A Popperian Approach to Education for Open Society

Introduction

Popper's non-justificationist 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. Through discussing the intended policies in a critical manner and creating the circumstances in which different proposals may compete with each other (Popper, 1963), it is expected that any weaknesses can be discovered before grave mistakes are made. This helps the society to survive its inadequate or ill-considered plans, since "*our trials, our tentative hypotheses, may be critically eliminated by rational discussion, without eliminating ourselves*. This indeed is the purpose of rational critical discussion" (Popper, 1996b, p. 69).

Considering that an open society places great political demands upon its members, requiring the participation of a well-informed, socially aware, and critical citizenry in scrutinizing political debates, examining government

proposals, and making sensible decisions, education has a key role to play in its maintenance and development. As Popper (as cited in Bailey, 2000) puts it, "I believe that teachers are duty bound to educate young people to think critically, so that they can make a contribution to the Open Society in the future" (p. 155). However, Popper has never given a systematic analysis of crucial educational issues, despite numerous statements he has made about schooling and education. A question arises as to how to translate Popper's philosophical ideas into concerted actions. It can be problematic sometimes: for example, Fitz-Claridge (1995) argues that there is a close connection between Popperian epistemology and unschooling, wherein *unschoolers* refer to home educators who regard the school model of education as pernicious to learning; while Schmid (n. d.) asserts that it is Popper's falsificationism on which the pedagogical philosophy of his *Sir-Karl-Popper-Schule* – an experimental school for highly gifted students in Vienna – is founded.

Perhaps it is too early to say whether Popper is for unschooling or special schooling, before the clarification of what exactly the pedagogical implications of his educational philosophy are, particularly before the examination of the following questions:

Which values and goals are at stake? Which kind of teachers and what

> attitudes are necessary? What type of curriculum – if any – would be advisable? Which school system would be most efficient to reach the values to be advocated in an open society? (Zecha, 1999, p. 8)

In the following discussion, I first consider the political ideal of open society Popper espouses, emphasizing its main values and practices. Then I examine the role played by education in creating and sustaining an open society, focusing on its aims, curricula, and pedagogy.

The Ideal of Open Society

According to Popper (1966a), it was not until around 600 BC that the political ideal of open society was first realized in Greece by what he calls the "Great Generation", including Pericles, Protagoras, Democritus, and Socrates. The achievement of these Greeks is deemed by Popper to have created the Western civilization in that it marks the transition from tribalism to humanitarianism, or from the closed to the open society. For Popper, tribalism, stressing "the supreme importance of the tribe without which the individual is nothing at all" (ibid., p. 9), is characterized by a magical or irrational attitude towards social customs: a failure to distinguish clearly between the laws of nature and the customary laws of social life, both of which are viewed as enforced by a supernatural will and thus as equally unchangeable. In a tribal or closed society,

the right way to behave is governed by rigid taboos that cannot be challenged or criticized. As members of such a society are allowed little freedom to make personal decisions, they have, Popper believes, little personal responsibility for their actions. In contrast to the closed society, the open society, in which individuals live by a humanitarian faith and are confronted with personal decisions, implies certain quite distinct social values and political practices.

Core Values of Open Society

FREEDOM

First, the fact that Popper (1963) interchangeably uses the terms *open society* and *free society* demonstrates the paramount importance of liberalism in his conception of open society. Indeed, it is arguable that Popper's (1989) definition of a liberal as "simply a man who values *individual* [italics added] freedom and who is alive to the *dangers* [italics added] inherent in all forms of power and authority" (p. viii) offers an insight into both his positive and negative conceptions of freedom as distinguished by Berlin (2000). On the one hand, Popper's (1966a) positive concept of freedom – understood as the freedom to realize individual potential – consists in his emphasis on individualism that not only recognizes human individuals as ends in themselves, but expects them to act on their own initiative and make rational individual decisions:

> It is your reason that makes you human; that enables you to be more than a mere bundle of desires and wishes; that makes you a self-sufficient individual and entitles you to claim that you are an end in yourself. (p. 190)

