

DEVELOPING IN YOUNG CHILDREN THE SPIRIT OF ENQUIRY THROUGH THE USE OF THINKING STORIES

Agnes Chang Shook Cheong
National Institute of Education
Nanyang Technological University

Abstract

According to Mr. Thaman Shanmugaratnam, Minister for Education, in his address at the “Innovation and Enterprise in our Schools” Workshop on 16 Feb 2004, the core of I&E is about developing intellectual curiosity, a willingness to think originally, a spirit of initiative, a willingness to do something differently and developing strength of character. Hence one of the key elements that underpin innovation and enterprise is getting our young to question as they learn, thus nurturing the spirit of enquiry. But how could teachers develop this spirit of enquiry in young primary children?

Over a period from 1969 to 1986, Matthew Lipman developed a programme for primary and secondary students to foster the development of questioning and reasoning skills. Through the use of specially developed thinking stories as triggers, teachers engage students to discuss philosophical issues, such as friendship and beauty embedded in the stories. The students discover the importance of supporting the views they express by means of convincing reasons. They learn to appreciate the difference in perspectives within the same group through discussion. As they share the tasks of discerning problems and discovering meanings, they begin to build a community of inquiry. Lipman called his inquiry programme “Philosophy for Children” or P4C. He strongly recommends the P4C to be offered to all primary students.

To promote the spirit of enquiry in young primary children, an intervention study is undertaken in a neighbourhood school. P4C lessons are implemented in two Primary Three classes. The duration of treatment is three semesters. The project classes are tested on their reasoning skills before and after the implementation of P4C. Video tapes on the philosophical lessons show encouraging progress in the development of enquiry and reasoning skills in the young children.

Key words: spirit of enquiry, community of enquiry, thinking stories, primary students

INTRODUCTION

Nobel Laureate Prof. Lee Yuan Tseh once told an audience how his mother has been his source of inspiration for his later date success by asking him after school everyday this question, “Did you ask any good questions today?” Gone are the days when students are expected to be silent repository of facts and information delivered by their teachers. Students are now expected to seek for solutions to unstructured problems creatively through the problem-based approach. Since the introduction of the initiative “Thinking Schools, Learning Nation”, new teaching approaches in schools have been evolving to stimulate students to think. However, teachers are still the prime movers, especially in the primary schools. Primary students are not seen to initiate questions. Maybe, opportunities are not created in the classroom to allow that to happen. Observations of lessons in class recently seem to indicate a reluctance of primary students to ask questions and to disagree with their peers and teachers. They were afraid to voice their doubts and opinions. But this is against the trend of what is expected of our young citizens.

In the inaugural National Day Rally Speech on 22 August 2004, Prime Minister Lee Hsien Loong stressed that it is through education that we nurture and inspire the next generation of Singaporeans, and through their ideas, convictions and passions, build the future of the country.

The Innovation and Enterprise (I&E) initiative is introduced to schools in 2003 to better prepare our young for a changing and more complex future. According to Mr. Tharman Shanmugaratnam, Minister for Education, in his address at the “Innovation and Enterprise in our schools” workshop on 16 February 2004, the core of Innovation and Enterprise is about developing intellectual curiosity, a willingness to thinking originally, a spirit of initiative, a

willingness to do something differently and developing strength of character. Hence these are of the key elements that underpin innovation and enterprise in getting our young to question as they learn, thus nurturing the spirit of enquiry. But how could teachers develop this spirit of enquiry in young primary children?

PHILOSOPHY FOR CHILDREN

Over a period from 1969 to 1986, Matthew Lipman developed a programme for primary and secondary students to foster the development of questioning and reasoning skills. Through the use of specially developed thinking stories as triggers, teachers engage students to discuss philosophical issues such as friendship and beauty, embedded in the stories. The students discover the importance of supporting the views they express by means of convincing reasons. They learn to appreciate the difference in perspectives within the same group through discussion. As they share the tasks of discussing problems and discussing meanings, they begin to build a community of enquiry. Lipman called his programme “Philosophy for Children” or P4C. He strongly recommends the P4C to be offered to all primary students.

