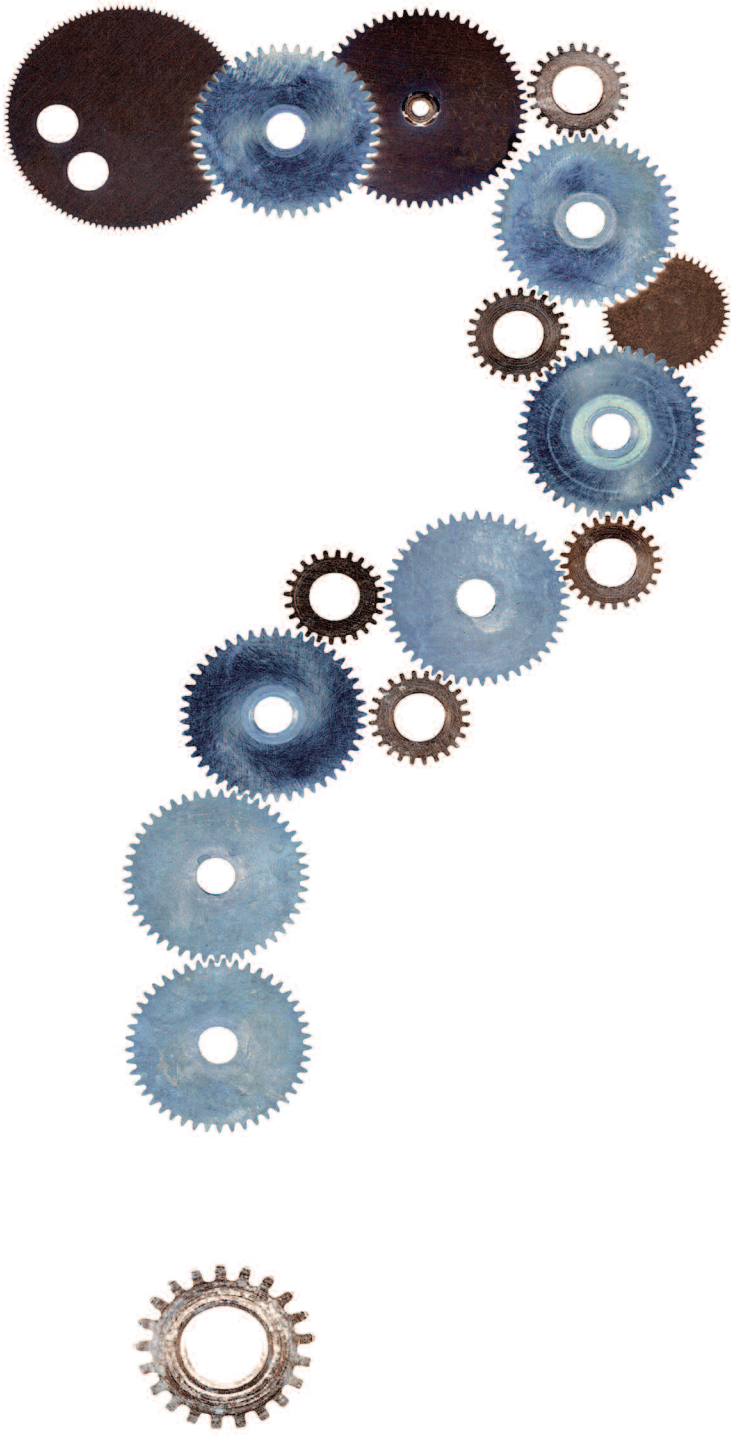
TEACHING THINKING IN THE CLASSROOM

ROBERT FISHER

IN RECENT YEARS THERE HAS BEEN GROWING INTEREST across the world in ways of developing children's thinking and learning skills.[1] This interest has been fed by new knowledge about how the brain works and how people learn, and evidence that specific interventions can improve children's thinking and intelligence.

Thinking skills are important because mastery of the 'basics' in education (literacy, maths, science etc.), however well taught, is not sufficient to fulfil human potential or the demands of active citizenship. The challenge is to develop educational programmes that enable learners to become effective thinkers, for if thinking is how children make sense of learning, then developing their capacities for thinking will help them get more out of learning and life. As Paul, aged 10, put it: 'We need to think better if we are going to become better people.'

A GOOD TEACHER MAKES YOU THINK...EVEN WHEN YOU DON'T WANT TO. – Tom, age 10



WHAT ARE THINKING SKILLS?

Thinking skills are not mysterious entities existing somewhere in the mind. Nor are they like mental muscles that have a physical presence in the brain. The term refers to the human capacity to think in conscious ways to achieve certain purposes. Such processes include remembering, questioning, forming concepts, planning, reasoning, imagining, solving problems, making decisions and judgements, translating thoughts into words and so on. Thinking skills are ways in which humans exercise the *sapiens* part of being *homo sapiens*.