On the other hand, Popper's (2002a) negative concept of freedom – understood as the freedom from political interference or coercion – lies in his concern for the protection of individuals from the danger of state incursions into their private lives: "If the growth of reason is to continue, and human rationality to survive, then the diversity of individuals and their opinions, aims, and purposes must never be interfered with (except in extreme cases where political freedom is endangered)" (p. 147). It is noteworthy here that the fundamental humanitarian principle underlying these conceptions of freedom is not a utilitarian one. In order to maximize the freedom of individuals to live as they want, Popper (1966a) suggests minimizing avoidable suffering for all rather than maximizing happiness for the greatest number. The reason is that what the adherents of utilitarianism seem to assume, i.e. a symmetry between suffering and happiness, does not exist from a moral perspective, or rather that the promotion of happiness is much less urgent than the prevention or reduction of suffering.

Moreover, given that the practice of tolerance has long been regarded as useful since the Enlightenment for surmounting such obstacles to freedom as religious and racial prejudices, it is only natural to think that tolerance is essential to an open society. In fact, Popper (1963) asserts that "only in an open society, in a society which tolerates many views and many opinions, can we hope to get nearer to the truth" (p. 10). Yet, he is understandably cautious about the principle of toleration, just as many scholars are. As an illustration, Almond (1999) argues that it is not an absolute: "There is no moral case, for example, for tolerating genocide or other major violations of human rights" (p. 30). With regard to Popper (1966a), in agreement with Almond's argument, he highlights the so-called *paradox of tolerance* that unlimited tolerance (especially tolerance of those who are intolerant) is most likely to result in the demise of the tolerant (especially due to the onslaught of the intolerant) and thus of tolerance. To resolve the paradox, Popper proposes that the intolerant should not be tolerated so long as they refuse to listen to rational arguments but respond to such arguments with violence.

It is this paradoxical nature of tolerance that renders it inadequate for an open society. After all, for Popper, the primary aim of an open society is to discover

the truth, which cannot be achieved simply by tolerating dissenting ideas. Instead, they need to be seriously considered and criticized as a way of testing whether they are true. This is what Popper (1996b) means by *respect* in his description of open society as "a society based on the idea of not merely tolerating dissenting opinions but respecting them" (p. 110). In other words, while tolerance is an important first step in moving a society away from intolerance, it is not sufficient to open a closed society. To do so requires respect, that is, a respect for all members of society, dissenters in particular, as a potential source of knowledge and criticism. As Notturno (2000) explains it, "Tolerance leads to our allowing differences to exist. But respect leads to our trying to learn from them" (p. 31).

AFFINITY BETWEEN RATIONALISM AND EQUALITARIANISM

Lastly, according to Popper (1966a), an open society is characterized by the possibility of rational reflection, rational discussion, and rational decision-making. As he (1966b) repeatedly emphasizes, such rationalism, or critical rationalism, is basically "an attitude of admitting that '*I may be wrong and you may be right, and by an effort, we may get nearer to the truth*'" (p. 225). It is a *social* theory of reason in which rationalists owe their reason to social interaction, or rather critical discussion, with others. Apart from considering the argument rather than the

person arguing (i.e. impersonality of judgement), the growth of reason requires a conscious attitude of openness to criticism and of learning from mistakes. While the former attitude entails a willingness to practise self-criticism, listen to criticism, and engage in mutual criticism, the latter one involves a revision of our attitude towards mistakes:

> In order to learn to avoid making mistakes *we must learn from our mistakes*. To cover up mistakes is, therefore, the greatest intellectual sin …. We must be constantly on the look-out for mistakes. When we find them we must be sure to remember them …. [W]e must also learn to accept, indeed accept *gratefully*, when others draw our attention to our mistakes …. We must be clear in our own minds that *we need other people to discover and correct our mistakes (as they need us)*. (Popper, 1996a, pp. 201-202)

Indeed, Popper (1966b) argues for an ethical basis of rationalism, maintaining that rationalists have a moral obligation to support those social institutions which protect individual freedom (particularly freedom of thought and freedom of criticism), and to use language plainly as a means of rational communication rather than of emotional self-expression.

