Table of Contents

Thinking in Stories

Gareth Matthews: Knee-Knock Rise, by Natalie Babbitt

1

Thinking About Philosophy

Maurice A. Finocchiaro, Philosophy as Critical Thinking

2

Gordon Reddiford, A Philosophical Education

4

Philosophy with Children: Curriculum and Practice

Philip Guin, A Bold Adventure

7

William S. Hamrick, Teaching Elfie

9

Gerard Vallone, Thinking in and Beyond the Moment:
The Transormative Efficacy of IAPC Materials

12

Christina Slade, Logic in the Classroom

14

Reflections

21

Philosophy in Grade 1

Catherine McCall, Young Children Generate Philosophical Ideas

22

Thinking Bibliography, Volumes V-VII

42

Credits

Thinking in Stories

By Gareth Matthews


Wanting to visit the annual fair in the nearby village of Instep, young Egan goes off to stay with his Uncle Anson and Aunt Gertrude, who live in Instep with their daughter, Ada. It is Ada and her cat who greet Egan on his arrival; they give him a somewhat ambivalent reception. Egan is put up in a room recently occupied by a mysterious relative, Uncle Ott, and his dog, Annabelle.

Egan is soon told about the Megrim, a phantom that appears atop the nearby mountain, Knee-Knock Rise, during rain and sends out from there its mournful wail. On his first night in Instep, Egan hears the Megrim's wail, which, on this particular occasion, is followed by the appearance of a mysterious face at Egan's window.

These excitements do not blemish Egan's fun at the fair the next day. To the contrary, Egan buys good things to eat and drink, plays games, and happily buys presents for his relatives.

At suppertime the sky begins to cloud over and, as the fair booths are being closed up, the villagers excitedly anticipate rain and the ensuing wait of the Megrim. Egan's cousin Ada dares him to mount Knee-Knock Rise to confront the Megrim. When Egan accepts the challenge, Ada becomes frightened. While Egan bounds up the mountain with Uncle Ott's dog, Ada summons her father to rescue Egan from the Megrim.

Atop Knee-Knock Rise Egan encounters, not the Megrim, but his mysterious Uncle Ott, who admits that it was his face that had appeared at Egan's window the night before. Now, happily reunited with his dog, Uncle Ott explains to Egan that the Megrim is really a cloud of steam that forms whenever rainwater falls on a sulfur spring at the mouth of a cave on top of the mountain. The Megrim's wail is just the sound the steam makes when it passes through a small hole under very high pressure.

Enlightened with this knowledge, Egan throws a rock into the steamhole to silence the phantom. Triumphant, he returns to the village to expose the myth of the Megrim. But alas! no one will believe him. The villagers of Instep, for various personal and communal reasons, need to believe in the Megrim.

For me this simple and wise story makes several connections with my own youth as a boy scout. Admittedly, there was no Megrim in the hills where we scouts used to camp, no Loch Ness Monster in the lake where we boated and swam, and no Abominable Snowman in the forests where we hiked. But we had lots of ghost stories to tell anyway. In fact, an evening of ghost stories around the campfire was always one of our favorite occasions.

We scouts, like Ada in Natalie Babbitt's story, relished the chance that an evening of ghost stories presented to frighten neophytes in our circle. But, again like Ada, we oldtimers often ended up being ourselves more frightened by the late night sounds than the tenderfeet whom we had meant to initiate.

Very different, and yet not completely different, from the ghost stories we so much loved to tell, were the Indian rituals we addressed to the Great Spirit. Talk of the Great Spirit, like at least some of our ghost stories, and like the story of the Megrim, encouraged us to feel that there is a presence in the hills, a spirit in the natural world around us.

True, the Indian rituals were not weapons of psychological warfare. Nor were they a means to distinguish initiates from neophytes. Rather, they were a way of developing respect in us for the natural world and an encouragement for us to take up an open and receptive, rather than an exploitative, attitude towards nature's bounty.

Natalie Babbitt's story invites us to think of the many ways, some of them destructive and manipulative, in which myths structure our lives and order our social relationships. But it should also confront us with the question of whether, once we explode the myth of the Megrim, we can manage to preserve the Knee-Knock-Rises around us from the scourges of exploitation that threaten our natural environment.

Can we find a way to preserve for ourselves and for future generations a legitimate way to feel a presence in the hills, "a sense sublime of something far more deeply interfused." (1) Whether we can do so is, at least partly, a philosophical problem. Natalie Babbitt's story provides an excellent context for starting to deal with that problem.

Gareth B. Matthews

(1) William Wordsworth, "Tintern Abbey."
Philosophy as Critical Thinking

by Maurice A. Finocchiaro

Philosophy is a way of thinking that can be applied, and has been applied throughout the ages, to the most diverse subjects and problems. ... The nature of philosophy is explained in terms of six notions: content-freedom, rationality, judiciousness, practicality, universality, and critical-constructiveness.

I begin by explaining that when I say that philosophy is content-free, I mean that philosophy is characterized not by the content or subject it studies, but by the approach or procedure it uses; that is, not by what it studies, but by how it studies it. I elaborate this by contrasting philosophy so conceived to other disciplines familiar to students, such as mathematics, biology, history, psychology, political science, and so on. I also take this opportunity to discuss briefly that, in fact, Socrates dealt primarily with questions of good and evil, the meaning of life, the nature of wisdom, and the like; whereas Galileo dealt primarily with topics like the structure of the physical universe, the proper methods to follow in the search for truth, and the nature of knowledge; and Marx treated chiefly social, political, economic, and historical questions like the stability of capitalism, the original of wealth and profit, the necessity and desirability of revolution, of socialism, and of communism.

Since philosophy is not defined by its content, one must characterize its approach. And so the other above-mentioned notions are meant to describe it. In saying that the philosophical approach is rational, and more simply that philosophy is rational, I mean that it emphasizes reasoning, i.e., that regardless of what it is studying it tries to use reasoning as much as possible. At this point I find the need to make at least one brief remark about what reasoning is, but the main thing I emphasize is that I am talking about emphasis on reasoning, and not mere use; in fact, I add that reasoning is used in all disciplines and in everyday life, but that what distinguishes the philosopher in his readiness and willingness always to engage in reasoning. These notions of emphasis and of reasoning need, of course, more discussion, but that cannot be done either here, or in that initial lecture.

Besides being rational, the philosophical approach is characterized as judicious. Here, judiciousness means the avoidance of one-sidedness and of extremes. Therefore, regardless of what he is studying, a philosopher tries or should try to avoid being one-sided or taking an extreme position. I stress that this is distinct from reasoning, the difference being that between giving or assessing reasons for claims on the one hand, and taking into account all sides of an issue and being moderate on the other.

Next, I explain what I mean in saying that philosophy is practical in its approach. That is, philosophers do not study a given subject for its own sake, merely as a mental exercise or intellectual game; instead, they are always concerned with its connection with practical life, always willing and ready to try to relate the most abstract or abstract ideas to the solution of practical problems and the improvement of everyday life. This does not mean that there will always be a connection, or that the connection will always be direct, but rather that, if there is no such connection, the philosopher cannot be spending all his life studying that topic; it also means that normally even the study of completely abstract topics has a practical origin, in the sense of being traceable to the attempt to improve practical life. In other words, philosophers are supposed to have a practical attitude or orientation, in the sense that their thinking (regardless of how abstract it may get) has a motivation rooted in their individual experience or in social conditions.

Fourth, the philosophical approach is universal, in the sense that the topics studied are supposed to be relevant to all human beings, and not just to a few, to some, or to a particular group or class or nation. This is a feature of the ap-
approach used rather than of the topic treated because such universal relevance is something that may have to be explained or elaborated, rather than something that is immediately apparent. Nevertheless, a philosopher is normally ready and willing to elaborate on this universal relevance.

Finally, there is something I awkwardly call critical constructiveness, to underscore the fact that, though philosophers are critics, they are not merely destructive or negative critics. They are not merely against, but also for, something. The targets of their criticism can be either ideas, beliefs, or doctrines on the one hand, or historical conditions or social practices or individual actions on the other. Moreover, the constructive aspect of their criticism may be relatively weak or small, but there must be a germ of it, otherwise we would not have the kind of philosophy we are discussing here.

In a single sentence, these points can be summarized by saying that, here, philosophy is being conceived as the study of any subject matter whatsoever, as long as the approach followed is rational, judicious, practical-oriented, universal, and critical-constructive, in the senses specified.
A Philosophical Education

by Gordon Reddiford

The Institute for the Advancement of Philosophy for Children and the Cogito Society at Bristol have common aims and both different means of pursuing them. Perhaps the differences arise from the varying social and educational histories of our two countries; fortunately it is not my, self-appointed, task to speculate upon these. What I shall attempt to do is describe what we are about in the Cogito Society at Bristol.

First and foremost is the fact that in the schools of Britain, in contrast to those in most other European countries, philosophy is not an obligatory study. It is, for example, no part of the new National Curriculum (5-16). True, two of our A level (16-18) Examination Boards now offer it as an (examined) course and this year some 1,000 students will be candidates—but that number is miniscule. Students may encounter philosophy, more or less systemically, in general, non-examined courses but their numbers are small and they are for the most part to be found in the Independent, not the State-maintained schools. Yet young people apply to study philosophy in the universities and polytechnics from, one presumes, a variety of motives and with a wide range of expectations. They can, however, have little idea of the enlightenment they can hope to gain from its study.

For many years Edo Pivcevic, the founder of the Cogito Society and the first editor of its journal, Cogito, had been ill at ease with this situation. He had interviewed students for entry to the Bristol Department of Philosophy who had vague, though genuine, reasons for wanting to proceed to philosophical study. Some wished to break free from what they had studied at school; they were vaguely philosophical in that they sought to ask questions about what they had previously taken for granted. Yet they had little understanding of the nature and problems of philosophy nor of what might be gained from its study. The situation demanded action and Edo Pivcevic acted to some effect. Towards the end of 1985, at a meeting with three of his postgraduate students, the Cogito Society was founded. It immediately received warm support, both moral and financial, from the Vice-Chancellor of the University (Sir John Kingman). The Philosophy Department put its weight behind the venture and in May 1986 a pilot issue of the journal, personally produced by Edo and his enthusiastic students, was published and sent to many of the larger secondary schools in England. The result was encouraging: many teachers in the schools, eminent philosophers and educationists saw it and liked what they saw. The show was on the road and the first regular issue was produced in January 1987. At much the same time planning started for the first meeting of the Cogito Society; meetings are now held annually and it is hoped to increase both their frequency and geographical distribution—currently they are held in Bristol.
New and important ventures often start with the energy and vision of one person—as I am sure the IAPC well knows. Not only did Edo Pivcevic found the Society and its journal but, supported by a small body of post- and undergraduate students, he also undertook the mammoth task of publishing the journal here. For not only were the early issues of the journal edited in Bristol by the President of the Society, he and his helpers set it, illustrated it, collected news items, arranged advertising, attended, in fact, to all the details of producing a journal. Had he possessed a printing press he would no doubt have printed it too! The debt that the Cogito movement owes to him is enormous and it gives the present editor much pleasure to express it here.

What, then, are we trying to achieve? As with the IAPC, our purpose is an educational one. We in Bristol do not however focus quite so specifically on reasoning and critical thinking as do you. For though we have in common the aim of realizing the educational potential of philosophy, our work is not 'research-led', at least to the degree that yours is. So we have not constructed specific teaching materials and reasoning tests—not do we seek to develop appropriate teaching strategies. (But we follow, with great interest, you who have.) The spirit of our endeavor is best expressed by quoting Edo Pivcevic's editorial for the pilot issue of Cogito.

The purpose of this magazine is to try and help those who seek an introduction to central philosophical issues, in a way that avoids as far as possible both the obfuscating jargon of such extremes [the conceptual thickets of much that is published in philosophical journals and the recondite jargon of those philosophers who look for inspiration to poetry and mysticism] and any undue simplification. In this, it aims to pursue what from the earliest times was perceived as one of the main tasks of philosophy, viz. that it should fulfill an educational role by fostering an inquiring temperament, by encouraging skeptical re-examination of established beliefs and by promoting a creative dialogue, rather than being a narrow academic pursuit or a self-indulgent intellectual game. It is in the spirit of these aims that COGITO addresses itself to its readers, young and old, and looks for their support.

Our target-readership is a wide one: students in the upper grades of secondary schools and their teachers, undergraduates commencing their studies of philosophy at universities and polytechnics, the general public with an incipient interest in the subject and members of evening and extra-mural classes. Cogito seems particularly attractive and stimulating to members of various occupations and professions who studied philosophy in their undergraduate days and who after some years away from it, seek to renew their acquaintance. We do not aim at the traditional academic audience of professional philosophers in the universities—though we know that we are read by them. Our aims, audience and educational purposes impose certain conditions upon our contributors on which we attempt to insist. So contributions are sought that are of no more than of modest length, that are clear, that explain the issues succinctly, avoid technical jargon and come to a pretty determinate conclusion. We are not after papers that are a mile along some philosophical argument, that are dotting a few i's and crossing a few t's and are just pushing a few inches forward. Editorial correspondence with contributors often bears lively witness to our single-mindedness.

Philosophy is difficult; it demands sustained attention and thought. So it has to be made attractive to our readership; we do not however dress it up and retail it as a glossy product. Our readers like to meet and get to know a little of the eminent and distinguished and this we offer through 'Interviews with Distinguished Philosophers': Professors Dummet, Quine, Putman and Strawson, Lord Quinton, Baroness Mary Warnock and Sir George Porter FRS, amongst others, have so far told our readers something of their lives, interests and philosophical preoccupations. A photograph or line drawing adds more local detail. Illustrations are important; our younger readers, in particular, have to be encouraged to
read on, and double pages of closely-printed text hardly provide an incentive.
So we break up the formal presentation with a variety of illustrations: portraits, engravings, line drawings, photographs, reproductions of famed works of art and so on, often with what are—intended to be—witty captions are all used. Mindful of Dr. Johnson's famous dictum, we attempt to ensure that cheerfulness—frequently—breaks in. A house-style evolves; I doubt that it is the result of a decision. Cogito seeks to avoid the solemn and pompous and to embrace the serious and educational; it sees humour as the enemy of the former and ally of the latter.