A skill is commonly defined as a practical ability in doing something or succeeding in a task. Usually we refer to skills in particular contexts, such as being "good at cooking" but they can also refer to general areas of performance, such as having a logical mind, good memory, being creative and so on. A thinking skill is a practical ability to think in ways that are judged to be more or less effective or skilled. Thinking skills are the habits of intelligent behaviour learned through practice; for example children can become better at giving reasons or asking questions the more they practice doing so.

If thinking skills are the mental capacities we use to investigate the world, to solve problems and make judgements, then to identify every such skill would be to enumerate all the capacities of the human mind and the list would be endless. Many researchers have attempted to identify the key skills in human thinking; the most famous of these is Benjamin Bloom. Bloom's taxonomy of thinking skills (what he called the "cognitive goals of education") has been widely used by teachers in planning their teaching. He identifies a number of basic or "lower order" cognitive skills – knowledge, comprehension and application – and a number of "higher order" skills – analysis, synthesis and evaluation.

You could plan or analyse many learning activities in terms of Bloom's categories. For example when telling a story, a teacher might ask the following kinds of questions:

1. Knowledge	*What happened in the story?*
2. Comprehension	*Why did it happen that way?*
3. Application	*What would you have done?*
4. Analysis	*Which part did you like best?*
5. Synthesis	*Can you think of a different ending?*
6. Evaluation	*What did you think of the story? Why?*

Bloom's taxonomy built on earlier research by Piaget and Vygotsky that suggested that thinking skills and capacities are developed by *cognitive challenge*. Teachers need to challenge children to think more deeply and more widely and in more systematic and sustained ways. Or as Tom, aged 10, put it: " a good teacher makes you think ... even when you don't want to." Teachers can do this is by asking questions that challenge children's thinking, but challenging the thinking is not enough. Learners must also develop awareness of themselves as thinkers and learners and practise strategies for thinking with others if they are to develop the intelligent behaviours needed for lifelong learning.

WHAT DOES RESEARCH TELL US ABOUT THINKING?

Research in cognitive science and psychology is providing a clearer picture of the brain and the processes associated with thinking. This brain research has some important implications for teachers. For example we now know that most of the growth in the human brain occurs in early childhood: by the age of six, the brain in most children is approximately 90% of its adult size. This implies that intervention while the brain is still growing may be more effective than waiting until the brain is fully developed. Cognitive challenge is important at all stages, but especially in the early years of education.

Psychologists and philosophers have helped to extend our understanding of the term "thinking", including the importance of dispositions, such as attention and motivation, commonly associated with thinking. This has prompted a move away from a simple model of 'thinking skills as isolated cognitive capacities to a view of thinking as inextricably connected to emotions and dispositions, including "emotional intelligence", which is our ability to understand our own emotions and the emotions of others. Thinking is developed through interaction with others, so we need to develop in learners the skills of dialogue and collaborative thinking.

There is also a growing realisation that we need to develop the higher "metacognitive" functions, which involve making learners aware of themselves as thinkers and how they process/create knowledge by 'learning how to learn.[2]

Metacognition involves thinking about one's own thinking. It includes knowledge of oneself, for example of what one knows, what one has learned, what one can and cannot do, and ways to improve one's learning or achievement. Metacognition also involves recognising problems, representing features of problems, planning what to do in trying to solve problems, monitoring progress, and evaluating the outcomes of one's own thinking or problem-solving activity.

This ability to "think about thinking" is promoted by helping pupils to reflect on their thinking and decision-making processes and is developed when pupils are helped to be strategic in organising their activities and when they are encouraged to reflect before, during and after problem-solving processes. The implication here is that teachers need to plan time for debriefing and review in lessons to encourage children to think about their learning and how to improve it. This can be done through discussion in a plenary session, or by finding time for reflective writing in thinking or learning logs.

EN BREF La capacité de raisonnement est importante, car la maîtrise des « notions élémentaires » de l'éducation, même les mieux enseignées, ne suffit pas pour réaliser le potentiel humain ou remplir les exigences d'une citoyenneté active. Le défi consiste à élaborer des programmes d'enseignement permettant aux apprenants d'acquérir une capacité de raisonnement efficace. Car si le raisonnement permet aux enfants d'apprendre, développer cette capacité les aide à profiter davantage de leurs apprentissages et de la vie. D'après l'expérience des enseignants, lorsque des élèves acquièrent une capacité de raisonnement efficace grâce au dialogue, leur assurance grandit, leurs apprentissages s'enrichissent et ils sont mieux préparés à relever les défis futurs.

PHILOSOPHICAL APPROACHES DEVELOP THROUGH DIALOGUE THE MORAL, SOCIAL AND EMOTIONAL, AS WELL AS THE INTELLECTUAL, ASPECTS OF THINKING – COLLABORATIVE AS WELL CRITICAL AND CREATIVE THINKING.

The human mind is made up of many faculties or capacities that allow learning to take place. Our general capacity for understanding or *intelligence* was once thought to be innate and unmodifiable. As a child once put it to me: "Either you've got or you haven't – and I haven't!" This traditional view of intelligence was challenged by Vygotsky, Piaget and others, who argued that learners were active creators of their own knowledge. Some researchers claim that intelligence is not a single generic capacity but is made up of multiple capacities. Howard Gardner's theory of Multiple Intelligence has had a growing influence in recent years on educational theory and practice, though not all are convinced of its claims. But whether intelligence is viewed as one general capacity or many, researchers agree that it is modifiable and can be developed.