Although Popper (1966b) admits that an excessive rationalism – what he calls "comprehensive rationalism", or an attitude of saying that "I am not prepared

to accept anything that cannot be defended by means of argument or experience" (p. 230) – is logically untenable, he holds that its potentially harmful consequences are mild in comparison with any sort of irrationalism. For one thing, if irrationalists, who insist that emotion instead of reason is the mainspring of human action, fail to resolve their disputes with the help of positive emotions like reverence and love, they have no choice but to resort to negative emotions like fear, hatred, and ultimately violence. For another thing, since irrationalists cannot feel the same emotions (e.g. love) towards everyone, they tend to divide people emotionally into different categories (e.g. class comrades and class enemies), generating an anti-equalitarian attitude, which not only considers the person rather than the argument (e.g. with the belief that *we think with our class*), but also justifies giving different rights to different categories of people (e.g. the master has the right to subjugate the slave). Therefore, Popper (ibid.) contends that "no emotion, not even love, can replace the rule of institutions controlled by reason" (p. 236).

In contrast to irrationalism, which can hardly avoid becoming entangled with an anti-equalitarian attitude, Popper (1966b) maintains that rationalism has a close affinity with an equalitarian attitude vital for an open society. A key principle of equalitarianism for Popper (1966a) is equal treatment of citizens before the law:

"Equalitarianism proper is the demand that the citizens of the state should be treated impartially. It is the demand that birth, family connection, or wealth must not influence those who administer the law to the citizens" (p. 95). This principle, however, is not grounded on the widespread naturalistic assumption that *all people are born equal* for two reasons. One is that Popper (ibid.) deems the assumption flawed, because although human individuals are equal in some crucial respects, they are very unequal in many others. More importantly, even if the assumption – a statement of fact – is valid, he claims, normative demands cannot be derived from it; otherwise, a naturalistic fallacy will be committed. Another reason is that Popper (ibid.) rejects naturalistic arguments as problematic, because they can be used to defend not only equalitarian but also anti-equalitarian causes. As an example of the latter, the formulation of a theory of the biological and moral inequality of people, he points out, can be attributed to Plato and Aristotle, who argue that "the natural inequality of men is one of the reasons for their living together, for their natural gifts are complementary. Social life begins with natural inequality, and it must continue upon that foundation" (ibid., p. 70); hence their counsels "Equal treatment of unequals must beget inequity" (ibid., p. 96) and "Equality for equals, inequality for unequals" (ibid., p. 96) respectively. To fight anti-equalitarianism, Popper (ibid.) suggests applying what he describes as *the*

principle of all morality that no person should consider himself or herself more valuable than any other person. And he asserts that personal superiority, whether racial, moral, or intellectual, should not create special political rights for the superior persons even if such superiority could be established, but it might create special moral responsibilities for them.

Crucial Practices for Open Society

DEMOCRACY

With regard to the political practices that are necessary for establishing and maintaining an open society, democracy occupies a pivotal position in Popper's philosophy, fulfilling a dual function for both epistemology and politics. More specifically, aside from securing the freedoms of thought and expression that are vital for intellectual progress (Popper, 2002a), democracy provides an institutional framework that allows the exercise of reason in political matters, especially the implementation of reforms, and change of governments, without violence (Popper, 1966a). However, for Popper (1966a), democracy should not be based on what he calls the *theory of sovereignty*, which, taking the question "Who should rule?" as fundamental, assumes that political power is essentially unchecked, and that those who have the power can almost do what they want. For one thing, the theory is empirically unrealistic in the sense that no political power has ever been

absolute and unrestrained. As Popper (ibid.) explains it,

> Even the most powerful tyrant depends upon his secret police, his henchmen and his hangmen. This dependence means that his power, great as it may be, is not unchecked, and that he has to make concessions, playing one group off against another. (p. 122)

For another thing, the theory is logically inconsistent in the sense that it poses the paradox of sovereignty. As Popper (ibid.), illustrates it,

> For instance, we may have selected "the wisest" or "the best" as a ruler. But "the wisest" in his wisdom may find that not he but "the best" should rule, and "the best" in his goodness may perhaps decide that "the majority" should rule. (p. 124)