The underlying pedagogical tool and guiding ideal of P4C is the community of inquiry. In the community of inquiry, students work together to generate and then answer their own questions about the philosophical issues contained in purposeful written materials or a wide range of other resources.

A typical P4C lesson consists of a group reading a source text, followed by the gathering of students’ questions that have been stimulated by the reading. These questions form the agenda for the discussion. The students’ collaborative inquiry can be facilitated by the use of appropriate discussion plan and exercises, which function to maintain focus and encourage depth of discussion.

The Socratic structure adopted by P4C is a process where the teacher becomes the facilitator of investigation (Lipman, Sharp and Oscanyan, 1980). Through teacher led discussions, pupils are encouraged to discuss, listen, clarify and justify their thinking (Fisher, 1990).

The unique instructional approach in the P4C programme has the following characteristics:

- ? a shared sense of puzzlement on intellectual intrigue, which then stimulate further inquiry
- ? persistence in the search for the knowledge and understanding
- ? students being prepared to “try out” ideas
- ? fostering mutual co-operation, trust, tolerance, fair-mindedness and a heightened degree of sensitivity to fellow participants
- ? giving reasons for opinions, distinguishing good reasons from bad ones
- ? the prominence of conversation and dialogue as key dynamics in the process of inquiry
- ? an abundance of open-minded questions which serve as “invitation to inquiry”
- ? self-correcting thinking and thinkers who care for the procedures of inquiry
- ? forming awareness on the part of the students that they must accept responsibility for their own views and learn to think for themselves.

THE SINGAPORE P4C STUDY (2004 - 2006)

To promote the spirit of enquiry in young primary children, an intervention study is undertaken in a neighbourhood primary school. The target group for the study is Primary 3 and Primary 4 students. It is strongly believed that young children should be encouraged to think, to transfer thinking skills across different content subjects and to apply these skills to solve problems in their daily lives. This is especially urgent for children coming from homes lacking in an intellectually stimulating environment.

The study aims to:

1. train primary teachers to be reflective teachers and imbue them with good questioning techniques to promote critical and analytical thinking in their pupils, and
2. develop primary pupils into critical thinkers with good logical reasoning skills.

The study is conceptualized as a longitudinal interventional study of two years involving two classes of Primary 3 pupils, moving from Primary 3 to Primary 4.

The Pre-Post Test Design is adopted for the study. There are two experimental classes and two control classes. Experimental teachers and research members underwent training over a period of six months. There was an on-line course on P4C for the two experimental teachers and two workshops by P4C specialists for the experimental teachers and research team members.

Pre-intervention testing of pupils in the experimental and control classes took place before the implementation of P4C lessons in the experimental lessons.

Fortnightly classroom observations and video-taping have been scheduled with the project teachers. Teachers have been advised to devote at least an hour per week to use the P4C materials to discuss philosophical issues with their pupils. The materials used are Philip Cam's *Thinking Stories 1 and 2*.

Cam's Thinking Stories were chosen over Lipman's books as the stories are shorter, drawn from international resources and more interesting.. Cam's books are also accompanied by manuals on relevant activities for the teachers. In addition locally published books on Asian stories by ASIAPAC are also used to supplement Cam's Thinking Stories.

FORMATIVE AND SUMMATIVE EVALUATION

Formative Evaluation

- ? Formative evaluation is on-going throughout the study. Video-taping of lessons and classroom observations are carried out once every two weeks to monitor qualitative changes in pupils' and teachers' behaviours. Teachers' cognitive coaching follows after each lesson observation to reinforce good practices and to correct improve handling of questions/queries from pupils.
- ? Two questionnaires on pupils' perceptions of the P4C lesson at the end of primary 3 serve to monitor the impact of the P4C lessons on their thinking skills and their achievement in English, Math and Science. This is to asses the transfer effects of the P4C lessons to achievement in English, Math and Science.
- ? Pupils' scores in English, Math and Science for the Primary 3 Mid-year and Final Examination are also analysed. Lessons on Mathematics, Science and English are also being observed.
- ? A parental survey on parental frequency and nature of interaction and discussion with their children is carried out with the parents of the experimental pupils.

