
Title Critical thinking and Socratic inquiry in the classroom
Author(s) Lim Tock Keng
Source *ERA - AARE Joint Conference, Singapore, 25-29 November 1996*

This document may be used for private study or research purpose only. This document or any part of it may not be duplicated and/or distributed without permission of the copyright owner.

The Singapore Copyright Act applies to the use of this document.

CRITICAL THINKING AND SOCRATIC INQUIRY IN THE CLASSROOM¹

Lim Tock Keng

National Institute of Education

ABSTRACT

Critical thinking is widely regarded as a generalized skill or ability (or a set of such skills and abilities) to be utilized across a variety of situations and circumstances. The definitions of critical thinking vary from Ennis' comprehensive list of proficiencies of a critical thinker, to Paul's "strong-sense" critical thinking, focusing on self-deception, world views and a dialectical mode of analysis, and to Lipman's critical thinking being extremely deliberative with continual examining and weighing of alternatives in the light of explicit standards and criteria. The paper focuses on different models of critical thinking in the classroom: Paul's Socratic Questioning model, Adler's Paedeia Socratic Seminar programme, Van Tassel-Baska's Epistemological Concept model and Lipman's Philosophy for Children programme. The role of teachers in these models and how teachers can bring about inquiry in the classroom are discussed.

Introduction

Critical thought is of the first importance in the conception and organization of educational activities.

Scheffler (1973)

At present there is an unprecedented interest in critical thinking; reflecting on the assumptions underlying our actions, and considering new ways of looking at the world and living in it is an essential skill for adults and students. Yip (1995), in an address at the Principals' Conference in Singapore, proposed that one of the characteristics an ideal school leaver should have is critical and creative thinking skills; the school leaver must be adept at selecting and using technology and understanding the societal effects of technology advances. Critical thinking skills are strongly emphasized in Singapore; the theme of the 1997 International Conference on Thinking in Singapore is Borderless Thinking: Creating a global learning society.

In the U.S., Siegel (1988) pointed out that national commissions on the state of education in the U.S. called for the inclusion of reasoning in the school curriculum as the fourth "R"; entire states in the U.S. test their public school students' critical thinking skills. Brookfield (1987) submitted that critical thinking is not simply an abstract academic exercise for high school and college students, but a

productive process enabling people to be more effective and innovative in every aspect of life and work. Paul (1990) felt that in a world of shallow values, instant gratification, and quick fixes, critical thinking is a tool necessary for survival. Critical thinking is needed within the domain of every day issues and problems, such as love and friendship, poverty, social injustice, security and nuclear energy.

Critical Thinking

Critical thinking is widely regarded as a generalized skill or ability (or a set of such skills and abilities) which can be utilized or applied across a variety of situations and circumstances. In his early 1960s pioneering work, Ennis (1962) interpreted critical thinking as

the correct evaluation of statements and offers criteria for the correct assessment of the various types of statements. In his later writings, Ennis (1984; 1987) focused on a comprehensive list of proficiencies of a critical thinker. However, Siegel (1988) argued that Ennis did not address the question on why critical thinkers have this tendency to think critically, i.e., to utilize the proficiencies.

Paul, currently one of the leading figures in the critical thinking movement, acknowledged the importance of including this tendency in his conception of critical thinking as he felt that teaching for "weak-sense" critical thinking amounted to simply the mastery of skills and techniques, critical thinking being taught as a battery of atomic technical skills. Paul (1982) called for the teaching of "strong-sense" critical thinking where thinkers can apply reasoning skills in those areas where they are most likely to have egocentric and sociocentric biases.

Paul's distinction between weak- and strong-sense critical thinking rests on an analysis of world views: sets of beliefs, assumptions and inferences that reflect particular interests, stakes and perceptions. Paul equates this task, the identification and critique of world views, with the ancient Socratic model of the learner as a systematic, probing questioner and dialectical reasoner striving to live a reflective rational life. Paul's model of Socratic Questioning is discussed in the next section

To Lipman (1995), critical thinking is included with creative and caring thinking as higher-order thinking, referred to by the Greeks as "good" thinking. Critical thinking, on its own, is skilful, responsible thinking that facilitates good judgement because it relies upon criteria, is self-correcting and is sensitive to context. Lipman (1993) showed that the improvement of student thinking from ordinary thinking to good thinking (see Table 1) depends on the students' ability to identify and cite good reasons for their opinions. Critical

thinking is extremely deliberative; there is continual examining and weighing of alternatives in the light of explicit standards and criteria.