There is much more between our covers. Philosophy News, letters, puzzles and posers, reviews and a variety of informative feature articles are intended to keep readers in touch with what is happening in the world of philosophy. We intend to develop this area of our journal and always welcome suggestions for new features: a teachers' page and students' essay competition are our latest ventures.

I now want to suggest that the aims, and early achievements, of the IAPC and the Cogito Society are complementary (though, of course, the former is of longer standing than the latter). We are both concerned with developing the potential of philosophy for the education of the young. (Cogito has, too, in mind the intellectual refreshments of the old). We both believe, in the words of Matthew Lipman, that philosophy is 'a traditional humanities subject which disciplines the mind while energizing and enriching it.' The young have a need of that class of educational opportunities that philosophy uniquely offers; their teachers need the materials and competences to make the most of those opportunities. If the young are to enquire, skeptically re-examine establish beliefs and engage in creative dialogue, then they must engage in critical thinking and this in its turn involves reading what others write and listening to what others say, qua argument. It also involves the detection, display and evaluation of arguments. Young children require special materials, appropriate assessment procedures and thoughtful, skillful teachers. It would be of no avail to thrust them, unaided, into the Critique of Pure Reason. It has been the task of the IAPC to develop special philosophy programs for children; when following these programs they have been 'doing philosophy'.

The Cogito Society does not seek to set up such programs and train teachers in their use (Though one never knows . . .) So, in a sense, it works on the back of those who do. It relies upon teachers in schools and universities who work with students, but seeks to help them by offering materials that present the questions of traditional concern to philosophers in a clear, intelligible, argumentative form. Thus students are—it is hoped—enabled to enter into a dialogue, to question, criticize and dispute.

There are undoubtedly barriers in the way of British schools' offering a philosophical education to their students. Time will have to be found and it will be difficult to find it under the constraints of the new National Curriculum. And staff development will have to take place. The Cogito Society seeks to exercise an influence on the latter; were it to make an impact on the former it would, perforce, have to enter the arena of educational politics. The Society's annual conferences have concentrated on the discussion of a wide range of issues that pertain to the teaching of philosophy in schools. In particular we try to help teachers think about the philosophical potentials of the major teaching subjects. It is hoped to develop the range and frequency of the Society's work: chiefly by extending it to other centers in the UK.

We now look forward to publishing a longer and more substantial journal— for Cogito has recently signed a contract with a publisher and divested itself of the task of publishing at Bristol. At the front of our minds is the need to convey the educational potential of philosophy to a much wider audience than has traditionally been the case. It will not be an easy undertaking since, despite a growing general interest in the subject, philosophy in the universities and polytechnics has, and is, suffering from cutbacks in the dominating 'cost-effective' requirements of education today. It will be something of a struggle but we share the view, with the IAPC, that it is a most worthwhile one.
A Bold Adventure

by Philip Guin

Carl never planned to steal the knife. He'd gone to Beecham's Hardware, first thing in the morning, to buy a can of paint, in order to touch up the boards of his tree house. But the color he wanted was in the storage room, and as Mr. Beecham went to fetch the desired color, leaving him alone in the store, Carl's attention strayed to the merchandise displays. Because it was so early, no one besides Carl was in the store. He liked being alone with all the new things, gleaming fishing poles, handsome flashlights and transistors. Then, he noticed the usually locked case containing the expensive hunting knives. The case was open! Carl examined an attractive knife and thought how useful it would be in working around his tree house. "What a golden opportunity," he said to himself, "it could be days before anyone realized a knife was missing, and by then who could accuse me?" Carl slipped the knife into the keep pocket of his winter parka. When Mr. Beecham returned with the can of paint, Carl quickly paid the bill and left the store. Once out of the store, Carl raced on, exhilarated by his bold adventure, but nonetheless anxious that he might have been found out. As he rounded a corner, he unexpectedly collided with his friend Pete. Both boys were extremely agitated by now, and though Raphael was a classmate, they didn't feel they wanted to tell what had happened. Pete said that they were just talking about stealing and whether it's okay to steal if you can get away with it. Raphael listened attentively to his friends—Carl arguing it was okay, so long as you don't get caught, and Pete countering you shouldn't because you could get caught.

When he had the chance, Raphael broke in. "But it's against the law to steal whether we get caught or not. We have to obey the law don't we?"

"Laws are made to be broken," Carl snapped contemptuously, "and if you can get away with breaking the law, who's the wiser? Anyhow, people are always breaking the law, speeding on highways, cheating on taxes, shoplifting—the only thing that counts with them is whether they get caught."

"But they do get caught and how do you know you won't?" Pete put in quietly. Carl became cocky. "It's just like taking a history test. If you study, the odds are with you that you won't fail, and if you're careful when you take something
like a knife, the odds are with you that you won't get caught—otherwise, forget it.“

The boys walked on down the street still vigorously examining the pros and cons of stealing. Soon they met Shirley and Glenda on their way to the pharmacy. The boys hurriedly filled the girls in on the discussion, but continued to talk among themselves. Finally, Raphael, out of courtesy to the girls, asked for their opinions.

After a long pause, while the boys calmed down, Shirley hesitantly offered that, “even though you might not get caught and even though there might not be any laws against it, stealing could still be wrong.”

The boys demanded to know how that could be. “Well,” Shirley began, “what if everyone went around stealing, what then? No one could trust anyone; only the very strongest could survive in such a world. So, if you’re going to steal, you better be sure you’re the strongest.”

The boys remained silent.

“What if you just don’t like stealing,” questioned Glenda, “would it make any difference about the consequences? Besides, even though I knew I’d never get caught and even though stealing wasn’t against the law, I’d never steal just because to me it’s wrong.” Glenda then added, “I don’t think I’d want a friend who did steal.”

By this time Carl was looking very disturbed. He mumbled an excuse and left his friends still arguing. Out of sight, Carl ran on in the direction of Beecham’s Hardware. He thought of his friends, especially of Glenda, of his fondness for her, of how she always seemed interested in his ideas and made him feel comfortable. To lose her friendship would be disastrous. When he reached Beecham’s, he mounted the steps two at a time, but entered the store quietly. As before, no one, including Mr. Beecham, was in sight. Carl made his way to the case containing the hunting knives. He dug into his pocket and felt the knife at the same instant he felt the hand on his shoulder.

“What do you have there, Carl?” Mr. Beecham asked mildly.

“I just couldn’t keep it, Mr. Beecham,” Carl blurted out as he handed the knife to the tall burly man. “They convinced me it’s wrong to steal.”

As Mr. Beecham listened, Carl recounted the details of taking the knife and of his subsequent discussion with his friend. He didn’t, however, tell of his feelings for Glenda. After Carl had finished, head down, tears uncontrollably filling his eyes and running down his cheeks, Mr. Beecham searched a long time for words. Just as Carl was convinced there was about to be a phone call to the police, Mr. Beecham spoke.

“You know what I think?”

“No, Mr. Beecham.”

“It sounds to me like you have some pretty smart friends.”

“I know.”

“Well, what do you think should happen now?”

“I don’t know, but I guess I’ll have to pay for what I’ve done. Will I have to go to jail?”

“I’m not so sure you’d pay for it just by going to jail,” Mr. Beecham said evenly. Carl wondered what Mr. Beecham could possibly mean; he was terrified that the very worst was upon him.

“Tell you what. Come on down here to the store the next three Saturdays and help me out. If you do that, the knife is yours. You’ll have paid for it.”

Relieved and grateful, Carl vigorously shook his head up and down indicating “yes,” then quickly left the store. As before, when he had departed Beecham’s with the knife, Carl felt exhilarated, but now, somehow, the feeling was different. He knew he had a lot to think about.
Teaching Elfie

William S. Hamrick

During the Summer and Fall of 1988, I conducted two teacher-training workshops on Elfie, the newest addition to the Philosophy for Children program. In the course of these workshops, I was struck by the overwhelmingly positive attitude teachers took toward the book and the four chapters of manual exercises/discussion plans presently available for classroom use.

As far as the book is concerned, one feature which I found particularly intriguing was that teacher interest was perhaps more character-rather than subject-driven than for any other segment of the Philosophy for Children program which I have taught in workshops. This is to say that the author has created characters inherently interesting enough to carry—nay, to provoke—workshop discussions which more than exceeded existing time limits. This was true of the children’s characters as it was of those of adults. Both served as lightning rods for critique.

To take some quick examples of children’s characters, our teachers found Elfie’s classmates—e.g., Diana, Henry, and above all, Seth—entirely believable. They do not lack for real-life counterparts in the classroom. As for the protagonist herself, with all her self-created mental baggage of inferiority, self-fulfilling prophecies of failure and “awful, awful secrets” (Elfie, p. 3), teachers generally regarded her low self-image as common enough to allow real-life children to identify with her problems—even if not with the extremes of her credulity. Our teachers pointed out, perspicaciously, that the connecting thread running through almost all the chapters in Elfie is caught in Diana’s distinction, “Things aren’t always what they seem to be” (Elfie, pp. 91, 107) and that the nub of Elfie’s problem is her unhappy inability to make this distinction: “Gee, doesn’t she [Diana] know that seeing is believing?” (Elfie, p. 108).

As far as the adult characters in the book are concerned, our teachers generally found them as mystifying as they found the children believable. They were generally puzzled about how to interpret the behavior of, say, Elfie’s parents, Elfie’s teacher, Mrs. Tripp; and above all, Mr. Sprokett, the principal. Elfie’s parents attracted several comments for their apparent indifference to her difficulties in school. Why, I was asked, do we never see them talking with Mrs. Tripp or Mr. Sprokett or even a school counselor?

Mrs. Tripp herself was criticized severely for her apparent indifference to Elfie’s crisis of self-confidence of which (teachers argued) she could hardly have been unaware. For example, she assigns Elfie the part of the door in the class play at p. 74, and yet it is apparently not until much later (p. 117) that she gets around to relieving Elfie of the justifiable impression that she’s been put down again. Or was it that, as some teachers mused, Mrs. Tripp did not have the latter intention in the beginning, but only came to think of it much later—perhaps in reaction to Elfie’s deteriorating self-image?

Finally, Mr. Sprokett was considered (happily) as far from a real-life model of a principal as he was the very model of professional impropriety. Our teachers were genuinely nettled at his unwillingness to communicate accurately and completely with the children about why certain people had won the two contests and others did not, and about the nature of the TV show. Taken together with his singular way of entering classrooms, his linguistic habits contribute to a picture of a figure of compelling power, authori-
ty and mystery. It is rather like the traditional picture of the doctor before the rise of consumerism in medicine and malpractice suits—and in the world of the child, it may still be the valid picture.

At the conclusion of our workshops, the teachers were still trying to distinguish reality from appearance against a backdrop of many possible interpretations, and I look forward to seeing whether their children will grace their classrooms with such lively interpretations. I suspect that both the teachers and I will not be disappointed. But there is something else about which our teachers already are not disappointed, and that is the instructional manual (*Getting Our Thoughts Together*) of exercises and discussion plans for the four chapters that are supported so far.

The teachers liked the manual contents by themselves, but their satisfaction swept wider than this. What they liked most was the way the exercises and discussions reinforced other areas of the school curriculum and could be transported into those areas to teach them in a better way. At my request, certain members of our group volunteered to summarize this utility by indicating the exercises they would actually use and where they would use them. (I am particularly indebted to Ms. Carmelita Matheny, a first-grade teacher at the Delmar-Harvard Elementary School, University City, Mo., for collecting these data.) Although they began with the intention of working all the way through the manual, the volume of their results forced them to give up after about 80 pages. Even so, it will be clear from the following summary that the *Elfie* program is on target for fruitful use with beginning elementary school children.

<table>
<thead>
<tr>
<th>PAGE NUMBER IN <em>Getting Our Thoughts Together</em></th>
<th>TITLE OF EXERCISE</th>
<th>RELATES TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>“Names”</td>
<td>Social Studies; Self</td>
</tr>
<tr>
<td>5</td>
<td>“If”</td>
<td>Reading Skills; Predictions</td>
</tr>
<tr>
<td>6</td>
<td>“If all the world was apple pie”</td>
<td>Reading Skills; Comprehension</td>
</tr>
<tr>
<td>8</td>
<td>“Good reasons”</td>
<td>Reading Skills—Supporting Statements</td>
</tr>
<tr>
<td>13</td>
<td>“Tommy’s tears and Mary’s fears”</td>
<td>Reading comprehension</td>
</tr>
</tbody>
</table>
In conclusion, I want to make it clear that our teachers did not consider that the above exercises were the only ones suitable for use in other parts of the school curriculum, but rather were just obvious ones. Their belief, which they expressly wanted me to state here, is that other teachers will not fail to find as many throughout *Getting Our Thoughts Together* as they did in order to enrich their classroom work.
Thinking in and Beyond the Moment: The Transformative Efficacy of IAPC Materials

by: Gerard Vallone

Those of use who use and teach others to use the IAPC materials take seriously Matthew Lipman's concern with preserving the integrity of Philosophy as a discipline within a community of inquiry and the adequate preparation that this requires. The following is an account of how the chance encounter of a talented teacher with some of the IAPC materials enabled her to: affirm herself as a professional, develop a community of inquiry, encourage what she considers one of the most basic tasks of education, enabling someone to go beyond the moment, and seek further training in doing Philosophy with children. It is an account of a personal and social transformation that occurred with people were enabled to 'think for themselves about things that matter.'