Summative Evaluation

- ? The New Jersey Test of Reasoning Skills (NJTR) developed by Shipman in 1985. It has 50 multi-choice items assessing transitivity, deductive inference and contradiction. Test was administered before the start of the P4C lessons in Primary 3 in the experimental class and will be administered again at the end of Primary 4.
- ? The Group Tests of General Reasoning Skills AH2/AH3 (2nd Edition) by Heim, Watts and Simmonds in 1978. AH2 and AH3 are parallel tests with three components: Verbal, Numeral and Perceptual. Each component has 40 multiple choice items. AH2 was used for the pre-test in Primary 3 and AH3 will be used as the post-test in Primary 4.
- ? A set of 12 metacognitive tasks in Mathematics (5 items), Science (4 items) and Social Science (3 items) developed by Cheng and her team to assess metacognitive skills is being used for the pre and post-test too to assess the transfer effect on pupils' achievement in curricular subjects.
- ? Pupils' improvement in logical reasoning is also being assessed by their deliberated and suggested actions in four dilemma cases. Quality of pupils' responses will be compared over the four dilemma cases.

Example of Metacognitive task:

1) Science

Two metal containers C and D have become “stuck” together.



- Suggest one method to separate the two containers C and D.
- Please give your reason.
- Suggest another method which can also separate the two containers.

2) Math

Ah Meng’s Birthday is on the 1st Thursday in January. If all the dates of Thursday in January add up to 80, what is the date of his birthday? Show the steps taken to get the answer.

Example of dilemma case:

Dilemma Case/Critical Thinking Test

Selva wanted to return the \$200 which he had borrowed from Ali. Four \$50 notes were put into a sealed envelope. But he was busy with his examination. So he requested their good friend, Wai Kit, to return the money in the envelope to Ali on his behalf. Selva told Wai Kit that there was money in the envelope but did not state the exact amount .

Ali did not open the envelope to count the money in the presence of Wai Kit.

But Selva received a call from Ali later claiming that there was only \$150 (three \$50 notes) in the envelope. Selva called Wai Kit to check and Wai Kit was furious and denied having anything to do with the lost money.

Individual Assignment

If you were Selva, what will you do about the money loss? Give reasons for the action taken and how the action taken will affect the friendship between, Selva, Wai Kit and Ali.

Preliminary Results

3A = 39 Students

3B = 40 Students

Table 1: Experimental Classes Response on P4C lessons

Items	Primary 3A			Primary 3B		
	Like	Dislike	Neutral	Like	Dislike	Neutral
1. Do you like Philosophy?	86.5	0	13.5	94.7	0	5.3
2. Do you like Philosophy stories?	91.9	5.4	2.7	89.7	2.6	7.7
3. Do you like to participate in philosophy discussion?	62.2	13.5	24.3	76.9	7.7	15.4
4. Do you like the philosophy discussion?	78.4	10.8	10.8	94.9	0	5.1
5. Do you like to listen to others' views?	83.8	5.4	10.8	94.7	0	5.3
	Too Short	Too Long	Just Nice	Too Short	Too Long	Just Nice
6. Do you think the philosophy less is too short?	62.2	21.6	16.2	50	7.9	42.1
7. Do you think the time for discussion is too short?	56.8	18.9	24.3	47.4	7.9	44.7
	Yes	No	Neutral	Yes	No	Neutral
8. Are you encouraged to think more during philosophy lesson?	97.3	2.7	0	100	0	0
9. Are you encouraged to give reasons for your answer	91.9	8.9	0	100	0	0
10. Is the teacher helpful during the discussion	82.4	5.8	11.8	97.4	0	2.6
11. Do you think philosophy is useful	78.4	8.1	13.5	97.4	0	2.6

* All results in percentage

Results indicate that the pupils enjoyed the P4C lessons and find that the lessons stimulated their thinking.

Table 2: Transfer Effect of P4C lesson on English Math, Science and Behaviour

Items	Primary 3A			Primary 3B		
	Yes	No	Don't Know	Yes	No	Don't Know
Do you think philosophy lesson helped in your learning of English, Math and Science and other subjects	80	10	10	90	10	0
Do you think the philosophy lesson have influenced your behaviour in your relationship with classmates, teachers and family	70	30	0	70	30	0
Are you prepared to speak up and disagree after the philosophy lesson?	70	30	0	100	0	0
Do you think more about what you intend to do before taking action now?	60	40	0	100	0	0

* All results in percentage

Pupils have acknowledged that the P4C lessons have affected their achievement in English, Mathematics and Science positively.

