

When Popper Meets Lipman: Promoting Falsificationism Through Philosophy for Children

Introduction

Karl Popper is one of the most important and influential philosophers of the twentieth century. His ideas have influenced, above all, the advancement of the philosophy of science, social philosophy, and political philosophy. A key characteristic of Popper's philosophy is the unification of his thought by a focal concern with the nature and growth of knowledge. As he puts it, for example, when discussing his two political works titled *The Poverty of Historicism* (Popper, 2002a) and *The Open Society and Its Enemies* (Popper, 1966a, 1966b),

Both grew out of the theory of knowledge of *Logik der Forschung* and out of my conviction that our often unconscious views on the theory of knowledge and its central problems ("What can we know?", "How certain is our knowledge?") are decisive for our attitude towards ourselves and towards politics. (Popper, 2002b, p. 131)

What is Popper's theory of knowledge, or epistemology, then? Basically, Popper (2008) rejects the ideas that knowledge, especially scientific knowledge, normally grows by accumulation, i.e. by discovering and collecting more and more facts, and that it can be acquired and stored in a human mind. The reason is that these ideas encourage the emergence of authorities, who, being not supposed to err, tend to cover up their errors, if any, to maintain their position of authority, thereby leading to intellectual dishonesty. Instead, Popper (1979/2009) stresses the importance of Socrates' insight into our ignorance and of his concomitant demand for intellectual modesty, which can heighten our awareness of the uncertainty of scientific knowledge while undermining our dogmatic belief in the authority of science. Accordingly, he advances two core epistemological theses. First, knowledge is conjectural and generally grows by the detection and correction of erroneous theories. So there can be no authorities, but better and worse theorists: as often as not, the better the theorists, the more aware they will be of their ignorance and limitations. Second, we are all fallible, yet should learn from our errors so that we can avoid them in the future. It implies the adoption of a critical attitude, or an attitude of searching for error, in which we try to falsify our theories rather than verifying them. Indeed, it is Popper's application of this critical or falsificationist methodology to various fields of philosophy that "provides his intellectual contribution with a *systematic* [italics added] character, which makes him a giant in the contemporary philosophical setting, which too often is devoted to sterile specialization" (Pera, 2006, p. 273).

Given Popper's systematic approach to philosophy, not surprisingly, it is widely believed that his ideas are still a source of inspiration to develop a good method for approaching, and possibly solving, some of the major problems in modern society. One notable example of such modern social problems is education. In the following discussion, I first examine the main educational implications of Popper's falsificationist epistemology. Then I explore how Lipman's Philosophy for Children programme helps to achieve Popper's educational ideal.

Popper's Ideal of Education

Popper's falsificationist epistemology that all knowledge grows through a process of conjectures and refutations has profound implications for politics and education. In order to foster the critical powers of human reason in accord with his critical

rationalism, Popper (1966a) stresses the necessity for a social setting that encourages the free flow of ideas, viz. an open society. Central to the notion of open society is an acceptance of disagreement and dissent as necessary agencies for the improvement of society and its constituent individuals. Since the values (e.g. freedom) in support of the practices (e.g. democracy) of an open society, for Popper, need to be taught and fostered (e.g. freedom cannot be simply created, though it may be preserved, by democracy if individual citizens do not care about it), education has a central part to play in its establishment and maintenance.

Given the political significance democracy has for an open society, it is arguable that the overriding aim of education within Popper's theoretical framework is to nurture in children the abilities, skills, and dispositions they need to fully participate in democratic life. Such nurture, Siegel (2010) asserts, amounts to the cultivation of reason, or critical thinking, in them. It is indispensable for both the state and its citizens: not only is the state threatened without a critical citizenry who are able to and disposed to "conceive, consider, and properly evaluate reasons for and against alternative policies and practices concerning the many varied matters that require public deliberation and decision" (ibid., p. 8), but the citizens themselves, through their lack of critical abilities and dispositions, are marginalized in the sense that they have no adequate way of contributing to public discussions, voicing their concerns, or protecting their own interests.