For the past several years, I have been working with a number of teachers from the White Plains School District's More Able Student Program. And, when several of the regular teachers from the district's Post Road School showed an interest in the IAPC materials due to the kinds of questions the MASP children asked in other classes, the school's principal, Stewart Salkin invited me to do a classroom demonstration with one of the MASP teachers, Nancy Gumbiner-Letts, and eventually speak with other interested faculty. When I returned again to speak with the faculty's Curriculum Committee, one of the kindergarten language development teachers, Jean Nicastro, had read some of the literature about the program. The article that particularly impressed her was James Alvino's "Philosophy for Children," Teacher, March 1980. She was taken by his exposition of the program's critical thinking questions such as: "Why?", "What do you mean by...?", "Does that presuppose...?", "If that's so, what follows?" and "How do you know...?" because they enabled her to realize three things. First, the orientation towards thinking which the questions expressed and encouraged was not stressed as a core requirement in either her undergraduate or graduate education. Secondly, the questions were a crystallization of her own interest in critical thinking. And, thirdly, the questions fostered what she considers one of the most basic tasks of education, enabling someone to go beyond what is immediately experienced cognitively and/or effectively whether it be an aspect of daily living, the content of a lesson or a response to either. She was also interested in Ron Reed's "Rebecca," and was further confirmed in her orientation towards critical thinking by their similar use of a story format, related exercises to go beyond the given, as well as questions to promote the discussion of more general and abstract topics than those presented in the original story.

The following day, while doing a math lesson using colored cubes, Jean noticed that one of the children, Allen, was very quiet and asked him what he was thinking. When he did not reply, she gave him the cubes and asked:

Jean How many are there in this set?
Allen Ten.
Jean How do you know?
Allen I can see them. I can count them. They are like the fingers on my hands. You told us.

thus enabling him to think in and beyond the moment, beyond the immediately given cubes. When she asked another question, and he gave an incorrect response, she asked him to think again within the moment. Noticing that he became even more withdrawn than before, she realized that he was not thinking in the moment but feeling in it. He was caught up in the emotion of "having made a mistake" and in an attempt to enable him to get beyond that, asked if there was something troubling him. When he said he had made a mistake, Jean used his remark to go beyond the given curriculum and unconsciously employ the critical thinking orientation she had read and thought about to have a discussion on making mistakes.

Some of the children said it was O.K. to make mistakes and others that it was not. Allen said he felt bad about making mistakes.
Jean Why?
Allen It's just bad.
Kelly Teachers get mad when you make a mistake.
Jean I'm a teacher. Do I get mad?
Kelly No.
Jean Then do all teachers get mad when you make a mistake? What is a mistake anyway? Do all people make mistakes? Are there any bad things about making mistakes? Are there any good things?
The children agreed that everyone made mistakes until one child said that God doesn't make mistakes and another that God isn't a human.
Jean Does anyone know what God is?
Dan A spirit.
Jean What is a spirit?
Vivianna You can't see it, but it's there.

Realizing that the class was almost over and resisting the temptation to ask, "If you can't sense it, how do you know it's there?" Jean suggested that they think just about humans and asked Allen what he thought.
Allen Everyone makes mistakes and I felt bad because I didn't want not to know.
Kelly How do you know you don't know? How do you know when you know and when you don't know?

Kelly not only raised the issue of knowing that Jean had wanted to, but raised it on an even higher level which, due to the ending of the class, they were not able to pursue. However, when the children decided that there were some good things that could come from making a mistake, such as trying again and learning something, Allen said he was going to tell his father that he had made a mistake in school and that it was O.K., thus going beyond the moment.

When I asked Jean how she felt after the class was over, she said she sat in astonishment and was deeply moved. Something had happened in the classroom, something new and exciting that would make the children want to come back. By leaving the established lesson plan and utilizing the critical thinking questions, she furthered what would eventually become a community of inquiry.

During the rest of the year, Jean used the critical thinking orientation to explore ideas that came up in class such as the difference between belief and knowledge, appearance and reality and agreement and disagreement. At the end of the year, when she wanted to see what, if any, effect their discussion about mistakes had on the children, she deliberately made a mistake. And, when the children pointed this out, she said, "I guess I made a mistake." To which they responded, "That's O.K. That's one way to learn."

Perhaps, needless to say, she was very satisfied with what had happened during the year. Her satisfaction was shared by the children's primary teacher who saw the children develop into a group of students with a remarkable willingness to understand one another's opinions, approach assignments with a positive attitude, consider alternate ways of doing things and leave class with an enthusiasm that was catching. By providing a competent and committed teacher with the rudiments of the IAPC programs, I had unknowingly helped her to clarify her orientation towards education, affirm herself as a professional, further a community of inquiry, seek training in the Philosophy for Children program and promote what she considers to be one of the most basic tasks of education, to go beyond the moment, which in her words, "enables the children to have a say in their own lives by thinking openly and critically about them in the present and going reasonably and enthusiastically beyond them into the future."
Logic in the Classroom

Christina Slade

Why teach logic at school? Surely the last thing the overcrowded curriculum needs is yet another subject and an abstract—even abstruse—one at that!

This paper argues, to the contrary, that logic is precisely what is required in the overcrowded curriculum; in particular for female students of mathematics. The argument is given with reference to a pilot study at a private girls' school, St. Clare's College, Canberra, the Australian Capital Territory (ACT), during second and third terms of 1986.

1. Motivation for the Project

There are good reasons for cultivating “thinking” skills in students of either sex within all of the traditional disciplines. Thinking skills such as the ability to reason validly, to recognize inconsistency, to detect ambiguity and vagueness, to abstract and to reason analogically, are fundamental to all disciplines, and essential to getting about in the world. The rhetoric of education departments recognizes this. For instance, the ACT Schools Authority requires schools to provide students with the skills in reasoning so that they come to think clearly, independently and critically.

(1984,5)

Yet the curriculum does not address these skills. Nor do reasoning skills develop automatically. Indeed, results from tests of reasoning skills show that those not exposed to direct training steadily develop thinking skills through primary school, but not at all in high school. Training can accelerate students' development in the primary years, and continue improvement in senior years, whereas without training grades remain constant or even decrease.

The traditional curriculum caters to the teaching of reasoning only indirectly: “historical” reasoning is taught in history, “literary” reasoning in English and “formal” reasoning in mathematics. Yet neither history nor English, nor traditional mathematical training automatically inculcates the reasoning skills required. Why do we expect that reasoning skills can be picked up incidentally, in the process of learning other subjects? Just as geography and physics and chemistry and biology use mathematics yet mathematics is still an independent subject, so
reasoning may need to be taught separately, although other subjects use reasoning.

Mathematics is held responsible for formal reasoning skills, and, in particular, logical skills, such as the use of proofs and the translation of everyday problems into the language of symbols. Yet traditional mathematics teaching needs supplementation in this regard. The wide variety of complaints that the young are innumerate does not derive from their inability to pass a test in algebra or geometry, but from their inability to apply their mathematical knowledge in problem solving (see for instance, the Cockroft Report, 1982). Application and problem solving require reasoning skills.

The concerns about reasoning and mathematical skills apply particularly to females. Traditionally, girls perform less well in mathematics than boys (results are summarized in OECD, 1986). In Canberra, ACT, this is an important issue. Ratings on ASAT (Australian Scholastic Aptitude Test) determine tertiary entrance. The test is designed for all high school students, like the SAT on which it is modeled. Questions must therefore be independent of specialized subject areas. Pure reasoning is at a premium. Slightly over one-half of the ACT ASAT sample questions (ACER, 1984) directly required the use of specific reasoning skills. All did so indirectly. One unit—unit 10—was actually based on J.L. Austin's (1961) philosophical discussion of performative verbs. Training in reasoning should benefit students in ASAT.

There is another factor which affects achievement in ASAT. Notoriously, girls' performances in ACT ASAT falls below that of their male peers. ASAT results for students at the pilot school, St. Clare's, in 1986 show particularly clearly their relative weakness in quantitative skills. Any question concerning mathematics of any sort is classified as quantitative, in the formal ASAT results.

For students who are fluent English speakers (the relevant group), results are as below:

<table>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASAT Results (non-ESL students) St. Clare's 1986.</td>
</tr>
<tr>
<td>Overall Score</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>150.13</td>
</tr>
<tr>
<td>SD</td>
</tr>
</tbody>
</table>

Whereas boys generally score higher in the quantitative questions than on verbal skills, girls are likely to be the reverse. In 1986, the results show a mean difference between the girls' verbal and quantitative skills of over 17 marks. This is unusually high.

Why do girls perform less well in mathematics? At primary school, girls do not perform significantly less well in mathematics than their male peers, but better (Walden and Walkerdine, 1982, 10). At high school, however, girls do markedly less well than their male peers. There is a discontinuity in mathematics achievement for girls, rather than an overall pattern of low achievement. Explanations of girls' lower achievement point variously at socialization—where factors range from the paucity of female high school math teachers to the social acceptability of innumerate females—through to factors such as the well-documented claim that girls' spatial abilities are less developed than those of boys (see e.g., Maccoby & Jacklin (1974), Weber (1977), Newcome & Bandura (1983) and OECD (1986)). I do not want here to legislate on whether girls' lesser spatial abilities are caused by socialization (e.g., girls are rarely encouraged to play with blocks, or engines) or are genetic (e.g., males were genetically selected for hunting). However, there is evidence which relates girls' lesser spatial abilities to the point of discontinuity between primary and high school. Newcome & Bandura (1983) and Weber (1977) note that the later the onset of puberty, the stronger girls' spatial abilities. Recent work by Kimura (reported in the International Herald Tribune, 19 November, 1988), suggests that lower estrogen levels during a female cycle are associated with improved spatial skills. If the presence of estrogen does relate to spatial skills, there may be reason to expect weaker spatial skills among girls after puberty, roughly between 11 and 14.

Algebra is generally introduced at much the same critical time as puberty—around 7th grade. Algebra is regarded as a watershed in the development of mathematical skills, not because it involves formal operational skills, to use Piaget's term. In algebra, arithmetical skills are abstracted from. Do girls lack
formal operational skills, or are they weak only in the mathematical skills through which formal operations are introduced?

Traditionally, mathematical texts have been oriented towards geometrical/spatial models of deductive thinking and abstraction. From Euclidean geometry to the current experiment in one Australian school to introduce algebra via geometry, mathematics has been taught in a fashion likely to favor males rather than females. Teaching techniques which rely on spatial conceptualizations predominate in mathematics. Such techniques combine with the social attitude which dictates that mathematics is an unnecessary, or even an inelegant, attainment for girls, to discourage girls in mathematics.

Females, the studies show (see, e.g., Maccoby & Jacklin (1974)) have greater language skills than males. At St. Clare’s, girls’ verbal ability clearly outstrips their quantitative skills (see Table 1). Why should we not harness girls’ verbal skills in the introduction of formal operational skills, by teaching abstraction via logic? Logic is the study of valid forms of argument, in which symbols for sentences (putting it cruelly) or their parts are manipulated. The skills in which formal operational thought is manifest, and on the basis of which it is tested, are archetypal logical skills: the ability to generalize, to formalize and to use variables and to investigate relations between formal properties of systems.

In teaching formal operational skills through the medium of logic, the disadvantages of girls’ negative attitude towards mathematics can be avoided, whether that attitude is physiologically or socially caused. So, for instance, students need not be intimidated by factors which, like number, are irrelevant to the use of variables. Properties of axiomatic systems can as well be investigated through logic as through Euclidean geometry. Formal operations are thus introduced on familiar ground.

In the process, students should be able to develop deductive skills which they might never otherwise acquire. By associating reasoning as manifested in the practice of informal argument—a skill relevant to even the most traditional of females—and the formalisms of logic, a step can be taken towards breaking the idea that women and mathematics don’t mix.

The major skill lacking in weak students of mathematics is the ability to apply algorithms to real life. Problem-solving skills rest on training in translating the language of everyday problems into that of mathematics. These skills involve close attention to the meaning of sentences and the general form they exemplify: again, the traditional province of logic.

2. Philosophy for Children

There is a discipline which has 2000 years of experience in teaching reasoning: philosophy. The first formal logical system was developed by Aristotle as a philosophical tool. Why is it that philosophy has not always been a component of our teaching?

Philosophy, as taught at universities is too hard, too technical for young children. But divorced from its historical and technical complications, philosophy uniquely fulfills the requirements of a method of teaching reasoning. It consists in a body of thought in which critical evaluation, rather than facts, is emphasized. Characteristic of philosophical inquiry is the processes of thinking—above all, thinking well—and of reasoning, are themselves under inquiry. In logic, those reasoning skills are formalized and abstracted from. While philosophy must be rigorous and precise, it need not be impenetrable or cumbersome. It is surely the ideal medium for teaching reasoning.

There is another characteristic of philosophical thought which makes it peculiarly suitable for children. Once a subject has become a science, insofar as causal laws have been established between events, or has become a technical tool, the subject is no longer really the province of philosophy. Mathematics began as a branch of philosophy. Now only logic in pure mathematics, and questions about the philosophical underpinnings of arithmetic count as philosophy. Most of mathematics consists of techniques—often abstruse and very difficult techniques. The specifically philosophical questions are meta-level questions, which do not necessarily require the command of high level techniques. Philosophy does not, in this sense, presuppose technical skills. On the other hand, philosophy does not involve empirical knowledge in the way that, say, history does: a philosopher is not so much interested in the facts as in the reason for their being that way.

This has a welcome consequence. Philosophy, as a speculative discipline, relies more on reasoning skills than empirical disciplines do. No one can be creative in mathematics—or in history—without such solid grounding in the discipline that it is only acquired after years of learning. Despite our best efforts, learning the techniques and facts has become so much the focus of our education that we forget that facts can obscure the reasoning involved.