Insert Table 1 about here

In the classroom, to teach critical thinking is to create an environment in the class conducive to critical thinking. The teacher needs to encourage and reinforce values of critical thinking, such as open-mindedness, empathy, rationality and self-correction. The teachers are not "authorities" telling them the right answers but facilitators assisting and supporting students to figure out answers for themselves and to identify and solve problems. Students learn in such an environment to believe in the efficacy of their own thinking and to think for themselves.

Socratic Inquiry

Socratic Inquiry is a technique of questioning used by the great ancient Greek philosopher and teacher Socrates (470 B.C. - 399 B.C.). It forms the basis of the four models, discussed in this paper, that fosters critical thinking through inquiry: Paul's (1990) Socratic Questioning model, Adler's (1984) Paedeia Socratic Seminar programme, Van Tassel-Baska's (1986) Epistemological Concept Model and Lipman's (1980) model of Philosophy for Children.

Socrates' teaching was done orally. He developed the Socratic method of questioning, one that leads individuals to logical conclusions through the inductive approach. As its goal is to reach a true and universal definition, it requires the questioning of what is assumed to be true. In this style of teaching, there is the persistent asking of important questions in pursuit of lasting values (Rivlin, 1943). As developed by Socrates, this quiz method has two stages, the 'ironic' or destructive phase and the 'maieutic' or constructive phase.

In the destructive phase, by skilful questioning, the pupil is brought from unconscious secondary ignorance to conscious ignorance. In the constructive phase, by further questioning, the pupil is led from conscious ignorance to clear and rational truth. Inquiry in the classroom needs what Reed (1992) calls "scholarly ignorance" , which has its basis in Socrates. In the "Socratic" method, the teacher uses dialogue to bring the pupil to the point where he is able to realize his "ignorance" and thus acquire the attitude of the learner.

Thus to inculcate inquiry in students, we need them to acquire knowledge actively and through pragmatic observation. In the conventional classroom, knowledge tends to be acquired passively and through observation. A study on learning styles of Secondary 4 (Grade

10) students in Singapore showed that they prefer traditional ways of teaching where they can observe, listen and reflect (Lim, 1995). In the "Socratic" method, the teacher utilizes questions and discussion to control the information to which the students are exposed. Student responses are shaped and directed by questions, and use is made of the correct part of the answer. Such questions usually lead students to deeper meanings.

Paul's Socratic Questioning model. Paul (1990) pointed out the special relationship between critical thinking and Socratic questioning: they have a common end in that critical thinking gives the student a comprehensive view of how the mind functions in its pursuit of meaning and truth, and Socratic questioning takes advantage of that overview to frame questions essential to the quality of that pursuit. Thus Socratic questioning provides a unique opportunity for teachers to foster critical thinking in students. The aim of critical thinking is, as it were, to establish an inner voice of reason to monitor, assess, and reconstitute in a rational direction, in the students, thinking, feeling and action. Socratic discussion cultivates that inner voice by providing a public model for it.

Paul maintained that all thinking is driven by questions and that the quality of thinking is determined by the quality of questions driving it; questions allow the teachers to take thinking apart and reveal to teachers how the parts function together. To Paul, thinking well about thinking requires teachers and students to ask questions that would bring intellectual standards to bear on thinking. To propagate his ideas, Paul set up the Centre for Critical Thinking at Sonoma State University to develop materials such as books and video-tapes on how to foster critical thinking and Socratic questioning in the classroom. Workshops and conferences are also conducted by the centre. In Singapore, the Socratic Questioning model is currently being tried out in some schools (Heng & Lim, 1995, 1996 ERA/AARE).

Adler's (1984) Paedeia Socratic Seminar programme. Adler (1984), a famous advocate of the Socratic teaching method, felt that questioning students about something they have read helps them improve their understanding of basic ideas and values. In his famous Paedeia Proposal (1982), Socratic seminar was one of the reforms that Adler advocated to improve education. The purpose of these seminars for

students of all ages is to enlarge their understanding of ideas, issues and values through intensive conversation about selected texts. These seminars demand rigorous thinking by the students and not just mastery of facts.