Table 3: Comparison of Primary 3 Mid-Year and Final Examination

Items	Primary 3A		Primary 3B	
	Mid-Year	Final Year	Mid-Year	Final Year
English	85.7	87.1	85.7	85.6
Mathematics	88.6	91.3	91.3	93.0
Science	84.3	86.5	84.3	83.2
Mother Tongue	84.5	83.8	86.2	86.9

* All results are based on the mean of the total results

At the end of Primary 3, five pupils from the school were selected for the Gifted Programme and they were all from the experimental classes. This is the largest number of pupils chosen for the Gifted Programme from this neighbourhood school.

Table 4: Responses to Dilemma Case

Question	Primary 3A		Primary 3B	
	Selva pays Ali the money and maintains the friendship	Reports to police/ Break soff friendship	Selva pays Ali the money and maintains the friendship	Reports to police/ Breaks off friendship
If you were Selva, what will you do about the money loss? Give reasons for the action taken and how the action taken will affect the friendship between, Selva, Wai Kit and Ali.	48.5	51.5	52.2	43.5

* All results in percentage

Conclusion

Though the research study has been carried over one year, observation of classes have shown promising results of the P4C lessons and the programme teachers have found the lessons a powerful tool in engaging the pupils to think and to questions. A comparative study of the lessons shows that the pupils are more articulate, more confident in asking questions, more ready to speak up and better questions are being asked. An earlier study by Lim (1995, 1998) seems to suggest that only the pupils from the better schools were able to benefit from the P4C lessons. The present study shows that even the pupils from a neighbourhood are able to develop the spirit of enquiry from the P4C lessons.

References:

1. Cam, P. (Ed) (1993a) *Thinking Stories 1: Philosophical Inquiry for Children*. Sydney: Hale & Iremonger.
2. Cam, P. (Ed) (1993b) *Thinking Stories 1: Teacher Resource/Activity Book*. Sydney: Hale & Iremonger.
3. Cam, P. (Ed) (1994a) *Thinking Stories 2: Philosophical Inquiry for Children*. Sydney: Hale & Iremonger.
4. Cam, P. (Ed) (1994b) *Thinking Stories 2: Teacher Resource/Activity Book*. Sydney: Hale & Iremonger.
5. Chang, S.C., Ho, W.K., Seng, S.H., Tey, S.H., Lim-Quek, M., Fam, A., Goh, N.K., Chia, L.S., and Sim, W.K. (1994) *Report on Early Metalearning Strategies*. Centre for Applied Research in Education NIE.
6. Fisher, R. (1990) *Teaching Children to Think*. Oxford: Basil Blackwell.
7. Heim, A.W., Watts, K.R., & Simmonds, V. (1978) (2nd Ed) *AH2/AH3 Group Tests of General Reasoning*. Windsor: NFER NELSON.

8. Lee Hsien Loong (2004) Inaugural National Day Speech on 22 August 2004. *Singapore Government Media Release*. <http://app.sprinter.gov.sg/data/pr/2004083101.htm>.
9. Lim, T.K. (1998) *The Philosophy of Children Programme: Final Report*. NIE-NTU.
10. Lim, T.K. and Loo, C.P. (1995) *Can Primary Pupils do Philosophy?* Paper presented at the 9th Annual Conference of the Educational Research Association, Singapore 22-24 November, 1995.
11. Lipman, M., Sharp, A.M., and Oscanyan, F.S. (1980) *Philosophy in the Classroom*. Philadelphia: Temple University.
12. Shipman, V.C. (1983). *The New Jersey Test of Reasoning Skills*. Totowa, N.J: Slosson.
13. Thaman Shanmugaratnam (2004). "Speech at Innovation and Enterprise in our Schools". Workshop on 16 February 2004. *Singapore Government Media Release*. <http://app.sprinter.gov.sg/data/pr/2004083101.htm>.