Considering that the theory of sovereignty is both empirically and logically untenable, Popper (1966a) suggests that democracy should rest on a *theory of checks and balances*, which strives for institutional control of rulers by balancing their powers against that of others. Recognizing that rulers make mistakes no matter how good or wise they are, this theory of checks and balances focuses on the question "*How can we so organize political institutions that bad or incompetent rulers can be prevented from doing too much damage?*" (ibid., p. 121) rather than the question "Who should rule?"; hence the preparation for the worst

and the hope for the best. In other words, Popper's theory of democracy does not proceed from a blind faith in the rule of the people or in the righteousness of majority rule, but from a rational decision to develop political institutions, such as general elections and representative government, for the avoidance of tyranny. In response to the critics of democracy, who blame it for the political shortcomings of a democratic state (e.g. many democrats use dirty tricks to guarantee their own re-elections and the adoption of their policies, as pointed out by Notturno, 2000), Popper (ibid.) emphasizes that a distinction between personal and institutional problems needs to be made: "The democratic institutions cannot improve themselves. The problem of improving them is always a problem for *persons* rather than for institutions" (p. 127). Accordingly, it is the citizens, instead of the institutions, of the democratic state who are to blame.

STATE INTERVENTIONISM

Another political practice that is essential for an open society is state interventionism. For Popper (1966b), it primarily means running interventionist projects by the state to secure equal freedom for all. The significance of such interventions lies in the fact that unlimited freedom defeats itself, the so-called *paradox of freedom*: (physically or economically) strong people are free to bully those who are (physically or economically) weak and to rob them of their

(physical or economic) freedom. To protect the weak from the strong, Popper argues that the state should intervene and "limit freedom to a certain extent, so that everyone's freedom is protected by law. Nobody should be at the *mercy* of others, but all should have a *right* to be protected by the state" (ibid., p. 124). Therefore, freedom is not only not incompatible with state intervention, but, quite the contrary, impossible without the state guarantee of it.

However, Popper (1966b) warns that state power is a dangerous though necessary evil. While the state must be granted sufficient power for the implementation of interventionist programmes, individual freedom will be threatened if it is given too much power. Apart from strengthening democratic institutions to minimize the danger that state power will be misused, Popper (1989) suggests combating this evil by applying what he calls the *Liberal Razor*, i.e. the principle that "[the state's] powers are not to be multiplied beyond what is necessary [for the protection of freedom]" (p. 350). Given his view that unrestrained capitalism should give way to economic interventionism of the state for protecting the economically weak, the upshot is that Popper (1966b) strongly advocates the Welfare State, or the system of social insurance, say, against unemployment, disability, and old age, a guaranteed livelihood for everyone willing to work, limitation of the working day, and so on. As Lessnoff (1999)

comments,

> The welfare state illustrates, interestingly, not only Popper's political principle of protectionism, but also his application of fallibilism to politics. The various measures that constitute the welfare state were instituted in order to deal with some of the urgent and manifest problems of unrestrained capitalism. As such they were a huge advance. (pp. 201-202)

PIECEMEAL SOCIAL ENGINEERING

In regard to the attitude that is right for state interventions, Popper (1966a) holds that it should be one of social engineering rather than of historicism. The main reason lies in the difference in attitude between social engineers and historicists towards such social institutions as a government, a police force, and an insurance company. Historicists are inclined to find out the origin and destiny of social institutions in order to assess their real role in the development of history, while social engineers take a more rational approach to these institutions, treating them as means to certain ends and judging them wholly on their appropriateness, simplicity, efficiency, etc. Within the attitude of social engineering, however, Popper (ibid.) further distinguishes between what he calls *Utopian social engineering* and *piecemeal social engineering*. He firmly rejects the former and considers the latter as the only rational approach to politics in that, in contrast to

Utopian engineers, who search for and fight for the greatest ultimate good (e.g. happiness or perfection) of society, piecemeal engineers adopt the method of searching for and fighting against its greatest and most urgent evils (e.g. suffering or injustice).