Live issues in philosophy are different. The nature of number is not laid down in a text. The teacher’s ideas should be as responsive to argument as those of their students: the quality of argument is the best measure of truth in such cases. Teachers may argue better, but children are frequently both speculative and precise in their ideas. Progress in developing such ideas is most likely to occur when there is a genuine dialogue; when, that is, teachers and students jointly examine their own and others’ proposals in an atmosphere of rigorous and critical argumentation.

Drawing these threads together, philosophy is a discipline consisting of formal accounts of reasoning, theories of what it is to think well, and rigorously reasoned accounts of various topics. It is not content oriented, but fosters critical thinking. The traditional method of training in philosophy is that of a rigorously reasoned discussion: the Socratic dialogue. Philosophy seems the perfect discipline to foster reasoning. One specific branch of philosophy, logic, develops the skills of abstraction and formalization, in a fashion which would allow those weak in spatial and numerical concepts to perform well. Philosophy and logic, then, should have a place in the classroom.

There is a program which does precisely this: the Philosophy for Children program created by Matthew Lipman. Reasoning skills are taught through discussion of the genuine issues of philosophy—not indirectly as, for instance, De Bono (1984) teaches lateral thinking.
using non-philosophical questions. Philosophy is not, however, presented as an historical study, but as a process of critical assessment of ideas.

The program consists of a series of novels for children in both secondary and primary schools, ranging from broader philosophical topics such as metaphysics for younger children, through the pivotal novel, Harry Stottlemeier's Discovery, on logic, to more applied areas such as ethics for older children. Philosophical issues—those concerns about dualism, for instance, derived from Descartes, or Aristotelian syllogistic—are introduced to children, not in a philosophical context, but in concrete examples. School children in the novels are seen worrying about these concrete philosophical problems.

Students in the philosophy classroom are then asked to discuss questions arising from the novels, helpfully signposted by teachers' manuals. The aim is that they should develop skills of rigorous critical thought and discussion. Teachers should encourage the critical assessment of one's own and other ideas by canons of rational argument, such as consistency. Eventually the group should become what Lipman (1984) calls a "community of inquiry," jointly searching for truth.

In Harry Stottlemeier's Discovery, the topics are predominantly logical. It describes Harry and his school friends discovering logical rules, and discussing more general philosophical questions, such as the nature of mind and language, the schooling process and reasoning itself, as well as the practical problems of the school day. They are shown in the process of working out and applying basic laws of Aristotelian syllogistic, in such a way as to develop the idea of sentences as having an abstract logical form.

Logic is a branch of mathematics. There are of course, a wide variety of logics, some of which are technically extremely abstruse. Since the advent of the propositional and predicate calculus, Aristotelian logic has been a moribund branch in the proliferating logics. The formalization of multiply-quantified sentences is complex in Aristotelian logic, and the formal semantics and syntax are not well developed. Were logic to replace high school mathematics, as Gibson (1986) suggests, then the propositional and predicate calculus would have to be the preferred vehicle.

In Australia, in particular in Queensland and the Australian Capital Territory, there have been several attempts to introduce propositional and predicate logic into the high school curriculum. In the ACT, it as an optional component of the final math assessment. Inevitably, given the prejudices of those determining entrance to higher educational institutions, it was regarded as a soft option. Only the weakest students attempted it. At St. Clare's, for instance, the lowest final year mathematics group struggled through a very narrow curriculum and they found even truth tables heavy going. The level of technical skills was too high.

In this regard, Aristotelian logic has advantages. Aristotelian logic allows a grasp of quantified sentences (such as those beginning with "All," "No," and "Some") without the technical complexity of quantifiers in the predicate calculus. Moreover, Aristotelian syllogistic requires variables only for classes, not for propositions. At this level, abstraction is little more complex than abstractions we regularly use in language. To say, "All A's are B's" is a short step from, "All gums are trees." Hence, Aristotelian syllogistic is a particularly straightforward introduction to the use of variables.

This point is relevant to objections often levelled at Philosophy for Children. Harry Stottlemeier's Discovery is designed for 5th and 6th grade students. In a normal Philosophy for Children program, logic is introduced before the age at which children are thought to attain formal operational thought. A lack of formal operational skills has also been diagnosed in older girls who are in trouble with algebra. From a Piagetian point of view, it may seem that logic is too advanced for students not yet at the stage of formal operational thought. I suggest that such girls do not lack the formal operational skills, but rather the command of number or spatial concepts: the domains with respect to which the formal operational skills are most often introduced. Introduce such abstraction through the concrete and familiar patterns of linguistic argument, and all will be well.

3. Implementation of the Project

The project consisted of a study of grade 7 level mathematics students at St. Clare's College. From a group of 120 girls at that level, two subgroups were considered: the top group of 30 gifted mathematics students, and the lowest group of 20 very weak students. I taught half of each group for twelve 2-hour sessions. The remaining students from each group acted as a control, for experimental purposes.

The plan of the project was to introduce logic through the use of Harry Stottlemeier's Discovery. The use of Harry Stottlemeier's Discovery as an introduction to formal symbol manipulation is tangential to its intended use, as part of the Philosophy for Children program in which philosophical and logical issues interweave. Concentrating on purely logical skills inevitably alters the nature of the endeavor.

In fact, the more general philosophical aims of Philosophy for Children are also extremely important for weak mathematics students. Philosophical discussions of the nature of reality and, for instance, the reality of numbers, serve to dissolve the prejudice that algebra "does not count" or is "unreal."

For both groups, the agenda was the same, although the discussions varied. We read and discussed chapters from Harry Stottlemeier's Discovery. For reasons of time, and in order to fulfill the aims of improving mathematical reasoning skills in particular, we concentrated on the logical portions of the text. Formalizations were introduced which were not included in the manual: notably, variables for noun phrases. The use of Venn diagrams, rather than the Euler diagrams suggested in the text, simplified the introduction of a crude semantics for the syllogistic.

The sections of the text which dealt specifically with philosophy of mathematics were emphasized at the expense of moral and political issues. For instance, the nature and reality of "7," which arises in chapter 3, took up half a session. On the other hand, chapters 9, 10 and 11, which concern a young fundamentalist who refuses to salute the American flag, are alien to the Australian context, and were omitted. Americanisms were translated when necessary. The detailed syllabus is supplied in the appendix.
The overarching aim of the course was that students should be able to present a logical argument and criticize others' arguments. Narrower objectives were that students should be able to translate a variety of sentences of English into A, E, I, and O style Aristotelian propositions; that students should be able to identify some invalid and valid forms using these propositions, and give an informal semantics using Venn diagrams; and that students should be able to recognize when a hypothetical syllogism is valid. More general, and less testable, are the abilities we hoped to foster: the abilities to abstract, and to solve problems.

The process of developing a "community of inquiry" develops a sense of self-respect and the ability to be assertive without being aggressive which is generally conspicuously lacking in the weak student, and is notoriously absent among female students. If explanations of females' weak performance in mathematics which appeal to socialization are correct, then adjusting students' attitudes towards themselves and their ideas will be a fundamental part of the process of improving their mathematics.

Every effort was made to create a community of inquiry with the girls, insofar as an atmosphere was created in which the students and I jointly examined our own and others' hypotheses using the skills of critical investigation. This did not mean that anything they wished to discuss was appropriate. In particular, personal anecdotes were discouraged except insofar as they made a general point. For instance, in the second lesson, in the context of a burgeoning discussion on superstition, it was necessary to explain that "stories" are not always of philosophical interest. Students do not intuit the norms of scholarly, rigorously reasoned discourse without some guidance.

4. Evaluation

The impact of the program was evaluated both formally and informally.

FORMAL TESTING: The New Jersey Test of Reasoning Skills Form B (Shipman 1983), designed to accompany the program, was administered to all students as pretesting. Post-testing was performed using the same test. I use "Logic Group" to refer to the group I taught in each case.

As expected from the fact that we used the same test for pre- and post-testing, all students improved. But, adjusting for pretests by using analysis of co-variance showed a significantly greater improvement for Group A than for the control (for a one-sided test, at the 5% level.) These results held, even after omitting an outlier in the experimental group.

Even more significant was the fact that the scores of none of the Logic Group students decreased in the post-test, whereas 4 of the 18 control students had lower post-test than pre-test scores. This would occur by chance with a probability of only p = .03. Over such a very short period, these results are very satisfactory.

Results in mathematics tests before and after the experiment, as compared with the control, were also considered. There was no significant correlation.

Pre-and post-testing for the weak Year 7 group had the following results:

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>Scores of Top Year 7 Math Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Test</td>
</tr>
<tr>
<td>Control</td>
<td>39.34</td>
</tr>
<tr>
<td>SD</td>
<td>7.05</td>
</tr>
<tr>
<td>Logic Group</td>
<td>38.95</td>
</tr>
<tr>
<td>SD</td>
<td>8.50</td>
</tr>
</tbody>
</table>

These results show no significant correlation for the treatment of Philosophy for Children, although, as expected, the post-test was significantly higher scored than the pre-test. This could be a result of the intense dislike of the weakest group for testing.

INFORMAL ASSESSMENT: Observers were asked to assess the effectiveness of the program relative to the aims stated in section 3. In their judgment, the central objectives were achieved by all students. Students could use variables in describing noun phrases and types of propositions, and could perform the simple logical operations which were targeted. The nature of variables—both "pronominals" and variables in language was discussed extensively. Observers were astonished by the comprehension of students in the weaker group.

Over the course of the teaching of each group, there was a noticeable improvement in the clarity of students' use of language, the relevance of their comments and their logical acuity. This was noted by observers. Students developed the ability to discuss topics objectively, to criticize others' ideas and to accept others' criticisms of their own views without personal affront.

Students were originally baffled by the cooperative nature of our discussions. They were partially reconciled during the course of the classes, but when prompted by a child in the final chapter of the novel who says:

I think we've played around enough with these silly rules ... I think we should just have math in math class.

they again raised the question, "Is this math?" Roughly half of each group said that they thought it was math; the other half said they'd enjoyed it, but it was "just talking." Yet the very clarity of the final discussion indicated some progress towards a "community of inquiry" in which "just talking" had been replaced by conversation governed by rigorous rules of relevance and informal logic.

The level of command of formal logic was impressive in both groups. Not only did they learn what was presented, but they also extrapolated from what they had been taught. Students in both groups immediately saw the counter-example of identical classes) to the general rule that A propositions do not convert, for instance. The rule is that we cannot reverse the true, "All dogs are mammals," to produce another true sentence, for "All mammals are dogs," is false. But we can, they pointed out, do so for "All sisters are female siblings."

Equally encouraging was the quick proposal in the top math group for a contradictions game, when we were discussing contradictions. Someone from team 1 says a sentence: team 2 must produce the contradictory in 15 seconds. Some students were not, however, convinced by standardization of "only" sentences:

Only girls are students at this school, as
All students at this school are girls and, if their tests are to be believed, never accepted the proposed rule.

5. Discussion

Our society is increasingly dependent on all its members possessing basic skills of formalization, generalization and abstraction. The use of variables in computers is an obvious example, but there are many others. Every time an example is recognized as an instance of a general type, a standard form is being discerned. The skills of abstraction, of formalization and of the use of variables are principally taught through mathematics. Yet there is evidence that the acquisition of skills through spatially-dominated models discriminates against girls.

These skills are the very skills acquired in learning logic, the medium for which is ordinary language. In teaching formalization and the use of variables through logic, it is possible to avoid the risk of disadvantaging girls through their lack of spatial abilities. If, as many argue, low achievement in mathematics is due to social factors, then a change in attitude is required. Girls' need for formalization skills can be made apparent by applying formalization at first to genuine argument. In formalizing argument, girls can be encouraged to develop assertiveness in presenting their ideas: another important component in changing social modeling.

The pilot project was intended to show the viability of teaching logic to girls. To that extent, it was a complete success. All students had developed some flexibility in the use of variables. The attitudes of the groups had altered radically during the meetings to one of critical discussion. Both processes are fundamental in improving mathematical reasoning skills.

The ability to translate problems into formal operational skills needed for algebra and problem-solving in general. The skills of critical thinking involve general analytic abilities. By changing that attitude girls have towards mathematics and analysis, as we did, we began to alter the girls' image of themselves as non-mathematical.

At a more formal level, conclusions to be drawn from these results must be tentative. The sample group was extremely small, and the teaching time—somewhat less than 20 hours—very short. The very weak math group was ill-suited to testing using the multiple choice style of the New Jersey Test of Reasoning Skills since they were low achievers on such tests. Among the higher group, however, results were significantly better than the control. Indeed, in the higher group, students were so competent before the test as to leave little room for improvement, and hence the results may be distorted.

Results in the mainstream mathematics tests for the top math group showed no significant improvement relative to their peers. Again this is not entirely surprising given the short time of the experiment. But there is another factor. In Australia, unlike in the United States, 7th grade math is a melange: geometry, number theory and so on. The experiment was, however, specifically directed at algebraic skills. We might expect clearer results among students who were studying a straight algebra course.

Of course, algebra involves more than skills in manipulating variables. Arithmetical skills are essential. But if failure in algebra is related to a lack of understanding of the use of variables, then surely it might be wise to circumvent unnecessary difficulty with number, at least to begin with. Even more significant is the fact that the skills acquired through logic are precisely the skills which allow algebra to be applied in everyday life.

The ability to translate problems into recognizable forms is important in applying all mathematical and technical subjects. That skill is at the heart of logic.