The teacher, leader of the seminar, starts with an opening question based on a close study of the text, listens carefully to responses and gently moves the conversation in accordance with what is said by the

students. Gray (1988) felt that seminars engage students in a collaborative quest for understanding, in a mutual testing of each other's ideas about the text. There is no competition for right answers. Applications of the Paedeia model can be seen in the U.S., both in terms of Paedeia schools (see Gettys & Holt, 1994) as well the model being introduced to schools and colleges (see Levine-Brown, et. al 1993).

Lipman's Model of Philosophy for Children. Lipman's approach to developing critical thinking in students is through redesigning philosophy, taught at college level, for children. Lipman (Lipman, Sharp, & Oscanyon, 1980) developed the Philosophy for Children (P4C) programme because he strongly believed that philosophy is the discipline that can cultivate critical thinking in students. To bring philosophy down to the level of students, Lipman presents the P4C programme in narrative form as novels and short stories. In his fictional approach, children discuss basic philosophical concepts as members of a community of philosophical inquiry. Thus the program acquaints students with philosophical issues through the discussion of passages from these specially written novels, such as Pixie (1981) and Harry Stottlemeier's Discovery (1982).

The P4C programme incorporates the Socratic structure, a process approach into the Community of Inquiry, the instructional approach for P4C (Splitter & Sharp, 1995). Besides helping students to improve their thinking, the community of inquiry helps students in their search for knowledge and understanding of everyday life, and fosters mutual cooperation, trust, tolerance, fair mindedness and a heightened degree of sensitivity to fellow participants (see the characteristics of the community of inquiry set up in Table 2). The community of inquiry creates, as mentioned above, a conducive environment to foster critical thinking in the classroom.

Insert Table 2 about here

In developing the community, dialogue plays a significant role. Teachers have to be skilful facilitators and to guide students to improve their critical thinking skills by having them think about thinking as they discuss philosophical issues and concepts of importance to them. Students are encouraged to discuss, listen, clarify and justify their thinking. It is important that the community of inquiry does not get reduced to a set of skills and dispositions; it is a "form of life" in which thinking, speaking and behaving are all interwoven. Teachers need to use suitable open-ended questions to spark off discussions in class and to encourage the students to practise good thinking skills.

The P4C programme is carried out in about 35 countries spanning across

North and South America, Europe, Australia, Asia and Africa. The curriculum materials and teaching methods for the programme are developed by Lipman and his associates at the Institute for the Advancement of Philosophy for Children (IAPC) at Montclair State

University. An international association called the International Council for Philosophical Inquiry with Children (ICPIC) promotes the programme in the different countries and organize conferences. The P4C programme has been successfully tried out in some Singapore schools over the last four years as well (Lim, 1994a, 1994b; Lim & Koh, 1992; Lim -- with Soo Fen, 1996; Lim & Tan, in press)

Van Tassel-Baska's Epistemological Concept Model. The epistemological concept model, as conceived by Van Tassel-Baska (1986), is organized by ideas and themes. It is a highly interactive model in its instructional context with use of discussion and questioning methods as teaching tools. The Socratic method is an important part of this model, which focuses on students' understanding and appreciation of systems of knowledge rather than individual segments of these systems. The students will be exposed to key ideas, themes, and principles within and across domains of knowledge.

The role of the teacher in this model is a questioner, raising interpretative issues for discussion and debate. The teacher uses Socratic questions to stimulate intellectual discussion among students.

Students focus their energies on reading, reflecting and writing, and learn how to appreciate ideas in various representational forms. The model was one designed by Van Tassel-Baska for the gifted curriculum. Currently in the College of William and Mary in Virginia, Van Tassel-Baska and her associates have incorporated the model in science and language arts modules to be used by the gifted (Van Tassel-Baska, 1992; Van Tassel-Baska, et. al, 1994).

Dialogue and Inquiry

Two of the models, Lipman's and Adler's, make use of selected texts and inquiry on the texts. Both Paul and Lipman specifically and explicitly used their programme to promote critical thinking while Adler and Van Tassel-Baska used critical thinking as an underlying theme for their models. Basic to all four models is dialogue: the emphasis on inquiry and critical thinking is on dialogue. The dialogue include those between teacher(s) and students, those among students, as well as dialogue between students and the books and audio-visual materials they read, listen to and view. The student becomes an active, critical listener, reader, and viewer, one for whom class lessons and discussions, books or films generate questions as well as provide answers.