Indeed, piecemeal social engineering is advantageous to an open society in at least two ways. First, considering that the gradual reform it entails will not abruptly eliminate the traditions to which people have got accustomed, piecemeal social engineering can fulfil the overwhelming need of human beings for regularities –

> the need which makes them seek for regularities; which makes them sometimes experience regularities even where there are none; which makes them cling to their expectations dogmatically; and which makes them unhappy and may drive them to despair and to the verge of madness if certain assumed regularities break down. (Popper, 1979, pp. 23-24)

Second, piecemeal social experiments, which demand alteration of a single social institution at a time, are conducive to the identification of causal relationships and thus the maximization of institutional learning:

> For only in this way can we learn how to fit institutions into the framework of other institutions, and how to adjust them so that they work according to

> our intentions. And only in this way can we make mistakes, and learn from our mistakes, without risking repercussions of a gravity that must endanger the will to future reforms. (Popper, 1966a, p. 163)

On the contrary, according to Popper (1966a), the attempt of Utopian social engineering to build a perfectly beautiful society (aestheticism) through a complete eradication of the existing social system (radicalism) leads very easily to violent measures, including the purge, expulsion, and killing of unwanted people; hence his criticism that "even with the best intentions of making heaven on earth it only succeeds in making it a hell" (p. 168). To make matters worse, this aesthetic radicalism of the Utopian approach is both unrealistic and futile. As Popper explains it in detail by analogy with canvas-cleaning,

> What some people have in mind who speak of our "social system", and of the need to replace it by another "system", is very similar to a picture painted on a canvas which has to be wiped clean before one can paint a new one. But there are some great differences. One of them is that the painter and those who co-operate with him as well as the institutions which make their life possible, his dreams and plans for a better world, and his standards of decency and morality, are all part of the social system, i.e. of the picture to be wiped out. If they were really to clean the canvas, they would have to

> destroy themselves, and their Utopian plans. (Ibid., p. 167)

The Role of Education in Open Society

According to Popper (1966a), an open society, of which the values and practices are not easy to acquire and sustain, makes much greater demands on its citizens than a closed society. These demands create, among all members of an open society, a sense of unease that Popper calls the *strain of civilization* – the unavoidable pressure they have to withstand for being human:

> It is still felt even in our day, especially in times of social change. It is the strain created by the effort which life in an open and partially abstract society continually demands from us – by the endeavour to be rational, to forgo at least some of our emotional social needs, to look after ourselves, and to accept responsibilities. (Ibid., p. 176)

One of the primary individual responsibilities is to keep a watchful eye on the state, ensuring that it does not overstep the boundaries of its legitimate functions (Popper, as cited in Notturno, 2000). 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.

Basically, Popper (1966a) argues for egalitarian, yet against excessive, state intervention in education, emphasizing that the principal task of the state is to guarantee the development of requisite knowledge, skills, and values in all children for participation in an open society. As he puts it,

> A certain amount of state control in education … is necessary, if the young are to be protected from a neglect which would make them unable to defend their freedom, and the state should see that all educational facilities are available to everybody. But too much state control in educational matters is a fatal danger to freedom, since it must lead to indoctrination. (Ibid., p. 111)

So far as educational reforms are concerned, Popper's advocacy of piecemeal social engineering warns against implementing Utopian reforms radically and accepting wholesale changes thoughtlessly. Following his counsel, educationists should not support change just for the sake of it, as it is not unknown for them to do so, but assess their current practices before being convinced that change may produce improvements; moreover, they should not carry out reform to such an extent that they cannot monitor its effects (McNamara, 1978).

Aims

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.

After all, it is doubtful whether democracy can be successfully established if it merely secures the freedom of, say, speech by law for citizens without educating them to exercise it effectively. As Strike (1989) remarks, "Free speech is of little value to someone who has nothing to say or who cannot argue persuasively" (p. 46). Moreover, fostering critical thinking in children is conducive to building their awareness of certain anti-democratic thought patterns in political ideologies so that they become more resistant to ideological indoctrination and manipulation. Typical features of these anti-democratic thought patterns include asserting

specific doctrines as absolutely true and forever unalterable, using such strategies of immunization as conspiracy theories to exclude basic ideological assumptions from criticism, interpreting political reality through such rigid bipolar labels as friend and foe that lead to its oversimplifications and distortions, and disguising judgements of values as statements of facts (Salamun, 1999).

In contrast, Popper (1966b) criticizes the pursuit of what seems to him *romantic* educational aims, like happiness and full personality development, as utterly unacceptable since they, though well-intentioned, involve "the attempt to impose our scale of 'higher' values upon others" (p. 237). Also, he (1966a) rejects the common idea that education should aim to train and select future leaders, condemning this aim for stifling innovation and originality because children are encouraged to study not for the sake of their subject, but for the sake of their own careers. As a fundamental principle for protecting children from harmful educational policies, Popper (1966b) suggests that "'Do no harm' (and, therefore, 'give the young what they most urgently need, in order to become independent of us, and to be able to choose for themselves') would be a very worthy aim for our educational system" (pp. 276-277).