I have no doubt that logic, and more generally philosophy, fill a particularly aching gap in the curriculum. They need no extraneous justification. But the skills logic engenders will certainly be beneficial in other disciplines—in particular, in mathematics.
Appendix A, Term 2, St. Clare's, *Harry Stottlemeier's Discovery*

**DISCUSSION TOPICS/ACTIVITIES**

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Chapter</th>
<th>Teacher generated</th>
<th>Student generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I</td>
<td>Discovery/Inventions</td>
<td>Nature of rules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reversing &quot;All&quot; sentences</td>
<td>Identities as a counter-example</td>
</tr>
<tr>
<td>2</td>
<td>II</td>
<td>Standardization of &quot;all and &quot;no'' sentences</td>
<td>Why &quot;philosophy&quot;?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Thoughts&quot;</td>
<td>Superstition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Venn diagramsheets</td>
<td>&quot;Reality of thoughts&quot;</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>Ambiguity</td>
<td>Reality of ?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Standardization of &quot;some&quot;</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V</td>
<td>Inductive reasoning</td>
<td>Meaning of &quot;good&quot;, right</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Who should be in charge of education?</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>VI</td>
<td>Mind/brain</td>
<td>Computers as models of the brain, and of mind</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Logic Review</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>VIII</td>
<td>&quot;Carry-over relationships&quot;</td>
<td>Values</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Barbara</em> syllogisms</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>XII</td>
<td>Contradictions/contraries</td>
<td>The contradiction game</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What is a person?</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>XIV</td>
<td>Invalid syllogisms</td>
<td>Clothes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Art</td>
<td>Persons</td>
</tr>
<tr>
<td>10</td>
<td>XV</td>
<td>Causes and reasons</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>XVI</td>
<td>Hypothetical syllogisms</td>
<td>The lawyer game</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Only if&quot;</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>XVII</td>
<td>Why logic anyway?</td>
<td>What use is it?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Analytic vs. affective</td>
<td></td>
</tr>
</tbody>
</table>

**Footnotes**

1. The project was funded by a SLIP grant. I must express my thanks to the Head of the school, and those teachers involved in the project.
2. Mr. Ted Redden is developing the project at the Duval High School, Armidale, with the support of Dr. John Pegg of the Department of Mathematics, UNE.
3. The evidence I here refer to is cited by Lipman (1984), and Shipman (1983), and consists of results of *The New Jersey Test of Reasoning Skills* which I administered to my students. This test is shown to correlate highly with independent College entry tests, such as the Cornell Test, and with the SAT test, on which ASAT is based. It is a test of specific reasoning skills. In detail, students who do not study philosophy improve from Grades 2 to 4, then stay steady or decrease in scores. In those who study philosophy, improvement is accelerated at a rate of two grade levels for each year of philosophy in primary school, with continuing improvement in secondary years.
4. In fact, the results look better still if "outliers" are removed from both the control and the Logic Group, and students who initially scored so well (at say 4650) that little improvement was possible. These modified results show a startling correlation for the originally-average students.
Reflections
childhood ... education ... philosophy ...
Why does skepticism about the ability of children to do philosophy persist? In the decade and a half since Harry Stottlemeier's *Discovery* was written, a great deal of evidence has been amassed for the conclusion that children can indeed do philosophy. We know it happens in perfectly ordinary classrooms with perfectly ordinary children. Yet everyone involved with *Philosophy for Children* has encountered powerful resistance due to the firmly held conviction that what we are trying to do must be fraudulent, since it is patently obvious that children are utterly incapable of real philosophical thinking.

Richard Miller's opening passage (in his review of *Philosophical Adventures with Children*), summarizes a persistent problem which confronts theorists and practitioners in Philosophy for Children (henceforth PFC). The sources of this skepticism concerning children's capabilities appear to lie both in experience and in prevailing cognitive development theory. To put it very crudely (and I apologize for this but I do not have the space to do justice to the theories, etc.) many people have never seen young children demonstrate proficiency in the domain of philosophical reasoning, and their theory influenced notions of children's cognition leads them to believe that it is not possible. In my experience, the combination of these two factors actually inhibits both recognition of the children's ideas as philosophical (or abstract) and understanding of the operation of a community of inquiry. Lack of experience can be remediated to a certain extent by reading *Philosophy in the Classroom* or *Philosophy and the Young Child*. However there is a more subtle form of skepticism which is harder to overcome. Many people who are delighted by the fact that children can engage in philosophical discussions with an adult, remain skeptical about whether young children are capable of originating philosophical ideas and discussing them among themselves, without adult tutorial.

There is no doubt that anyone, child or graduate student, benefits from judicious tutorial. And children in a regular PFC class also benefit from light-
handed, non-authoritarian, non-intrusive help with their thinking, often from the skillful use of manual exercises and activities designed to clarify, focus or stimulate the children's thinking. In other words, an ideal PFC session does involve a particular kind of adult tutorial. But, I would claim, this kind of tutorial works because children arrive with the ability to reason philosophically. If they did not, the facilitator would not be able to work from the children's philosophical interests. Just as an orchestral conductor works with the orchestra's musical skills and abilities, the facilitator of a PFC dialogue must assume that the children arrive with the requisite skills. If they did not, even the Solti of facilitators would be unable to produce a philosophical dialogue.

Claiming that it must be the case that children have the ability to originate philosophical ideas and arguments is not sufficient to convince the 'skeptics', they require substantial evidence. So in October 1988, I embarked on a research project which aims to demonstrate, by providing evidence in the form of transcripts, that given a certain environment, young children can and do reason with philosophical concepts which they themselves originate. In order to do this, the methodology I have used differs slightly from that which I would use in e.g. demonstrating a PFC class. I have attempted to avoid introducing concepts, as much as is possible while concurrently developing dialogue. (Whereas in other circumstances I might introduce concepts, ideas and arguments for the children to consider.)

The dialogue presented below was transcribed from a videotape of a PFC session with first grade children in New Jersey. There are twenty-two children in the class, and apart from the fact that they are slightly younger than is usual for first grade children, (many of them are five years old), it is a regular mainstream class. I had been meeting with the children twice a week for about eight weeks, working with the "Pixie" novel, when on December 15, 1988, a TV crew from channel 13 (PBS) came to film one of our sessions. Since selections (amounting to six minutes) from this session were to be broadcast as part of a program on applied philosophy, I decided to use a section from the beginning of "Elfie" to read and discuss. I chose this section for three main reasons: 1) because the section was short enough to be read entirely in a couple of minutes; 2) because a TV audience would be able to follow the section without having to be familiar with a story line (as would have been the case if we had simply continued with the "Pixie" novel), and 3) because this section in "Elfie" presents clear and recognizable philosophical puzzles within a short episode.

The discussion ran for one hour and twenty-five minutes, which is a tremendous span of attention for 5 and 6 year olds. Not all of the discussion was captured on tape as the TV crew had to change cartridges. The presence of a large camera (operated by a large cameraman sitting on the floor among the children), sound boom, and TV lights, as well as crew and two producers did inhibit the group a little—they were concerned to be on their best behaviour. Some children who would normally be very active participants seemed to be too self-conscious to speak out, so the dialogue involved about half of the children, whereas normally two-thirds would be frequent participants.

However, despite the unusual circumstances, the dialogue is impressive, and shows that even young children can, given the right environment, reason with philosophical concepts which they themselves originate. The dominant philosophical theme which emerges from the dialogue is the nature of persons. It is important to note that not only are the children able to discuss and reason about the philosophical concepts presented in the text, but they also originate philosophical topics for discussion. They bring up many important philosophical issues concerning the nature of what it is to be a person. It is this feature which provides the strongest support for the claim that they are actually doing philosophy, and not simply discussing philosophy. And this is a feature which these first grade children share with professional philosophers—the ability to generate philosophical issues. They do not share the professional philosopher's language skills or vocabulary, or her/his ability to develop the implications and consequences of the issues raised? Nor is their reasoning as sophisticated. But they do raise and address the same questions.


2 For a more detailed explanation of both the theories alluded to here, and the reasons why many people do not observe children reasoning with philosophical concepts, see forthcoming book.

3 I have on occasion, tried to overcome this obstacle to the successful creation of a community of inquiry in the classroom by advising a teacher that even though she may not believe that children can engage in philosophical dialogue, in order to be successful, the teacher must proceed as though she did so believe. This rarely worked, as the advise is particularly difficult to follow, especially if the teacher held a view that it was not possible for children to engage in dialogue. Suspension of belief is hard to achieve in practice. However, the strategy has been successful for those teachers who were undecided on the issue.


5 Philosophy and the Young Child by Gareth Matthews ----

6 Although the analogy does not follow through in every detail, a facilitator like a conductor, needs a certain depth of understanding and skill; i.e., a person who could not read music would have a hard time conducting a symphony no matter how skilled the musicians, whereas a skilled conductor can improve the performance of beginning musicians. However, the role of a conductor differs from that of a facilitator insofar as the conductor leads an orchestra in his interpretation of the score, whereas a facilitator helps the children with their thinking about a topic.

7 The literature on 'Personal Identity' is replete with books entirely devoted to each of the issues which the children in this dialogue have raised.
December 15, 1988, Channel 13 tv session from video

Usually about ten children raise their hands and would like to speak, so children are called individually.

1) * before a name indicates that the child's name was called.
2) // indicates that the sound track is unintelligible.
3) ... indicates an interruption or simultaneous talking.
4) • indicates a pause in the child's talk, either in mid-sentence or in mid-word.
5) underlining represents the emphasis which the speaker places on particular words.

Mc Okay, now children, ignore this, don't look at this at all [indicating large sound boom swinging above children's heads]. All right? You're going to be looking at whomever's speaking and just ignore whatever else is going on. Pretend the camera isn't there. All right? So, we're going to begin today by reading aloud on page two.

Child Two?
Mc Page two.
Child Four!
Mc Four, page four, I beg your pardon. And we will all read together. Okay?

First page read whole class.

1. Not all children read, so rather than my reading to them, we all read aloud together. Even those children who don't read very well like to try to read. This gives the children a sense of ownership of the story and also helps to prepare them to speak aloud. The children also tend to refer to the text more often if they have read it aloud, rather than having listened to it.

2. The philosophical topics are frequently presented in the text in such a way as to intrigue children. They find it puzzling as well as interesting. Since they also find character descriptions and plot lines interesting (though not puzzling), it is useful to ask them what they found puzzling—that brings out more philosophical topics.

asleep? I touched my eyes and they were open. So I said, no, I'm not asleep. But that could be wrong. Maybe a person could sleep with her eyes open. Then I said to myself, at this moment am I thinking? I really wonder. And I answered myself, dummy, if you can wonder, you must be thinking. And if you're thinking then no matter what Seth says, you're for real.

Mc What was puzzling or interesting in that part?

*Jaclyn If, if she wasn't a real person she wouldn't be-if she wasn't a real person how can she think or talk?

Mc If she wasn't a real person how could she think or talk? [writing] Okay, let's put E for Elfie, "wasn't a real person how could she think or talk?"

Jordan How could she have dreams and-How could she have dreams and think at the same time?

[Writing] How could she have dreams and think at the same time?

Heather How come he thinks at the same time?

Mc How come—How come she thinks at the same time? Let's put your name up here, Heather, because that's adding to Jordan's question.

Matthew Oh! Oh! Why did she touch her eyes?

Sarah Because to see if they were open.

Matthew Why couldn't she touch something else?

Mc Well...

Laura Yeah

Mc ...let's discuss that when we have our discussion, that's an interesting question. [Writes] Why did she touch her eyes?

*Kristen Why did he say to himself "Dummy if you can wonder you must be thinking"?

Mc [Writes] Why did she say to herself "Dummy if you can wonder you must be thinking"?

*Ami Why did she—did she say "maybe I don't talk that much"?

Mc Okay [Writes] why did sh...

Ami I mean Elfie

Mc Okay, I just put "she" say maybe I don't talk that much.
3. Jaclyn's response here questions the foundation of skepticism. Underlying this response is a notion of the inherent inconsistency of Cartesian doubt: that is, as Sextus Empiricus recognized, that doubt about whether one is real or doubt about the existence of the external world cannot be expressed without involving one in absurdity.

4. The children have been reading "Pizie" so E. was inserted here to avoid confusion.

5. The text of Elfie seems to suggest that dreaming is thinking in your sleep. Jordan is questioning this explanation of dreaming.

6. Heather's response may not actually add to Jordan's question, but prior to this discussion Heather rarely entered into the dialogue, so crediting her with adding to Jordan's question encourages her to participate.

7. Children often want to begin a discussion immediately about what interests them. However, experience has shown that if we stop at this stage the children forget the other points of interest which they would have wished to discuss.

8. Kristen's response raises a question about the nature of wondering.

9. Usually, in a PFC session, many children have their hands raised with questions they wish the group to discuss. In the initial couple of PFC sessions, children would be disappointed if someone else said "their" question. The change from disappointment to recognition such as shown by Alex here, demonstrates a feature of the community in action wherein the children are more concerned with the content of the questions and are less competitive.

10. Often many children are interested in the same topic, in which case I will put an asterisk next to the question, rather than list up to 15 names. This saves time and also serves to indicate that the topic is important to the group.

11. Sarah is struggling with her point. She wants to raise a more specific aspect rather than leave an 'open' why question. So she changes the articulation of her response half way through. This is a typical occurrence in dialogue. The children often "think aloud", and change what they started to say as they see problems with the way they have phrased something. They try hard to put their thoughts into words accurately. Here Sarah wants to question the test of being asleep suggested in the text.

12. Children often have difficulty giving the correct names to the characters in the text, and can be sidetracked from their original question by this problem. So I question Owen to make sure we have his question accurately phrased.