To carry out inquiry in the classroom using any of the models, we begin

first with dialogue between the teacher and students. Benjamin and Echeverria (1991) suggested the teacher should, through modelling, establish an atmosphere in which children are encouraged to ask questions. Students would then develop personal characteristics such as mutual trust and respect, willingness to explore a wide variety of possibilities, have good listening skills, have readiness to offer and request reasons for various beliefs. The best way to develop these characteristics is for the teacher to model them; students will be influenced far more in this connection by what the teacher does than by what their classmates do. As the teacher establishes the dialogue with the students, he or she can then go on to bring about the dialogue between students to develop inquiry within the classroom.

In the classroom with inquiry, students would be encouraged to ask questions and be active participants in learning rather than passive recipients or spectators. There would be less emphasis on acquiring massive amounts of facts in their lessons and more on acquiring the ability to reason well and think for oneself. They would also slowly

learn to be more tolerant of complexity and ambiguity than students in conventional classrooms. Another dialogue that needs to be fostered in the classroom, according to Benjamin and Echeverria (1991), is internalized dialogue or dialogue with oneself, self examination and self reflection. The teacher need to encourage self reflection to encourage thinking. The students could then become autonomous learners and critical and evaluative thinkers.

Role of Teachers

Essentially, teachers wanting to carry out the process of inquiry in the classroom, using any of the models, must be able to change their role from that of an expert and dispenser of information (traditional role) to that of questioner and facilitator (the not-so-traditional role). What makes it difficult is that inquiry is not something (e.g., a set of techniques) that a teacher can learn quickly.

It must permeate the training and education of teachers - teachers must be taught by methods of inquiry and dialogue and practise the methods extensively. Dewey (1897) pointed out that inquiry did not take hold in education because teachers "tell" about inquiry rather than inquire.

The role of the teacher is a questioner, raising interpretative issues for discussion and debate. The teacher could use Socratic questions to stimulate intellectual discussion among students.

Many teachers would find it very difficult, especially at the beginning to use a sustained series of questions as a method of developing an understanding of a scientific concept, especially under classroom conditions. Given all these points, it would appear that selected teachers with special qualities have to be given intensive training in the art of questioning and role playing before they can use the

dialogue method in the classroom. Reed (1992) gave a series of guiding pointers on how to carry out inquiry in the classroom:

Extent and type of direction. In carrying out a lesson with inquiry, the teacher has to begin with an interesting problem to stimulate the students and ask interesting questions to start the process going. For instance, in Science, a teacher could ask questions that would lead the students to "rediscover" a historical experiment or finding.

Interest as a starting point. The teacher must be able to create interest in the topic that she is introducing; to ignore interest is to leave education dry and sterile (Dewey in McDermott, 1981). When focused on inquiry, the teacher must be careful not to force belief. When one inquires, "one shines a light" on things in order to figure out what makes them what they are. Indoctrination, done in "the dark", sidesteps the reasoning process of inquiry.

Nature of teacher talk. Teachers must not fall into the trap of either talking too much, explaining and clarifying, following the traditional role of dispenser of knowledge or giving the barest of questions such as -- What do you think about that? How do you feel about that? They should learn to listen to their students and encourage them to evaluate and reflect on what has been said in the classroom.

Teacher as filter. The teacher must not let the dialogue turn to a series of monologues, particularly if the discussion digresses too far away from the problem at hand. However, teachers must note that if they do not allow development of issues that arise from the discussion in the class, the students might lose interest. Difficult as it is, the teacher has to find a happy medium. Sometimes it is only after listening or reading a transcript of a previous lesson that a teacher is able to realise that he or she has not allowed the development of

some interesting ideas.

Currently, besides the use of the four models discussed above, Socratic inquiry has been used fairly extensively in classroom teaching. Brogan & Brogan (1995) talks about a dialogical classroom while Lambright (1995) discusses Socratic seminars. Fernandez (1994) and Halmos (1994) felt that the teaching mathematics should include the use of the Socratic method; mathematical dialogue would improve better understanding and problem-solving. Hake (1991) and Uretsky (1993) consider the use of Socratic dialogue in the teaching of science.