Curricula

Interestingly, Popper's approach to curriculum is both simplistic and realistic. It

is simplistic in the sense that he simply regards literacy and numeracy as what children should acquire in the curriculum: "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" (Popper, 2002b, 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). Moreover, it is arguable that psychological knowledge should be introduced into the curriculum as part of learning for democracy, because democratic decision-making is often undermined by powerful anxiety-provoking emotions produced in the decision-making process, central to which are such elements as desire (to achieve a certain outcome), conflict (between participants who support competing choices), and pressure (on participants to change their position) (Long, 2005). For instance, psychological learning can help to improve children's skills in offering and receiving criticism, handling conflict, balancing individual and group needs, and developing an effectual egalitarian attitude.

Another feature of Popper's (1989) approach to curriculum design can be described as realistic, considering that he encourages the initiation of children into both the dominant traditional knowledge, values, and practices of the society (i.e. first-order tradition), and the tradition of critically discussing the first-order tradition (i.e. second-order tradition). For one thing, it is the second-order tradition of a critical attitude, or critical thinking, that mainly characterizes an open society. It is a tradition of not accepting a certain idea as true merely because it comes from a certain respected authority or dominant tradition. For another thing, despite the importance of the second-order tradition to open society, it is virtually impossible to establish this tradition of critical discussion without the first-order tradition, or something to criticize. Using the tradition of science as an illustration, Popper (ibid.) stresses that the progress of science is built on the background knowledge provided by its first-order tradition:

> We must make use of what people before us have done in science. If we start afresh, then, when we die, we shall be about as far as Adam and Eve were when they died …. In science we want to make progress, and this means that we must stand on the shoulders of our predecessors. (p. 129)

So far as the second-order tradition is concerned, it can be promoted by bringing children into contact with other traditions or cultures in the curriculum,

which may prompt them to reassess their own cultural beliefs or at least make them aware that their traditional solutions are not the only ones. Yet, this multicultural approach has often been associated with cultural relativism, implying that all cultural practices, including torture and genocide, are equally good (Bennett, 2007). Following the teachings of Popper (1996a), who condemns relativism as "a betrayal of reason and of humanity" (p. 5), different traditions or cultures should not be seen as having equal merit, but as tentative solutions to problems, some of which are most likely more successful than others. As Bailey (2000) clearly explains,

> Discussion of different traditions should be in relation to a specific situation, in a particular place and time; certainly there could be no suggestion of universal superiority of one culture over another, just that certain cultural practices have greater merit on a particular occasion. (p. 196)

Pedagogy

A DISTINCTION BETWEEN TEACHING AND LEARNING

Before deliberating on what pedagogic principles and practices a Popperian teacher should follow, it is essential to draw a distinction between teaching and learning. The reason is that the failure of many educationists to open their societies through educational reform seems to be caused by their preoccupation

with teaching rather than learning without their attaching due weight to the fact that learning does not have much, if anything, to do with teaching. More specifically, the pedagogy of many teachers today is designed in accordance with what Popper (1979) 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).

Two things about this problem-solving, or trial-and-error-elimination, model of learning are noteworthy here. First, Popper (1994/2001) means it to be applicable to learning of *all* kinds: “We learn *only* through trial and error. Our trials, however, are *always* our hypotheses. They stem from us, not from the

external world. *All* we learn from the external world is that some of our efforts are mistaken" (p. 47). In other words, he argues that all learning is problem solving, rejecting the popular belief that some learning occurs through the transmission of ideas (e.g. by teaching) from outside the learner. The implication is that learning takes place only in situations where at least one of the learner's expectations is shown to be false or inadequate, but not in those situations where the learner's expectations stay unchallenged (Swann, 2009). It is no wonder that some teachers can teach until they are blue in the face without any child learning anything, and that some children can learn a lot of things without being taught by any teacher at all.