13. Here, I tried to paraphrase Owen's question. This is something which I would never normally do. One cannot do the thinking for the children and then expect them to think for themselves. Even paraphrasing what they say in order to help them will, if practiced, result in the children being more passive and relying on the facilitator to think for them. Luckily, in this instance no harm is done as the children are accustomed to my being accurate with their ideas, and encouraging them to attempt to articulate those ideas for themselves (even when this takes a long time to happen). So Owen, who is a strongly independent thinker, resists any effort to modify his ideas.
*Ami Well, I have a question to ask Jaclyn.¹⁴
Sarah Jaclyn?
Jaclyn What?¹⁵
Ami Well, like why, I mean like how—when did—how did you—I mean how did you think of that question?
Jaclyn Well that's a toughie, because um, it says in the story she may not be alive if she didn't talk.¹⁶ [Sarah hands Jaclyn a book to help her find what it said]. Or she couldn't like think or something. And it made me like—it came up to my head and I thought it would be a good question.
Mc Yeah. So how would you know if something was a real person or not?
*Jordan If, if she—if Elfie wasn't real then, then she wouldn't be able to—she'd be able to talk because then she might be what we were discussing yesterday—[we were discussing 'real', 'fake', 'artificial' and 'imaginary']. But if she wasn't real, then she wouldn't be able to think! And she wouldn't, she wouldn't be able to move every part of her body and¹⁷ stuff like that.
*Heather I agree with Jordan 'cause if you're not there you can—you can't do anything. You, you won't be able to think and move and stuff, and learn stuff.¹⁸
*Alex [Softly] I agree with Jordan because if you weren't real you, you couldn't, you wouldn't—you'd be like—you'd just be a model and you wouldn't be able to hear and everything like that.
Mc Alex, what did you say? What would you just be if you weren't real?
Alex Well if you weren't real you'd just be a model and you wouldn't be able to hear and everything.¹⁹
Mc Yo! just be a model?
Alex And you wouldn't be able to hear.
*Owen Well I disagree with Jordan because of—well he wouldn't—What do you mean he wouldn't like not be able to move any part of his body? Maybe—What if like it was a robot?²⁰
Mc Well that's an interesting question.

14. Ami addresses Jaclyn directly. This is an important feature of a community of inquiry. When children direct their questions, points and responses towards each other, and not towards the facilitator, it shows that a child is reflecting upon what other children are saying, and not merely responding to questions or prompts from the facilitator.

15. Ami has a quiet voice—it is often hard to hear her.

16. Jaclyn's response here assumes that one criteria for being 'real', is to be alive. It seems that she is puzzled by the suggestion that in order to be alive one must talk and think.

17. Jordan explains the basis of Jaclyn's question—"If Elfie wasn't a real person, how could she think or talk?"—That while non-persons may in fact talk, existence is a necessary condition for thinking. There is an inherent absurdity in the Cartesian position hinted at in the text, that a non-existing being could do anything.

18. Heather clarifies and emphasizes Jordan's point that existence is a necessary condition for doing anything.

19. Alex is expanding the line of argument introduced by Jordan. While existence is a necessary condition of being a person, there are also sufficient conditions to be satisfied. An object such as a mannequin fulfills the condition of existence, but is not a person. To be a person, one must also be able to hear, etc.

20. Owen is using a counter-example to challenge one of the sufficient conditions of
personhood presented thus far—that in order to be a person, one must not merely exist, like a mannequin, but be able to move any part of your body. In Owen's example, a robot fulfills this sufficient condition, and yet is not a person. Owen's challenge raises the possibility that a robot could fulfill all the conditions of personhood which the children have put forward.

21. Owen's statement, that a robot isn't real, could have served to introduce the topic of the nature of reality for discussion. I might have asked him what he meant by 'real'. However, I chose not to for two reasons: firstly because we had discussed the meaning of 'real' in the previous PFC dialogue, (referred to earlier by Jordan), and secondly and more importantly because the lines of argument advanced so far by the children concerned the definition of person and the nature of personhood. So my question to the class was intended to draw attention to the implicit challenge to their conditions of personhood presented by Owen's counterexample. Here I am following up on an issue raised by the children, rather than introducing a new issue.

22. At this point, I develop the challenge presented in Owen's example of a robot. What would could as sufficient conditions of personhood, such that only a person could fulfill those conditions? If a robot could meet all the conditions so far presented for personhood, could we distinguish persons from robots and if so, how?

23. The children are very excited by this problem.

24. Matthew is thinking as he talks. He has ideas about physical tests, but rejects them as he speaks.

25. Matthew presents a condition which might differentiate persons from robots—that persons are beings to whom one owes moral consideration. One has a moral duty not to hurt persons.

26. A robot is differentiated from a person by its constitution. If you could see its parts you would not need to test it.

27. I emphasize the moral consideration introduced by Matthew. Here again, I do not introduce the idea, but once introduced by the children it can be developed or highlighted.

28. Throughout the dialogue, the children are careful to connect what they are saying to what has been said earlier. This shows that they are thinking metacognitively. They are not simply presenting their ideas, but thinking about those ideas and how they relate to what other children have said. They take care to show the structure of the dialogue as they speak. This also involves paying close attention to whom has said what, remembering the content and the person who originated the idea, while also thinking of their own contribution. This is a complex cognitive task for anyone, and although they do make mistakes, it is surprising how often their recapitulation of the structure of the dialogue is accurate.

29. Alex picks up on a point which Matthew made earlier. A child will often put forward them naturally (with no 'artificial' move like this). Sometimes it appears that a concept, issue or topic has been covered exhaustively and it is time to move to another. And sometimes there are many important topics, all of which merit discussion, and limited time available in which to discuss them. In this case the latter two considerations played the main role in deciding to move the discussion to the next topic.
*Scott* Well, see, I disagree with Matthew because see if a robot was—came in or something you, you couldn’t rip off its skin be- even even though if it didn’t have skin. They would probably—they could just paint it the color of skin and then it, and then it’s really metal so it looks like a human.

Matthew Ooh, ooh, um.

Child What?

McCall Okay, Matthew. Do you want to clarify what you mean?

Matthew No. But, but if you painted it you would see, you would see, like—but they would have to put metal over it, over the parts. So when you paint it looks like a round arm and it would have to bend and everything.

Owen Yeah, but robots—Well I agree with Matthew because, well you could tell a robot from a person because you could—What you could do to the robot was like you could like, you could—Well you could throw a needle at it.

McCall And?

Owen And, and, if it, and if it, and if it — and if it like — and if the needle, and if it doesn’t go through then it would be a robot!

McCall So that would be a test so you could tell the difference between a robot and a person?

Matthew But, but...

McCall You could throw a needle at it?

Child No, but

McCall Supposing it was a person?

Child No, but

Matthew That’s what I’m saying!

McCall Marsha, supposing it was a person, could you throw a needle at it?

Marsha No.

McCall Why, why couldn’t you throw a needle at it?

Marsha Because, because if it’s—if it sticks you really deep then you would bleed. And to a robot it would—wouldn’t bleed.

Matthew I agree with Marsha. Because if you, if you throw a ro-if a robot—if somebody walked in the door right, and someone and we thought it was a robot, we wouldn’t,

... two (or more) ideas at a time. When this happens a dialogue may develop which follows both themes.

30. When Matthew raised the moral objection to ripping the skin off a person, he used the verb “can’t”. Sarah completed the description by adding “but as a robot you can”. Both children were using the verb “can” to mean “may”. Here Scott uses the verb “can” in the sense of “being able to”, and he raises a technical difficulty concerning what one is able to do (as opposed to what one should do).

31. Owen continues the line of thinking about what one would be able to do by suggesting another test by which one could distinguish a person from a robot. His test is also concerned with the physical difference between a person and a robot.

32. Matthew wants to reiterate the moral objection to such a test.

33. I ask Marsha this question in order to widen participation in the dialogue. Marsha rarely talks, although she follows the discussions closely. I continue to use the verb “can” despite the ambivalence in meaning, as this is the word being used by the children.

34. Marsha introduces a more specific physical differentiation between robots and people: that people bleed. This introduces a specifically biological feature of persons.
35. Matthew is conscious of involving other children in the dialogue and crediting them. Although he is eager to emphasize his moral objection to physical tests which may hurt a person, he is gracious about the protocol of dialogue—that one shares thoughts and credits others. So he includes Marsha’s point about bleeding in a more comprehensive account. (Considering that Matthew is only five years old, his sensitivity towards another child’s thought, both in terms of crediting her and incorporating and developing her idea, is noteworthy.

36. Kristen clarifies the distinction between what one is able to do and what one may do, highlighting Matthew’s moral objection to harmful physical tests on persons.

37. Jordan proposes a way of avoiding the moral problem of harming people. His suggestion raises an interesting moral issue. The implication is that doctors are exempt from the moral injunction which prevents us from sticking needles into people. In this example, sticking a needle into the person would hurt. (The Hippocratic Oath actually forbids a doctor from taking a knife to his patient!) Would it be okay for a doctor to take a blood sample from someone for other than medical purposes? Jordan’s suggestion also emphasizes the biological nature of persons.

38. Sarah suggests a physical test which does not hurt a person.

39. This question is designed to probe the physical distinction between persons and robots which the children are making—that persons bleed whereas robots do not.

40. Laura maintains that physical (flesh and blood) constitution is a property of persons.

41. By maintaining that the person would still be a person although part of them would not be person-like, Laura is approaching a whole/part distinction, wherein a property of the whole is not necessarily possessed by the parts.

42. Here Jordan introduces a new condition of personhood-origin. (Once a person always a person.) For Jordan it is not the physical distinction which is important, (the person and the robot could both have metal legs), but the origin of the being. Jordan also affirms the whole/part distinction implicit in Laura’s response.

43. During PFC discussions, children sometimes refer back to earlier parts of the dialogue, as Ami does here. At this point, the facilitator has several judgments to make. Keeping in mind that his/her job is to facilitate the dialogue, which includes the development of lines of argument, as well as ensuring their own ownership of the content of the dialogue. Often the points raised have a bearing on the current topic or issue being discussed, in which case the development of the idea or example will further the dialogue. Occasionally the point raised does not relate (directly) to current issues, as is the case with Ami’s point. Although an indirect link could be made between the problems raised by the transportation of robots, and issues of origin and biology, it is unlikely that the children would connect the two at this point. However, the judgment that a point made will not develop the dialogue is not alone sufficient reason for lack of encouragement. Occasions arise in the course of a discussion when many children are interested in a topic which does not develop philosophically. When this occurs (as it does later in this dialogue) considerations of ownership of the content of the discussion are important. (Eg. if most of the group
wish to discuss the details of an example given by a child).

(44.) In this instance, other children had their hands raised waiting to speak about what differentiates persons from robots. So the question raised (45) develops this topic.

46, 47, 48. Kristen, Heather and Jordan all emphasize human origin as an overriding condition of personhood. Replacement of human parts with non-human parts does not affect personhood. Heather also introduces a distinction between fake and real. A real person can have fake parts. The condition of personhood is a condition of property of the whole, even though the parts may not be human.

49. Matthew is taking care to show the exact relations of what he is about to say to what other children have said previously.

50. Matthew introduces three new conditions of being a connected— that one has to think like a person, and that one has to have a human brain. In his third point, he disagrees with Jordan that if someone had their legs chopped off, they would still be a person, he states that they’d be dead. Implicit in this point is that one must be alive to be a person.

51. I did not take the opportunity here to follow up on Matthew’s statements by asking whether one needs a human brain in order to think like a person. (This issue does arise later.)
52. Brian appears to affirm that being alive is a condition of personhood.

53. I follow up here on Matthew's point about the importance of having a human brain.

54. Matthew seems about to confirm that human origin is the basic condition of personhood.

55. He is thinking as he is talking, and changes his mind as a new possibility occurs to him.

56. You wouldn't be a person because you wouldn't be alive. The implication in Matthew's statement is that being alive is a more basic condition of personhood than human origin. Being alive would be a necessary condition of personhood.

57. What Matthew clarifies is how he reasons that a person with a totally metal body could not be alive. (He states in his last sentence that you wouldn't be a real person if you were not alive, but he does not argue this point.)
that's not a way how you stitch something.

McCall All right, we're going to look at the next question now, which is Jordan's question. [reads] "How could she have dreams and think at the same time?" And there was Jordan and Heather and Alex were all interested in that... Oh, oh, oh, oh!

Children [laughs]

McCall ...Okay. Now Jordan you asked the question, so could you explain what was puzzling about that? "How could she have dreams and think..."

Jordan Well, what I think was interesting about it is, um, even though it didn't say that, oh she um Elfie thought and dreamed at the same time—it's just that she said "I don't have fancy dreams", but she never said that she didn't have dreams. But she also said that she thought. So that's why I said that.

Heather Sometimes you can think and dream, sometimes, but mostly you can't. 'Cause like when you're thinking and dreaming—mostly you can't but sometimes you can because, because sometimes when you're thinking too hard and you dream at the same time you really can't dream at the same time.

*Ami [experimenting with closing her eyes] Well, I agree with Heather because, um, you can't dream at the same time and think. Because, um, see 'cause sometimes if you're dreaming—You can't dream without thinking.

McCall You can't dream without thinking?

Ami You have to think what you're going to dream!

McCall You have to think what you're going to dream?

*Jaclyn See—What was the question again?

McCall [reads] "Can you think and dream at the same time?"

Jaclyn Well sometimes. Because if you were ill the live one can like—when I have a dream, I always thought about that. And um, when I have a dream, I think about it and I said—one dream I thought about this dream, and like I'm remembering this question but then I forgot it. And ill I asked my Mom if it was true, and she said "you might have a dream", and I said "I was thinking when I was sleeping".

*Laura I agree with Heather and Jaclyn because like sometimes you can think and dream, and sometimes you can't. Because like when you're dreaming—like you can if you're dreaming and then you're thinking in your dream. Sometimes it's hard to think and dream at the same time, especially if you're thinking about something else and you're dreaming about something else. Because then you might get mixed up.

Mark When you sleep you can also—when you are asleep you can also think and dream too.

Child Yeah, 'cause you have to dream.

*Matthew I agree with Heather and Jaclyn because like sometimes you can think and dream, and sometimes you can't. Because like when you're dreaming—you can think and dream sometimes. Because when you're not thinking and you're dreaming, your imagination is thinking. So your imagination is thinking sometimes but your brain is thinking with it. So I agree with Heather.

Jordan I agree with Matthew and I disagree with Matthew. Because you control your imagination. So if you were dreaming—Some people say that your dreams are in your imagination, and some people say you don't. But if your dreams are in your imagination, then how could you think in your imagination while you're dreaming? But you could think in your dream while you're in your imagination! [chuckles]

Sarah I agree with Heather in the way beginning because if you think too hard and you dream and you only could think, because if you, um, think really hard—a dream—you, you have to think, because there's only a little bit of dreaming.