With regard to pedagogy, Popper (1979) points out that many teachers design it in accordance with what he often calls the *bucket theory of the mind*, which, conceiving the mind as a bucket, suggests that teaching means filling the mind of learners with information. Denouncing the bucket theory as completely mistaken, though still widely influential, Popper asserts that the mind acts like a *searchlight*, which, through the formulation of hypotheses or expectations, enables learners to select proper observations in the search for solutions to their problems during the process of learning. Indeed, for Popper (1994/2001), learning occurs when a learner has a problem (arising from an expectation that proves to have been wrong), attempts to solve it (by the elimination of errors, or false hypotheses, or unsuccessful attempted solutions, through criticism), and creates a new expectation (that the successful solution will solve the problem again in a similar case). In his autobiography entitled *Unended Quest*, Popper (2002b) sketches out his dream school as follows:

I dreamt of one day founding a school in which young people could learn without boredom, and would be stimulated to pose problems and discuss them; a school in which no unwanted answers to unasked questions would have to be listened to; in which one did not study for the sake of passing examinations. (p. 41)

This brief sketch provides a useful clue to what a competent Popperian teacher should do in school. To start with, the teacher should avoid boring students with ideas and activities that are not relevant to their concerns and interests. Instead, the teacher should regard the interest of students as the be-all and end-all, trying to stimulate their interest in asking questions and giving them freedom to explore problems that are meaningful and worthwhile. Moreover, the teacher should critically discuss with students their learning problems, acting as initiator, facilitator, and regulator of discussion. In order to maximize the effectiveness of their learning in discussions, the teacher should help students gain a proper understanding of the role of errors and criticisms in the learning process: given Popper's trial-and-error-elimination model of learning and its underlying assumption of human fallibility, both errors and criticisms should be viewed as an essential component of learning. Accordingly, the teacher

should, on the one hand, encourage students to deliberately seek out errors in their beliefs and theories by providing a safe and supportive environment for learning, where not only is the discovery of error not penalized per se, every student feels respected by all as a valued member of a community of learners; and, on the other, help students to detect their errors by creating thought-provoking situations where their beliefs and theories are challenged.

Nevertheless, Popper's (2002b) approach to curriculum is rather simplistic: simply regarding literacy and numeracy as what children should acquire in the curriculum, he asserts that "The three R's ... are ... the only essentials a child has to be taught; and some children do not even need to be taught in order to learn these. Everything else is atmosphere, and learning through reading and thinking" (p. 7). Indeed, Popper (as cited in Bailey, 2000) places a greater emphasis on the children's interest than the curriculum content, arguing that "Most things that are being taught are forgotten. What is valuable is that the child learns to interest himself in this or that subject" (p. 206). Worthwhile though Popper's ideas are, he seems to neglect two aspects of a curriculum that are necessary for preparing children for participation in an open society. First, Popper seems to pay little attention to the importance of the so-called *hidden curriculum*, i.e. the transmission of values of an open society underlying the curriculum content. Relevant values include the willingness to take a critical attitude towards the information presented, give reasons for adopting a certain viewpoint, consider fellow members of society as having equal value, etc.; yet, children can hardly be expected to understand and respect these values by simply learning a mass of knowledge from the three R's, but can be motivated to do so by being offered the opportunity to experience the demands of these values in appropriate contexts (Bailey, 2000). Second, Popper seems to downplay the significance of a wide spectrum of knowledge within the curriculum, discussion skills in particular, which can hardly be acquired by children through simply reading and thinking alone. However, helping children practically learn how to become more effective discussants in classroom discussion not only enables them to discover different perspectives and interpretations, but also promotes their participation in discussions in other public places – a vital component of democratic living. As Hess (2009) puts it, "A healthy democracy requires necessary and ongoing political discussion among citizens But not just any talk will do. To cultivate democracy, students need to learn how to engage in high-quality public talk" (p. 29).

How Lipman's Philosophy for Children Programme Fits the Popperian Ideal

To realize Popper's (2002b) educational dream of founding a school where "no unwanted answers to unasked questions would have to be listened to" (p. 41), I suggest running the Philosophy for Children (commonly known as P4C) programme originated by Matthew Lipman and his colleagues at the Institute for the Advancement of Philosophy for Children (Lipman, Sharp, & Oscanyan, 1980). The programme primarily aims to help children learn how to think for themselves, setting specific objectives of improving their reasoning ability, encouraging their creativity, promoting their personal and interpersonal growth, enhancing their ethical understanding, and developing their capacity to find meaning in experience. So far as thinking is concerned, it aims to foster the following thinking skills and dispositions: concept formation skills, inquiry skills, reasoning skills, translation skills, critical dispositions, creative dispositions, and co-operative dispositions (Fisher, 1998).