Second, despite the significance of *criticism* in Popper's problem-solving model of learning, it is unwelcome, and even taboo, in most societies. Many people neither like to be criticized nor like to criticize others, seeing criticism as a sign of disrespect or offence. Therefore, it is incumbent upon teachers to change the negative image of criticism in school. For instance, the teacher should demonstrate to students not only that criticism is one of the greatest signs of respect they can show others, but also that it is crucial for the learning of both themselves and others. In explaining why his teaching frequently provokes intense confrontations with students, Popper (as cited in Notturno, 2000) stresses

that responding to what a student has written or said in a seminar by simply saying “It is interesting”, rather than by seriously criticizing it, is not teaching, and, more importantly, does not involve learning.

WHAT A POPPERIAN TEACHER SHOULD DO

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. With regard to the provision of a free environment for students to explore their world, its significance lies in the fact that if students do not feel free to examine their understanding of the world,

they will tend to produce what they think the teacher expects, in which case their learning and growth of understanding will be hampered (Bailey, 2000). However, freedom in education should not be viewed as absolute or constraint-free. While freedom of opinion requires no limitation whatsoever, considering the key distinction between thought and action, the teacher needs "to contrain [*sic*] freedom of action in order for a child to have a safe learning environment" (Swartz, 1999, p. 45).

Moreover, Popper's sketch of his dream school implies that 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. First of all, given Popper's trial-and-error-elimination model of learning and its underlying assumption of human fallibility, errors should be viewed as an essential component of learning. Unfortunately, errors are often penalized in the classroom, because they are seen by many traditional teachers as a major obstacle to learning that can be avoided unless students are lazy or stupid. Yet, "if we expect the discovery of error … to incur a penalty, we are likely to try to avoid errors … being discovered: we do less, we learn less. The worst case scenario is

that this becomes habitual" (Swann, 2006, p. 264). Accordingly, the teacher should 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.

Since criticism can promote the detection of error, the teacher should also help students to do so by creating thought-provoking situations where their beliefs and theories are challenged. Here, as Notturno (2000) emphasizes, it is important for teachers to understand the nature of criticism and its connection with logical arguments:

> Every criticism is an attempt to show that a given statement is inconsistent with something that we believe to be true. But only valid deductive arguments allow us to exercise rational control over a critical discussion. This is because valid deductive arguments are the only arguments in which the conclusions actually follow from the premises. (p. 65)

And a critical teacher should be capable of using valid deductive arguments to force students into reexamining, or criticize, their beliefs through demonstrating that and how their beliefs are contradictory, thereby making them aware that they really do not know what they thought they knew. Having said that, the teacher

should be mindful that criticism can undermine children's confidence and hinder their learning; hence the need to maintain a delicate balance between their feelings of confidence and the severity of criticism. Indeed, to set an example to students, the teacher should be open to criticism, giving up the authoritarian style of instruction that prompts them to depend on him or her, treating them as valuable sources of criticism, and encouraging them to criticize his or her ideas and practices.

According to Popper (1966a), one model teacher of his dream school seems to be Socrates. For one thing, Socrates teaches that teachers can't and shouldn't transmit any truths to their students, because they, being fallible, are just seekers rather than possessors of truth. For another thing, Socrates stresses that teachers should instil a self-critical attitude in themselves and in their students:

> Real knowledge, wisdom, and also virtue, can be taught only by a method which he describes as a form of midwifery. Those eager to learn may be helped to free themselves from their prejudice; thus they may learn self-criticism …. The true teacher can prove himself only by exhibiting that self-criticism which the uneducated lacks. "Whatever authority I may have rests solely upon my knowing how little I know": this is the way in which Socrates might have justified his mission to stir up the people from

their dogmatic slumber. (Popper, 1966a, pp. 129-130)

Conclusion

To sum up: Popper's falsificationist epistemology that all knowledge advances through a process of conjectures and refutations carries profound political and educational implications. On a political level, it is necessary to establish and maintain an open society by fostering not only five core values, viz. freedom, tolerance, respect, rationalism, and equalitarianism, but also three crucial practices, viz. democracy, state interventionism, and piecemeal social engineering. On an educational level, the overriding aim 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. Despite his realistic suggestion that children should be initiated into both the first-order and second-order traditions, it is rather simplistic for him to only consider literacy and numeracy as what children should acquire in

the curriculum.

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