The key principle emerging from this research is that teachers and caregivers need to provide for:

- cognitive challenge, through challenging children's thinking from the earliest years;
- collaborative learning, through extending thinking through dialogue with others;
- metacognitive awareness, through reviewing with children their thinking and learning processes.

This research and the pioneering work of Feuerstein, who created a programme called Instrumental Enrichment, Matthew Lipman, who founded Philosophy for Children, and other leading figures such as Edward de Bono, creator of "lateral thinking", have inspired a wide range of curriculum and programme developments. These teaching approaches include "cognitive acceleration", '"critical thinking", and "philosophical approaches". Philosophical approaches have proved especially successful because they ally cognitive challenge to collaborative and metacognitive discussion. They develop through dialogue the moral, social and emotional, as well as the intellectual, aspects of thinking – collaborative as well as critical and creative thinking.

PHILOSOPHICAL APPROACHES: STORIES FOR THINKING

A pioneer of the critical thinking movement in America is the philosopher Matthew Lipman. Originally a university philosophy professor, Lipman was unhappy at what he saw

"WHEN YOU GET OUT IN THE REAL WORLD YOU HAVE TO THINK FOR YOURSELF, THAT'S WHY WE NEED TO PRACTISE IT IN SCHOOL."

as poor thinking in his students. They seemed to have been encouraged to learn facts and to accept authoritative opinions, but not to think for themselves. He became convinced that something was wrong with the way they had been taught in school when they were younger. He therefore founded the Institute for the Advancement of Philosophy for Children (IAPC) and developed with colleagues a programme called Philosophy for Children, used in more than 40 countries around the world.[3]

Lipman believes that children are natural philosophers because they view the world with curiosity and wonder. Children's own questions form the starting-point for an inquiry or discussion, which can be termed "philosophical". The IAPC has produced a number of novels, into every page of which, strange and anomalous points are woven. Lipman argues that these novels should be used in separate lessons in Philosophy for Children. But the challenge for teachers is: how do we get the teaching of thinking into all lessons?[4]

Many resources have been developed in recent years to apply Lipman's approach to the needs of children and teachers across the curriculum. "Stories for Thinking" is one such approach.[5] The aim, through using stories and other kinds of stimuli for philosophical discussion, is to create a community of inquiry in the classroom.

In a typical "Stories for Thinking" lesson, the teacher shares a "thinking story" with the class. They have "thinking time" when they are asked to think about anything in the story that they thought was strange, interesting or puzzling. After some quiet thinking time the teacher invites questions and writes each question on the board, along with the child's name. The children choose from the list of questions ones they would like to discuss. The teacher then facilitates dialogue around the chosen question, using Socratic questions to encourage deeper thinking and engaging children in a metacognitive review at the end of the discussion. In creating a community of inquiry the teacher has a method for teaching thinking that applies not only to stories, but to any lesson.

When reviewing the value of a "Stories for Thinking" lesson, one child said: "You have to ask questions and think hard about the answers." Another said: "It's when you listen to others that you begin to change your mind." A third reply was: "It is better than just doing reading or writing because you have to say what you really think."

Teachers note that through "Stories for Thinking" lessons, in which they may also use poems, pictures, objects or other challenges for thinking, the children become better at engaging in dialogue, questioning and reasoning, become more confident in expressing creative ideas, in judging what they and others think and in applying their thinking to fresh challenges.

Philosophical approaches to teaching for thinking provide a means to raising achievement through creating communities of inquiry characterised by cognitive challenge, dialogue and metacognitive awareness. The experience of teachers suggests that when pupils are taught the habits of effective thinking through dialogue, they grow in confidence, their learning is enriched, and they are better prepared to face the challenges of the future. Children think so too – as Arran, aged 9, put it: "When you get out in the real world you have to think for yourself, that's why we need to practise it in school."

Teaching for thinking is about helping children to think for themselves and with others, which is why it is both a challenge and an adventure.

ROBERT FISHER is a teacher, writer and researcher on teaching thinking, learning and creativity. His books include *Teaching Children to Think*, *Teaching Children to Learn*, *Teaching Thinking*, and the *Stories for Thinking* series. His PhD was awarded for research on philosophy with children. He is a part-time Professor of Education at Brunel University in West London, England, consultant to many professional development projects and keynote presenter at national and international conferences. Website: www.teachingthinking.net

Notes

1 Robert Fisher, *Teaching Children to Think*, 2nd ed. (Cheltenham: Stanley Thornes, 2005).

2 Ibid.

3 Matthew Lipman, *Thinking in Education*, 2nd ed. (Cambridge: Cambridge University Press, 2003).

4 Robert Fisher, *Teaching Thinking: Philosophical Enquiry in the Classroom* (London: Continuum, 2003).

5 For more information and a list of resources, see www.teachingthinking. net