The P4C curriculum consists of philosophical novels for students and

instructional manuals for teachers, both of which are “designed to engage students [from kindergarten to 12th grade] in exploring the philosophical dimensions of their experience, with particular attention to logical, ethical and aesthetic dimensions” (Gregory, 2008, p. 13). In a typical P4C session, students first read an episode from a philosophical novel, then raise and organize questions for discussion after reflecting on what is interesting or puzzling about the episode, and finally discuss the questions as a community of philosophical inquiry. During the discussion, the teacher facilitates the inquiry process as a member of the community of philosophical inquiry, using discussion plans and exercises in the instructional manual to extend leading ideas and thinking skills related to the episode. After the discussion, the teacher leads students in a group self-evaluation of their progress in the discussion and widens the philosophical inquiry through creative activities or follow-up exercises.

Lipman (1998) shares the educational ideal of Popper in the sense that he views education as inquiry, which starts with what students find problematic and builds upon what they continue to find interesting and significant. As he puts it, “Education that is not conceived of as an inquiry response to a problematical situation cannot expect to have much student thinking to cultivate” (ibid., p. 278). Lipman (ibid.) asserts that P4C can improve the quality of life in a democratic society by nurturing distributed thinking in the classroom, which is conducive to the promotion of higher-order thinking – comprising critical, creative, and caring thinking – in students. Regarding thinking as composed of different kinds of mental acts that are logically or causally associated with each other, he deems a specific example of thinking to be distributed if those associated mental acts are spread out among a group of individuals. Although a classroom discussion can be a good instance of distributed thinking, Lipman (ibid.) emphasizes that it does not automatically lead to a great attainment of higher-order thinking: it has to be “followed by *internalization*, whereby participants introject the behaviors of others whom they wish to emulate, and by *externalization*, whereby participants synthesize what they have introjected and offer these newly created syntheses to the group” (p. 277). P4C can successfully combine distributed thinking and higher-order thinking in that it uses *community of inquiry* as methodology of teaching, *philosophy* as subject matter for inquiry, *logic* as both means and ends of learning, and *Socrates* as a model for teachers.

Community of Inquiry as Pedagogy

According to Fisher (1998), a community of inquiry is characterized by a group of people who engage in a shared experience, voluntary communication, and a co-operative search for understanding. In the school context, a community of inquiry aims to help students develop the skills and dispositions required for full participation in a democratic society. It achieves this aim by creating a supportive classroom community where students learn to explore issues of personal concern and lively controversy, to develop their own ideas yet examine and challenge the ideas of others, to make thoughtful judgements based on reasons, and to respect and listen to one another (ibid.).

Indeed, a community of inquiry provides ideal conditions in which cognitive practices, such as questioning, interpreting, justifying, comparing etc., are internalized (Sutcliffe, 2003). As an illustration, after observing that members of the community question each other, the individual questions himself or herself. This reflects the power of external dialogue to stimulate, enhance, and adjust internal dialogue; hence the self-correcting character of dialogue intrinsic to the community of inquiry. As Kennedy (2004) explains clearly,

For the individual, it implies the complicated process of thinking for oneself –

that is, evaluating and synthesizing the group's structure of judgment in the light of one's own – and thinking with others, or evaluating one's own structure of judgment in the light of the group's The group may self-correct as a result of one individual's contribution, or *visa [sic] versa*. (p. 752)

It is this self-correcting character of dialogue that makes a community of inquiry operate like a miniature open society, where knowledge, including both scientific and political knowledge, grows through a continuous process of conjectures, refutations, and self-correction.

Moreover, communal dialogue assumes that knowledge is marked by an open system in which its growth is chaotic – i.e. proceeding in a nonsequential, unpredictable, and irreversible way – but has a direction (Kennedy, 2004). Accordingly, it does not intend a coordination of the perspectives of all members in the group, which actually means the death of the open system. Instead, to maintain the dynamism of the system, communal dialogue stresses on the making of distinctions for finding new connections, the identification of contradictions for resolving them on a broader level, the discovery of deep assumptions for reformulating them as hypotheses, and so on (*ibid.*).

Philosophy as Subject of Inquiry

Human life has philosophical dimensions, including metaphysical, epistemological, ethical, and aesthetic dimensions. Children's life is no exception, as revealed by the following sample of perennial philosophical issues that are typically found intriguing and raised by children as young as four years old: What makes somebody beautiful? Why is time sometimes so slow? When mom tells me to be good, what does she mean? Where did grandma go when she died? Is it possible to always speak the truth? (Shaughnessy, 2005). Since philosophy as a discipline deals with the ways in which a specific body of philosophical concepts, like beauty, time, goodness, death, and truth, regulate our understanding of the things we do in our life, it is essential for children to acquire such concepts through philosophy if they are to make sense of the philosophical dimensions of their life.

