionally, books are not well designed for readers.**

When a book is produced, much emphasis is often placed on the authors – their backgrounds, their aspirations, their values. Much less emphasis is placed on the readers. This is not the case with other items for sale. Designers behind new furniture, appliances and buildings are not lauded in this way. The emphasis is not on them, but on their products.

Products are designed with the user in mind. Information architects design information pathways for computer users, to make the content accessible and easily manipulated. Books have not moved with the times – they do not, in general, display the same attention to the experience of the reader.

When reading a book, do you find that you use a highlighter to pick out key points, or make notes in the margin? Readers frequently have to add organising structures and orientational signposts to the text for their own benefit. But such work is often unnecessary as the author probably had these same principles and signposts in their original plans. They then disappeared when the plans were converted to text.

*Eye Q* is written with you, the reader, in mind. It has been designed to make your reading easier, more flexible, more organised and more memorable. Illustrations, visual tools, chapter structures, topic sentences, outlines and reviews, as well as suggested reading routes, all combine to create a book designed with the end user in mind.

### **As you read *Eye Q*, there are several views and routes available.**

Many books tell their readers that there is no obligation to read from cover to cover in linear fashion. As if people follow such sequential patterns anyway! Yet, after such an invitation, there are no structures designed into the book to make flexible reading excursions easy, connected and fruitful. Any meandering from a linear progression through the book is entirely at the reader's mental expense. It is the reader alone who is expected to do all the work.

While it is true that it can only be the reader who creates meaning from the text, there are, nonetheless, design principles available to make your reading more comfortable, more exciting and more 'intelligent'. *Eye Q* both invites you to read through in a non-linear way and supports you in doing so.

### **Your navigation through sections and chapters is signposted.**

There are seven sections to the book. Sections 1 to 6 each contain three chapters, while section 7 comprises a single chapter providing the lexicon of visual tools.

At the start of every chapter, at the top of the page, there is a drop-down menu. This shows which chapter you are about to read, in which section. It also shows what has preceded this point, and what follows. There is also a text box giving a brief summary of the chapter from the route map. All the text boxes are shown in a summary table at the beginning of the book. Using this orientational support, you can see where you have gone and where you might want to go next.

Each chapter begins with an overview – a mind map that shows you the organising principles of the content in a graphic format (for example, see page 13). The major topic sentences of the chapter are in bold. This allows you to read the key points of the chapter in only ten sentences. Normally, when you skim-read a chapter, you are aiming to find these important sentences while you flick through the pages, which can be very hit-and-miss. This device gives you a 'skim-on-a-plate'.