Conclusion

There are many kinds of life worth living, but the unexamined life, the unquestioned life, according to Socrates, is not one of them. By his questions and by his example, Socrates also showed how difficult self

examination is. Sweers (1988) felt that the difficulty is worth it, if as a result of our teaching, lives can improve and students can learn to be responsible students. Thus, genuine Socratic teaching and inquiry in the classroom, using any of the four models, does more than question students about their understanding of books; it challenges them to think critically about their behaviour and beliefs.

By using the Socratic method and discussion methods as teaching tools, the process of inquiry can also be used to integrate subjects in the curriculum, as shown in the epistemological concept model. Inquiry would provide students with an intellectual framework to integrate the study of various subjects, for example, science with other disciplines such as mathematics and computer science. It provides a basis for students' understanding of the creative as well as the intellectual process through analyzing products and being actively engaged in the process itself. In addition, it provides a context for integrating cognitive and affective objectives into the curriculum. A discussion of ideas in a class may evoke feelings and responses to the arts.

References

Adler, M. J. (1984) *The Paideia Program: An educational syllabus*, New York: Macmillan.

Benjamin, M. & Echeverria, E. (1992) Knowledge and the classroom, In A. M. Sharp & R. F. Reed (Eds.) *Studies in Philosophy for Children: Harry Stottlemeier's Discovery*, Philadelphia, PA: Temple University Press.

Brogan, B. R. & Brogan, W. A. (1995) The Socratic questioner: Teaching and Learning in the dialogical classroom, *Educational Forum*, 59, 3, 288 - 296.

Brookfield, S. D. (1987) *Developing critical thinkers*, San Francisco, C.A.: Jossey-Bass Publishers.

Dewey, J. (1897) *Democracy and Education*, reprint 1966, New York: Free Press.

Down, A. G. (1988) Socratic seminars: Basic education and reform, *Basic Education: Issues, Answers and Facts*, 3, 4, 3 - 8.

- Ennis, R. H. (1962) A concept of critical thinking, *Harvard Educational Review*, 32, 1, 81 - 111.
- Ennis, R. H. (1984) Problems in testing informal logic/ critical thinking/reasoning ability, *Informal Logic*, 6, 1, 3 - 9.
- Ennis, R. H. (1984) A taxonomy of critical thinking dispositions and abilities, in J. Baron & R. Sternberg (Eds.) *Teaching for Thinking*, New York: W. H. Freeman.
- Fernandez, E. (1994) A kinder, gentler Socrates: Conveying new images of mathematics dialogue, *For the Learning of Mathematics*, 14, 3, 43 - 47.
- Gettys, C. M. & Holt, M. (1993) Survey assessment of Paedeia teachers perceptions concerning professional staff development, Paper presented at the Annual Conference of the Mid-South Educational Research Association, New Orleans, Louisiana, November.
- Hake, R. R. (1991) My conversion to the Arons-Advocated method of science education, *Teaching Education*, 3, 2, 109 - 111.
- Halmos, P. R. (1994) What is teaching, *American Mathematical Monthly*, 101, 9, 848 - 854.
- Heng O. K. & Lim T. K. (1995) Using a computer algebra system in the teaching of trigonometric identities, Paper presented at the First Asian Technology Conference in Mathematics, Singapore, December.
- Heng, O. K. & Lim, T. K. (1996) ERA _ AARE paper presentation
- Lambright, L. L. (1995) Creating a dialogue: Socratic seminars and educational reform, *Community College Journal*, 65, 4, 30 - 34.
- Levine-Brown, P., et. al. (1993) The Paedeia program, Paper presented at the Annual International Conference of the National Institute for Staff and Organizational Development on Teaching Excellence and Conference of Administrators, Austin, Texas, May.

Lim T. K. (1994a) Induction of teachers in the Singapore project, ICPIC Bulletin, 9, 1, 7 - 9.

Lim T. K. (1994b) Philosophy for children: Training of teachers for the Singapore programme, Analytic Teaching, 14, 2, 53 - 56.