The introduction of philosophy into the classroom is particularly relevant to the practice of education today, considering the fragmentation and disconnectedness of existing curricula and thus the artificial barrier to children's thorough understanding of their educational experience. For one thing, philosophy has traditionally concerned itself with the interrelationship among various academic disciplines: "Its traditional concerns with ethics, with the nature of knowledge, and with the nature of reality are concerns that transcend existing disciplines and at the same time are basically related to the subject matters with which existing disciplines deal" (Lipman, Sharp, & Oscanyan, 1980, p. 27).

For another thing, philosophy can promote the enhancement of thinking in at least three ways (Splitter & Sharp, 1995). First, dealing with the foundations and criteria by which judgements are made and appraised, philosophy strives to examine and explain the nature of thinking (e.g. to explore the nature of analogy instead of elaborating on the argument by analogy). It constitutes reflective thinking, or *thinking about thinking*, that is vital for the systematic correction and improvement of thinking. Second, it is a mark of a philosophical question that its answer is essentially problematic and debatable, for there is neither consensus about what makes a satisfactory answer nor consensus about what makes a satisfactory method for even starting to answer the question. Therefore, philosophical questions encourage children to ask further questions – the core of Popper's problem-solving model of learning – and to ponder ever deeper into the implications of their own

thinking. Third, philosophy inspires children to think creatively and imagine new possibilities through inviting them for, and confronting them with, questions like “What if everything were green?” and “Is it possible to have a mountain that is half on the earth and half on the moon?”. The capability to come to terms with such questions is a necessary instrument for good thinking, especially constructing hypotheses in the aforementioned problem-solving process: “These questions urge children to think on both sides, or beyond the limits of, a specific concept or experience like colour, material object and perception, and thus to re-evaluate the way they interpret the world” (ibid., p. 97).

Logic as Means and Ends

Pivotal as its role is in the P4C programme, according to Lipman (1992a), philosophy was intended as a “bribe” in his first philosophical novel entitled *Harry Stottlemeier’s Discovery* to induce children to study logic. This reflects the sheer weight he attaches to logic in developing the P4C curriculum. Indeed, logic, as a major discipline for promoting critical thinking, has three meanings in P4C, viz. formal logic, giving reasons, and acting rationally (Lipman, Sharp, & Oscanyan, 1980). While the rules of formal logic, which govern sentence structure and connections between sentences, provide a means for children to examine and grasp their thoughts, thereby making them aware that they can think about their thinking, in an organized way; the process of giving good reasons, which includes seeking reasons (e.g. in an impartial and objective way) and evaluating reasons (e.g. based on whether they have factual support and are relevant to the object of inquiry), helps children assess the thoughts of themselves and others in connection with various actions or events. Yet, it is the logic of acting rationally that is mainly aimed at encouraging children to use reflective thinking actively in their life. This aim is pursued through the many characters in the novel, who demonstrate different styles of thinking (e.g. Harry’s wondering, Lisa’s intuitive thinking, Mickey’s creative thinking, etc. in *Harry Stottlemeier’s Discovery*) that represent different models of reasonable behaviour:

This is not to say that children are encouraged simply to mimic the characters in the book; rather, the characters are designed to show the readers how the active use of reflective thinking can make a difference in what one says and does As the living children step more and more into the stories, they are thereby encouraged to think and act rationally and to develop their own styles of thinking akin to those of the characters, similar in some respects, differing in others. (Lipman, Sharp, & Oscanyan, 1980, p. 148)

Interestingly, philosophy is not just a means of facilitating the learning of logic in P4C, but an end in itself to be achieved by means of logic. As Lipman (1992b) points out, college students who lack a grounding in logic have often been found to be incapable of fully appreciating the conceptual content of the philosophical systems into which they were being initiated. The reason is that they failed to comprehend the logical moves being employed by the relevant philosophers. In other words, the appreciation of philosophical significance depends, to a certain extent, on the development of logical skills. To illustrate his point, Lipman selects the logical move known as conversion and mentions a case in Plato’s *Euthyphro*, where Socrates is keen to help Euthyphro differentiate between two quite different notions of the holy: first, if things are loved by gods, then they are holy things; and, second, if they are holy things, then they are things loved by gods. And Lipman asserts that it is only after learning the conversion principle that novices in philosophy, who commonly see these two formulations as equivalent, start to grasp the enormity of their difference.