McCall All right, what's the difference between thinking and dreaming? How would you know if you were think-
64. Jaclyn seems to be recounting an experience when she describes as thinking when she was sleeping, and her mother tells her it is dreaming. This supports the apparent identification of dreaming with thinking in one's sleep suggested in the text, which Jordan questions.

65. Laura considers dreaming and thinking to be different mental acts. In answer to Jordan's questions whether one can do both at the same time, she suggests it is possible to think within a dream.

66. Matthew seems to be suggesting that dreaming is an imaginative act whereas thinking is a cognitive act, dreaming is your imagination thinking, and thinking is your brain thinking. Being qualitatively different kinds of acts they can occur at the same time. He seems to be using a modular model of mental activity, (similar to some Artificial Intelligence models), in which different functions are assigned to different modules or locations.

67. Jordan raises a major point here when he states that imagination is intentional. The structure of his argument is complex and one has to rely on the preceding dialogue to understand what he is saying. On the one hand his entire analysis appears to be making a case for the unity of consciousness, (which is a classic philosophical argument against the modular distributive functions model). — Even if one distinguishes between imaginative and cognitive activity it is the one person who is the mental actor. In this case, neither your imagination nor your brain is thinking, you are the entity who is thinking.

Moreover, he seems to be saying that given that your control your imagination, you cannot be simultaneously but independently thinking and dreaming in your imagination. There is an assumed premise here, which seems to be that you can only control one thing at a time.

68. Most of the children have used the distinction between thinking and dreaming which was assumed by Jordan's original response. So these questions are designed to probe that distinction.

69. Jaclyn appears to agree with Elfie in the text, that you think while you are asleep.

70. Kristen makes the point that you dream when you are asleep, and that dreaming is imagination. She seems to suggest that (at least sleeping) imagination is not intentional.
You don't know? (Okay, Brian put that down.)

I could answer my own question of what I said. Uh, huh. I mean I agree with Heather about disagreeing with Jaclyn. Because sometimes if you think too hard and then like you don't dream enough, sometimes you—sometimes you just go into only thinking. And sometimes if you just dream too much, and then you—and then you're just thinking a little bit, sometimes you go right into all dreaming.

All right, how do you know, Alex, let's think about this...

Um, can I tell why I disagree with that question? Yes, sure. I disagree with my question, it's because some—I do this a lot too—if I pinch myself when I'm, when I'm, I'm still dreaming and I don't pinch myself in the— in my dream sometimes, I wake up and I fall off my bed. But, and, and then, and then I try, and then I go back to bed. But then I keep on pinching myself in my dream. Then I pinch myself when I'm, when I'm still dreaming. So can you tell you're dreaming? Is that how you know you're dreaming, Jordan?

Yeah. When I, when I pinch myself— when I pinch myself and when I don’t wake up when I pinch myself in my dream. And then when I, when I pinch myself and I, and I'm waking—and I woke up when I pinched myself, that's how I know if I was pinching in my dreams or if I wasn't pinching in my dreams.

I have a question for you, Jordan. How can you do that? How can you like, if you're on the middle of the bed, how can you just fall off and—pinch yourself in your dreams?

What I do, what I do to do that is: when I pinch myself I—Sometimes my sis- my sister pinches me or something and that's what, and that's what I do to—And that's what it feels like. So, and then what I do to-to for her to not pinch me, is I roll, is I roll, is I roll to my Mom and Dad sometimes. It happened to me. I thought I was downstairs in my den and, then when I pinched myself, I fell—I rolled and I fell off the bed.

Okay, let's look at this question here. “Why did she touch her eyes?” Matthew. why did she touch her eyes, Matthew?

To see if she was awake. But if she touched her eyes, she could of hurt her eye or something. Because if she didn't cut her fingernails, but maybe she didn't—then if they were very sharp, they, they could of like—she could've pinched—she couldn't—she could've hurt her eye. And why I was interested in that question is because she could have—that, that's a weird thing to do, to pinch your eyes to see if you're awake.

Ah-hah, what's weird about it?

Well, see like when you're awake you usually like, like try and, like try and move around and go and turn on the light or something so you can really see if you're awake. And then, and then, and, if you, and if you didn't have a light, if, if, if they were—if you couldn't find them in the dark, you, you could at least just, just like, go like to do something. I don't know.

You could go and do something?

Yeah, like get off...

... get off the bed and go downstairs and if you, and if your mind already had, already knew where the bathroom was already, you could go in the bathroom and get a drink of water, or pour it on yourself.
74. When Jordan’s sister pinches him he rolls away from her. So in his dream, when he thought he was (awake) in his den and felt a pinch, he rolled away from it. This action resulted in his falling off the bed. So he tests whether he is awake by doing something.

75. Matthew’s question relates to tests for wakefulness, so we moved to consider this question.

76. The children agree that in order to see if you are awake, you would do something and observe the consequences. Matthew and others discuss the wisdom of touching one’s eyes as a test, and suggest other tests.
able to wake up, how would she be able to wake, wake up if she was asleep, get out of bed, then go and pour water on herself?

McCall If she didn't know?

Jordan Yeah.

McCall Okay.

Jordan How would she know, and how would she know if she was asleep or if she wasn't?

McCall How would she know if she was doing it or she wasn't, if she didn't know if she was asleep or awake?

Jordan She could've sleepwalked."

McCall She could've sleepwalked?

Jordan Yeah.

McCall If she didn't know?

Jordan Yeah.

McCall Okay.

Jordan How would she know if she was asleep, get out of bed, then go and pour water on herself? You can't...

Child Wonder

Jordan ...Well, I don't have an answer for that.

McCall All right, we'll come back to you a little bit later.

*Kristen I don't think Sarah heard what I said on this, because I meant the part "Dummy, you can't—you can't..."

Sarah [looking at book] At "Dummy"?

McCall Mmm hmm

Kristen "If you can wonder you must be thinking", that's what I was talking about.

Sarah [reads] "If you can wonder you must be thinking".

Kristen [to Sarah] So you, so you really, so you didn't say what I really meant.

McCall What did you really mean, Kristen?

Kristen That—I can't answer that. [laughs]

McCall You don't know?

Kristen No [laughs]

*Jaclyn What I...

McCall (Raise your hand) [to Owen]

Jaclyn What is the question again?

McCall All right, the question here [points] "Why did she say to herself, 'Dummy, if you can wonder you must be thinking'?

Jaclyn You can wonder and think at the same time. Only sometimes ill whatever that thing is. You still can think and wonder at the same time because, say I was like, um, Mat. Kind of like you said "Oh". You, you—that was like oh you're wondering and you're, and too, what you're wondering or...

McCall Would that be thinking...

Jaclyn ...thinking.

McCall ...Jaclyn?

Jaclyn Well, kind of.

McCall Be a kind of thinking? All right, Sarah?

Sarah Well, Kristen, it says in the book that if you can wonder you must be thinking."

Kristen I know, that's what I said.
he thinks, and thinking implies a thinker. So he concludes “I think therefore I am”. Using Sarah’s notion, Descartes might have avoided having everything open to doubt, by going straight from dreaming to thinking to existing.

80. Jordan provides an example showing how wondering could be a kind of thinking—if one characterizes the thought as a question.

81. Kristen is concerned that the question which she had in mind is not being addressed, (Sarah mentioned dreaming and thinking instead of wondering and thinking). Although she does not now remember her puzzle.

82. Sarah returns to the text to retrace what Kristen may have wanted to say.

83. Sarah makes the point that the implication is one way. To say that if you’re thinking you must be real does not imply that if you’re real you must be thinking. If you had brain surgery and were incapable of thinking, you would still be real.

84. Sarah repeats an argument made earlier in the dialogue, that thinking is not a sufficient condition for being a real person, robots fulfill this condition and are not real persons.

85. Here Matthew modifies his claim, by adding that robots do not think the way people do. This modification suggests that a certain kind of thinking may be characteristic of persons, and that robots could be differentiated by the way in which they think.
what else she was saying, from the book. 86

Kristen I don't-ll what I said it.

McCall Okay, Kristen, you don't understand what you said?

Kristen I don't know why I even said it!

McCall You don't remember why you asked the question?

Kristen No.

McCall All right. Well . . .

Sarah You were interested in it because, um, you wanted to know why she was wondering and thinking at the same time. That—that's what I think you were thinking of. 87

*Heather I agree with, I mean I, I don't agree with anybody. I mean I agree with Sarah 'cause robots, whatever, can think and talk. Well they, they can move around and think. And the reason I agree with Sarah, robots can think when they're doing something at the same time.

*Alex I agree with Matthew because if—'cause robots do think a little different than humans and I—Matthew, I forget what you said. Can you say it again?

Matthew Well, they think a little different from us because they can, they can, they can like—they know a little more than us because they—they're—People make them and whatever people put, whatever people put in their brains for them to know, they know. 88 And like that person might not know it. Like they knew—like a robot that knew everything. Well yeah kind of knew everything, could know all the math in the world . . .

McCall Mmm hmm.

Matthew . . . well not all the math in the world. And lots of other things. Like—

McCall Well now, if robots could do that . . .

Matthew But they think slightly, they think slightly different than us.

Kevin Robots can't do most every . . .

Matthew What!

Brian Grownups can't know most everything in the world!

Matthew I said robots! Robots! END OF TAPE 89.

86. Sarah takes care to explain to Kristen how the dialogue developed from her original question. This shows a concern that everyone in the group should understand the structure of the dialogue. Children will take care to clarify the development of a line of argument, or a divergence so that everyone understands the connections between what individual members of the group say, and the text.

87. Here Sarah is trying to help Kristen by reconstructing, for Kristen, what Kristen might have been thinking about, (since Kristen has forgotten.) This is an interesting feature because it shows very clearly how a young child can (and does) put herself in the position of another and try to understand the others thinking even though it differs from her own. (Young children are not "ego-centric" in Piaget's sense.) Throughout the dialogue, children pay attention to views which differ from their own, sometimes trying to develop those views, sometimes presenting counter arguments, but nearly always understanding the thinking of others.

88. Matthew distinguishes between robots and persons—robots are artifacts and their thinking is not self-originated.

89. Because of the gaps in the tape, it is not possible to follow the dialogue closely. But it seems that most of the children accept that robots think differently from people, while discussing in what way they think differently.

Jordan . . . so robots can't know every, everything. And a robot does not, will not, know III he would know of what a human intelligence was!

McCall A robot wouldn't know what a human intelligence was?

Children ooh, ooh, ooh, ooh, ooh, ooh.

Laura But Jordan, can . . .?

Jordan I agree with Matthew because a robot does know things, like he knows what a table's made of or something. [chuckles] And he knows, and he knows he's intelligent, but he doesn't know every single thing.

GAP IN TAPE

Owen I disagree with Jordan because a robot does know everything because you can know every single thing for math if you can, if you can put a calculator in it.

Matthew YHeah, that's what I said. To put a III

Sarah Well what—I don't really get that, Owen.

Owen Well I—An infant can put the alphabet in it and it, and it could read all the words! 90

Matthew Well then I agree with Owen because, and this is what I said before, whatever—if you put a computer in the robot, whatever you program it to do it will do. Like, like probably you don't know something. And you program it into the robot. The robot will do it, and the robot will do anything. 91

McCall The robot would do anything?

Matthew Well, except—Well yeah because the person that made it had it in his command. Except if he made the robot and he just let him free and the robot did whatever he wanted to. 92

McCall No, because a person, a person when . . .

[sound of school intercom]

Matthew . . . like

[sound of school intercom]

Matthew . . . one hundred . . .

McCall Okay [gestures to Matthew to ignore the intercom.]

Matthew . . . put a hundred—a person wouldn't jump off a hundred foot cliff with a ladder . . .

GAP IN TAPE
Kristen: That's not what I said at all. She's reading something else I said because that's not what I meant at all.
Sarah: Well I'm...
McCall: Now Kristen, we're talking about a different topic now...
*Scott: Well see, I disagree with Mat, robots couldn't know everything. The person who puts the robot who made the robot couldn't know everything to put into the robot to make it know everything.93 Because, see, a robot is made out of all sorts of stuff...
Child: Metal!
Scott: Oh yeah, all sorts of metal and wire, so if you put everything in it, no matter how big the robot could be to fit all of it in, and anyway a robot couldn't know everything.94
Matthew: Oh, Oh!
McCall: Wait a minute, Scott. I'm not sure if I quite heard you. Did you say that the person who made the robot knows?
Scott: No, he doesn't know everything, so he couldn't tell the robot everything.
McCall: So you couldn't...
Children: Oh! Oh! Oh!
McCall: ...Wait a minute. Let me see if I understand what Scott's saying. You couldn't have a robot that knew everything because the person who made the robot couldn't know everything?
Scott: Yeah!
McCall: So a robot only knows what the person who made it knows?
Matthew: Um! Oh!
McCall: Is that right Scott?
Scott: Yeah.
Ami: I could know more than that robot knows!
Matthew: Well because I, I...
McCall: Well now Matthew, you talked already so let's give Owen a chance here.
Owen: I, oh was Scott the one who was speaking?
McCall: Mmm hmm
Owen: Well I disagree with Scott because, because not only one person makes a robot. A lot of people make a robot. A lot of people do different jobs to make the robot. So if they all work together, they could know everything.95

90. Owen seems to suggest that a robot can know more than a person. Given the alphabet, the robot could read all the words, whereas an infant (who knows the alphabet) cannot. (As is the case with many of the children in the class.)

91. The robot seems to have unlimited capabilities.

92. What Matthew is saying suggests that people have free will, whereas robots do not. A robot will execute the will of a person (except if it is let free.)