Lim, T. K. (1995) Learning styles relevant to identified personality

types of secondary level students, Singapore Journal of Education, 15, 2, 42 - 51.

Lim, T. K. & Koh S. K. (1992) Philosophy for Children: Experiences in two schools, Proceedings of the 6th Annual Conference of the Educational Research Association, Singapore

Lim & Soo Fen (1996) ERA_AARE presentation -----

Lim T. K. & Tan, S. (in press) The Philosophy for Children programme in Raffles Girls School, Analytic Teaching.

Lipman, M. (1981) Pixie, Upper Montclair, New Jersey: Institute for the Advancement of Philosophy for Children

Lipman, M. (1987) Critical thinking - what can it be, Educational Leadership, 9, 38 - 43.

Lipman, M. (1982) Harry Stottlemeier's Discovery, Upper Montclair, New Jersey: Institute for the Advancement of Philosophy for Children

Lipman, M. (1991) Thinking in Education, Cambridge: Cambridge University Press.

Lipman, M., Sharp, A. M., & Oscanyon, F. S. (1980) Philosophy in the Classroom, Philadelphia: Temple University Press

McDermott, J. J. (1981) (Ed.) The philosophy of John Dewey, Chicago: University of Chicago Press.

Paul, R. (1982) Teaching critical thinking in the strong sense: A focus on self-deception, world views and a dialectical mode of analysis, *Informal Logic Newsletter*, 4, 2, 2 - 7.

Paul, R. (1990) Critical Thinking: What every person needs to survive in a rapidly changing world, Rohnert Park: C.A.: Centre for Critical Thinking and Moral Critique.

Reed, R. F. (1992) On the art and craft of dialogue, In A. M. Sharp & R. F. Reed (Eds.) *Studies in Philosophy for Children: Harry Stottlemeier's Discovery*, Philadelphia, PA: Temple University Press.

Scheffler, I. (1973) Reason and Teaching, New York: Bobbs-Merril.

Siegel, H. (1988) Educating reason: Rationality, critical thinking and education, New York: Routledge.

Splitter, L. J. & Sharp, A. M. (1995) *The Classroom as a community of inquiry: teaching for better thinking*, Melbourne, Australia: Australian

Council of Educational Research.

Uretsky, J. L. (1993) Using "dialogue" labs in a community-college physics course, *Physics Teacher*, 31, 8, 478 - 481.

Van Tassel-Baska, J. (1986) Effective Curriculum and Instructional Models for Talented Students, *Gifted Child Quarterly*, 30, 4, 164-169.

Van Tassel-Baska, J. (1992) Planning effective curriculum for gifted learners, Denver, CO: Love Publishing Company.

Van Tassel-Baska, J., et. al. (1994) A curriculum framework in language arts for high ability learners, Williamsburg, VA: Centre for Gifted Education, College of William and Mary.

Yip, J. S. K. (1995) Reflections and renewal in education, in Proceedings of the Principals' Conference, Looking back, Looking ahead: Reflection and renewal in education, 1 - 11.

Table 1Comparing Ordinary Thinking to Good Thinking

Ordinary Thinking
Critical Thinking/Reasoning

Guessing

Estimating

Preferring
Evaluating

Grouping
Classifying

Believing
Assuming

Inferring
Inferring logically

Associating concepts
Grasping logically

Noting relationships
Noting relationships among other relationships

Supposing
Hypothesising

Offering opinions without reasons
Offering opinions with reasons

Making judgments without criteria

Making judgments with criteria

Table 2 Characteristics of the Community of Inquiry in the Philosophy for Children

*a shared sense of puzzlement or intellectual intrigue, which then stimulates further inquiry

*persistence in the search for knowledge and understanding

*giving reasons for opinions, and distinguishing good reasons from bad ones

*students being prepared to "try out" ideas

*fostering mutual cooperation, trust, tolerance, fair mindedness and a heightened degree of sensitivity to fellow participants

*the prominence of conversation and dialogue as key dynamics in the process of inquiry

*an abundance of open-ended questions which serve as "invitations to inquiry"

*self-correcting thinking and thinkers who care for the procedures of inquiry

*a growing awareness, on the part of students, that they must accept responsibility for their own views and learn to think for themselves.

¹Paper presented at the 1996 ERA-AARE conference, Singapore, November.