Socrates as a Model Teacher

A large number of P4C scholars view Socrates as a model teacher of philosophy in schools. For example, Lipman, Sharp, and Oscanyan (1980) call attention to one of Socrates' famous teachings that people should know themselves and understand what matters in their lives in order to lead a good life; hence the teaching that there is no better incentive for people to conduct intellectual inquiry than the satisfaction of their interest in improving their own life. The implication is that philosophical inquiry in the classroom should begin with the interests of students. It is noteworthy here that Socrates does not unconditionally argue for the priority of interests, considering that he does not focus only on a question arising from an immediate interest of participants throughout a discussion, but intervenes by suggesting new questions, which result in a consideration of new concerns and issues as well as enlighten the original question (Portelli, 1990). In other words, although it is pedagogically appropriate for a P4C teacher to begin with an issue that children identify themselves after responding to a reading from a philosophical novel, the teacher should focus their attention on the philosophical aspects of the discussion – if it is to be philosophical – by, say, pointing out the philosophical themes they fail to identify and relating these themes to their experience when they have trouble doing so on their own.

Moreover, according to Reed and Johnson (1999), there are at least four ways in which an understanding of Socrates might inform P4C practice. First, serving as both a midwife and a gadfly, Socrates engages people in dialogue to aid them in giving birth to truth and to provoke them into a persistent attempt to seek truth respectively. To emulate the character of Socrates, the P4C teacher should show similar enthusiasm for getting at truth, trying to discover the hidden gestalt of the dialogue and reveal the direction in which the dialogue is leading. Second, being aware of his lack of knowledge, Socrates is an inquirer of truth himself, who asks people a series of probing questions that take the inquiry further, viewing all ideas elicited by these questions as potential sources of truth. To emulate the character of Socrates, the P4C teacher should be philosophically self-effacing as what he or she knows pales in comparison to all that he or she does not know, but pedagogically strong in the sense that he or she is able to “move discussion away from the unstructured swapping of anecdotes, items of knowledge or unsupported observations to a discussion with purpose and direction” (Fisher, 1998, p. 154) by using such Socratic questions as “What do you mean by ...?” (seeking clarification), “Why do you think that ...?” (probing reasons), and “What follows from what you say ...?” (testing implications).

Third, judging from the fact that Socrates holds dialogues, almost in an indiscriminating manner, with a wide diversity of people – including the young and the old, the novice and the expert, the unknown and the famous, etc. – about weighty matters, he exemplifies a belief in the power of dialogue to uncover truth. The P4C teacher, emulating Socrates, should adhere to a similar belief that children, even nursery ones, can engage in meaningful dialogue and have something significant to contribute to philosophy. Finally, with a view to discovering truth through the elimination of error, Socrates constantly tests the theories of people for weaknesses, especially by means of counterexamples. The P4C teacher, emulating Socrates, should put the ideas of students to the severest test in the dialogue so as to help them detect and correct their own errors.

Conclusion

To sum up: Popper's falsificationist epistemology that all knowledge advances through a process of conjectures and refutations carries profound educational implications. The overriding aim of education is to nurture in children the requisite

abilities, skills, and dispositions characteristic of critical thinking for full participation in an open democratic society. With regard to pedagogy, following Popper's searchlight theory of mind and problem-solving model of learning, a competent teacher should try to stimulate the interest of students in asking questions, give them freedom to explore problems they find meaningful, engage them in rational discussion about their learning problems, and help them root out errors in their beliefs through criticism. However, Popper's approach to curriculum design is somewhat problematic in that he simply considers literacy and numeracy as what children should acquire in the curriculum.

In order to achieve Popper's educational ideal, I propose implementing Lipman's Philosophy for Children programme in schools. Lipman shares the educational ideal of Popper in two senses: first, that he regards education *as* inquiry, which begins with what students find problematic and builds upon what they continue to find interesting and meaningful; and, second, that he thinks it important to improve the quality of life in a democratic society by nurturing distributed and higher-order thinking in the classroom, viewing democracy as inquiry and thus education *for* inquiry. The programme can fulfil the requirements of Popper's educational ideal by using community of inquiry as methodology of teaching, philosophy as subject matter for inquiry, logic as both means and ends of inquiry, and Socrates as a model teacher for inquiry. After all,

if education is to prepare students to live as inquiring [*sic*] members of an inquiring society, then that education must be education *as* inquiry as well as education *for* inquiry. This entails the conversion of each classroom into a deliberative and inquisitive community. (Lipman, 1991, p. 246)

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