93. Scott disagrees with Matthew and Owen about the possible extent of a robot's knowledge. He argues that a robot is limited by it's program. The program is limited to the knowledge of the programmer. And the programmer couldn't know everything.

94. Here Scott is saying that it is not size or quantity which sets the limits on a robot's capacity for knowledge.

95. Owen raises a counter argument: that a robot is not limited to the knowledge of one person. It would be possible for a robot to know everything known by people.
[Scott shakes his head]

McCall You still think it's not possible to know everything, Scott?

Matthew Oh, please!

Scott Yes!

GAP IN TAPE

McCall All right, now, I'm really puzzled, Scott. Do you think it's impossible for people to know everything?

Scott Yes.

Children Oh! ooh, I, oh!

Matthew ooh ooh ooh!

McCall Matthew, we are talking to Scott for the minute. Why, Scott?

Scott Well, because only—no one knows everything 'cause there is no last number. 96

McCall There's no last number?

Scott There's no last number so people—and I don't—most people don't know like names for other numbers after you get outside a thousand billion.

Child I don't understand.

Ami Well Jaclyn, I have a question for Jaclyn. When you said they can ask their parents, what if their parents didn't know everything either? They never— their parents didn't know anything. What if no one in their family knew anything?

Jaclyn Well, it would be possible because it would be impossible because—if Ami, maybe if they went to school or college, they would be smart like my Mom.

Matthew Well, I don't, I don't actually know what Jaclyn's saying, but what was the question again?

McCall About whether someone could know everything.

Matthew No. Because no one knows what the highest number is, and there is no highest number. No one knows what comes after the... 97

Brian No one knows what comes after...

Matthew I'm talking, Brian! No one knows what comes after infinity. So people can't know everything. I mean people, people don't know where the end of the universe is. And people don't know lots of things. And you just can't learn everything in school! 98

THE END

---

96. Here Scott makes an important clarification: the limits to what it is possible to know are metaphysical, rather than epistemological. In his example, people can't know the last number not because of the limits of ignorance, but because there is no last number. It raises an interesting question, in what sense can one have knowledge of what does not exist?

97. Matthew reiterates Scott's point that there are limits to what is knowable, as well as limits to what is known. Inquiring into this distinction will have to take place at another time.

98. You may not be able to learn all the answers in school, but you can inquire about the questions!
Concluding Notes

In the introduction to this article, I argue that young children, given the right environment, can reason with philosophical concepts which they themselves originate and that the questions which they raise and address are the same as those addressed (in more length and in more detail, etc.) by professional philosophers. They are authentic issues, many involving abstract concepts and definitions, and many of which remain unresolved.

In this dialogue, the dominant philosophical theme which the children themselves raise, concerns the nature of persons. The text sets up a Cartesian puzzle over whether Elifie can be sure she is real, but the very first response reformulates the puzzle in terms of real persons. ("If she wasn't a real person, how could she think or talk?") The children begin by establishing that existence is a necessary condition of doing anything, including thinking and talking. This topic is developed by considering that while existence is a necessary condition of being a person, there are also sufficient conditions to be satisfied. An object such as a mannequin fulfills the condition of existence, but is not a person. To be a person one must also be able to hear, etc. Then a challenge is made about the conditions of personhood thus far raised—a robot could fulfill those conditions, thinking moving etc., therefore they cannot serve as properties which define persons, as the children claim that robots are not persons. A new defining property of persons is suggested—that persons are beings to whom one owes moral consideration. One has a moral duty not to hurt persons. This property is connected to another possible condition of personhood, the physical constitution of persons. People are biological entities, they bleed. However, being a person is a description of an entity as a whole, and this property of a whole entity is not affected by changes in the parts. The whole/part distinction is developed further by the claim that it is the entity's origin which determines whether it is a person or not. (Once a person always a person). It is not the physical distinction which is important, a person and a robot could both have metal legs. The children then suggest that in order to be a person, one has to think like a person and have a human brain, and that one must be alive to be a person. The question then arises as to whether being alive is a more basic condition of personhood than human origin. Some children consider that a person is still a person when dead. (The two properties are connected—only that which has been alive can be dead. A biological entity is one which may be alive or dead. An artifact is neither. So if biological origin is an important condition of personhood, the question of whether it is alive or dead is immaterial). Finally, the children suggested that an important property of persons is the fact that they have free will.

According to the arguments put forward by the children in this dialogue a robot, although similar to a person in many respects, would be denied the status of personhood on three counts: artifacts they are not subject to moral consideration; they do not have the right biological origin; they do not possess free will. A fourth feature of personhood which they consider in depth is the kind of thinking which people do. It is suggested that although robots think, they do not think in the same way as people. During the course of the dialogue, the children have generated at least four of the major features which are classically considered important properties of personhood. (Man is a rational animal, persons are third-order intentional beings, and people are distinctly moral agents.)

A second theme which the children address arises directly from the text and concerns thinking. Initially the children raise questions about 'Cartesian' deduction. Then they draw distinctions between thinking and dreaming, although they say that it is possible to think within a dream. The suggestion is made that dreaming is an imaginative act whereas thinking is a cognitive act and that being qualitatively different kinds of acts they can occur at the same time. One child claims that imagination is intentional, and emphasizes the unity of consciousness—even though there is a distinction between imaginative and cognitive activity, it is the one person who is the mental actor.

The children suggest that there is a distinction between the kind of thinking people engage in and robotic thinking. Their discussion of this issue centers upon the amount of knowledge available to both people and robots. One child then suggests that the limits to what it is possible to know are metaphysical, rather than epistemological. People can't know the last number, not because of limits of ignorance, but because there is no last number. The dialogue ends with a fascinating topic having been raised and still to be discussed—in what sense can one have knowledge of what does not exist?

Although the children are not skilled in using language, and as yet have a limited vocabulary in which to express their thoughts, they are capable of abstract philosophical thinking. Furthermore, not only are they able to originate philosophical ideas, they can also articulate the relationship of one idea or argument to other ideas. They are capable of thinking at two levels at once, as it were: considering abstract concepts and at the same time thinking metacognitively about those ideas and how they relate to what other children have said. They frequently take care to describe the structure of the dialogue as well as the content.

One of the most important features of the environment which encourages the development of this kind of reasoning is that it is authentic. By which I mean the children are inquiring into issues about which there are no definitive answers, and so the procedure of inquiry, in contrast to asking the teacher or consulting an encyclopedia, is a generation procedure. The inquiry procedure encourages reasoning. There is a relationship between the creation of a community of inquiry, the mechanics of dialogue, and the emergence and development of philosophical reasoning.

1For a more detailed exposition of this relationship, see forthcoming book.


Thompson, A. Gray, *Philosophy Students in Guatemala*, 7(3), 1988, 29-30 (photographs)


**BOOK REVIEWS Vol. 5-7**


**REFLECTIONS Vol. 5-7**


Clendening, John, *The Sources of Wonder*, from "The Life and Thought
Cogito aims to help those throughout the world who seek an introduction to central philosophical issues in a way that avoids the extremes of obfuscating jargon and elusive vagueness. It pursues what from the earliest times was perceived as one of the main tasks of philosophy, viz., that it should fulfill an educational role by fostering an inquiring temperament, by encouraging sceptical re-examination of accepted ideas and by promoting dialogue. The journal sees its audience as graduates and undergraduates, students in schools, members of extra-mural and evening classes, and the general public.

The journal is the official publication of the Cogito Society, at the University of Bristol, who themselves produced the first two volumes (1987–1988). From 1989 (Volume 3) Cogito will be published by Carfax Publishing Company under the auspices of the Cogito Society. Editorial policy will remain entirely in the hands of the Society; the most significant change will be a near doubling of the amount of material published.

Cogito publishes papers in all areas of philosophy, and welcomes contributions that link philosophy to other areas of study and practice. In addition the journal contains interviews with distinguished philosophers, articles on philosophy in schools and universities, reviews of literature, philosophy news, logical puzzles, and letters. It also offers support to the ‘philosophy in schools’ movement.

CONTRIBUTIONS
Contributions are welcome: either philosophical papers or feature articles. Please send your manuscript (in two copies, not exceeding 4000 words, though much shorter items are also welcomed) to the Editor-in-Chief, Cogito, Department of Philosophy, University of Bristol, 9 Woodland Road, Bristol BS8 1TB, United Kingdom.
CALL FOR PAPERS

STUDIES IN PHILOSOPHY
AND EDUCATION

The journal which was so successful in the sixties
and seventies is now being resuscitated. Volume 10,
No. 1 will appear in 1990.

Scope: Studies in Philosophy and Education is an international quarterly journal that
focuses on the philosophical, normative, and conceptual aspects of problems and
issues in educational research, policy, and practice. As such, Studies in Philosophy
and Education is not the expression of any one philosophical school or cultural
tradition. Rather, the journal promotes exchange and collaboration among
philosophers, philosophers of education, educational and social science researchers,
and educational policy makers throughout the world. Contributions that speak to this
wide audience, while clearly reflecting standards of philosophical excellence, are to
be encouraged. In this regard, the journal also welcomes contributions of philosophic­
al interest from non-philosophers in the educational and social science community.
Topics may range widely from important methodological issues in educational
research as shaped by the philosophy of science to substantive educational policy
problems as shaped by moral and value theory and social and political philosophy. In
addition, single issues of the journal will occasionally be devoted to the critical
discussion of a special topic of educational and philosophical importance. There will
also be a frequent ‘Reviews and Rejoinders’ section that will feature book review
essays with replies from the authors.

Editor: David P. Ericson, Graduate School of Education, University of California,
405 Hilgard Avenue, Los Angeles, CA 90024–1521, USA.

Associate Editors: Frederick S. Ellett, Jr., Faculty of Education, University of
Western Ontario, London, Canada
Ben Spiecker, Faculty of Education, Free University of Amsterdam, The Netherlands
Michael Matthews, School of Education, University of New South Wales, Kensington,
Australia

An international editorial board of leading scholars in the areas pertinent to the
journal’s scope is being established.

Authors are invited to submit papers.
Please send one original and two photocopies to the editor.

Requests for detailed Instructions for Authors or free sample copies of the journal
should be sent to: Kluwer Academic Publishers at either of the two following
addresses: 101 Philip Drive, Assinippi Park, Norwell, MA 02061, USA or Humanities
and Social Sciences Division, P.O. Box 17, 3300 AA Dordrecht, The Netherlands.
Tel. (0)78–334206; Telex 29245.
Published quarterly by the John Dewey Society, the Philosophy of Education Society, the College of Education, University of Illinois at Urbana-Champaign, and the College of Education, University of Illinois at Chicago, EDUCATIONAL THEORY is a scholarly journal devoted to fostering the continued development of educational theory and to encouraging the disciplined discussion of problems that arise within the educational profession.

In recent issues—


"Public Schools and the Common Good," by William J. Reese (Vol. 38, No. 4, Fall 1988)


Subscription Rates:

Libraries and individuals, United States and Canada $20.00
Libraries and individuals, foreign $22.00
Back copies $5.50

(Prepayment is required for orders and subscriptions)
Call For Papers
Teaching Modern Philosophy
$250 Prize For The Best Article

Teaching Philosophy is devoting a special issue to Modern Philosophy and is soliciting papers on the following topics:

- The relevance of Modern Philosophy today, or of specific authors (Descartes, Leibniz, Hume, et al.).
- Teaching the Moderns in new guises and other courses.
- Novel ways to teach the concepts of Modern Philosophy.
- Novel assignments and course designs.
- Special problems in teaching Modern Philosophy, etc.

The deadline for submissions is September 1, 1989. Please send 3 copies of your manuscript to Teaching Philosophy, Arnold Wilson, Editor, University of Cincinnati, Cincinnati, Ohio 45221-0206, USA.
informal logic

... is a journal devoted to the theory, practical applications and pedagogy of informal logic, critical thinking and argumentation.

The editors of informal logic are J. A. Blair and R. H. Johnson (Professors of Philosophy at the University of Windsor).

Partial contents of vol. X

<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark Weinstein</td>
<td>Reason and Critical Thinking</td>
</tr>
<tr>
<td>Karen Warren</td>
<td>Critical Thinking and Feminism</td>
</tr>
<tr>
<td>Tziporah Kasachkoff</td>
<td>Explaining and Justifying</td>
</tr>
<tr>
<td>Arthur Millman</td>
<td>Critical Thinking Attitudes</td>
</tr>
<tr>
<td>Roderic Girle</td>
<td>Reasoning With Both Informal and Formal Logic</td>
</tr>
<tr>
<td>Derek Allen</td>
<td>Inferential Soundness</td>
</tr>
<tr>
<td>John Woods</td>
<td>Buttercups, GNP's and Quarks</td>
</tr>
<tr>
<td>Michael Wreen</td>
<td>Admit No Force But Argument</td>
</tr>
<tr>
<td>Stephen Carey</td>
<td>Upsetters</td>
</tr>
</tbody>
</table>

Manuscripts to be considered for publication should be sent to:
The Editors, INFORMAL LOGIC, Department of Philosophy, University of Windsor, Windsor, Ontario, Canada N9B 3P4.

Requests for subscriptions should be sent to the Managing Editor at the above address. Rates per volume (3 issues) are: in Canada CAN $22.50 (individual), CAN $32.00 (institutions); in U.S.A. US $22.50 (individual), US $32.00 (institutions); elsewhere US $25 (individual), US $36 (institutions).

Indiana University Press

HYPATIA

A Journal of Feminist Philosophy

Hypatia is dedicated to the publication of scholarly research in feminist philosophy and provides a forum not available in other women's studies or mainstream journals.

"The scholarly papers in Hypatia will undoubtedly be core references in debates on feminism, and will have application in many social science disciplines as well." Choice

Annual subscriptions (3 issues) are available to individuals at $20 and to institutions at $40. Further information, including bulk order discounts, is available from:

Journals Division
Indiana University Press
10th & Morton Streets
Bloomington, Indiana 47405