

Report from the Field

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Teachers' Conceptions of Critical Thinking

Abstract

Seventeen teachers of kindergarten through grade twelve were interviewed about their beliefs and teaching practices related to critical thinking. Despite the range of grades and subjects they taught, a number of commonalities were found. These were an attitude of open-mindedness, methods that allow student interaction, and activities that involve students in problem-solving and argument. These categories are in harmony with much of the theoretical work on critical thinking, and this, together with the eagerness of these teachers to talk about critical thinking, are seen as encouraging signs that the time may be ripe for a school-university dialogue from which an enlightened critical thinking praxis may emerge.

Résumé

Dix-sept professeurs de la maternelle à la douzième année ont été interrogés sur leurs croyances et leurs méthodes d'enseignement au sujet de l'esprit critique. En dépit de l'éventail des classes et des matières enseignées, on a constaté un certain nombre de points en commun. Mentionnons notamment une certaine ouverture d'esprit, des méthodes qui favorisent les interactions entre élèves, et des activités qui exigent des élèves qu'ils résolvent des problèmes et présentent des arguments. Ces catégories cadrent avec une bonne partie des recherches théoriques sur l'esprit critique, ce qui, combiné à l'empressement mis par ces professeurs à parler de l'esprit critique, constitue un signe encourageant que le moment est sans doute venu d'entamer le dialogue entre les écoles et les universités, d'où pourrait peut-être émerger une praxie de l'esprit critique.

Much has been written in recent years about the nature of critical thinking, how critical thinking should be taught in schools, and how students' reasoning should be evaluated. Despite this academic debate, understanding of the nature of critical thinking, and how to teach and evaluate it, critical thinking has developed slowly in schools. Most teachers acquire little knowledge of critical thinking during their teacher education. Teaching and modelling of critical thinking in teacher education programs is rare (McLaren, 1989). Schools change slowly, not only because teachers are often too consumed by their daily tasks to pursue the learning of new methods and philosophies in depth (Fullan, 1982), but because the school as an institution tends to protect the status quo and offer institutional resistance to change that is other than cosmetic (McLaren, 1989). Nevertheless, many teachers do stress critical thinking as an educational goal, though their efforts to teach it may be undermined by classroom management policies that demand obedience, not critical thought, from children (McCaslin & Good, 1992). As well, many students come from troubled backgrounds and are less than receptive to anything the school offers.

Some researchers have found that even when teachers value and do their best to teach critical thinking, they tend to use assessment methods that stifle critical thinking (Orton & Lawrenz, 1990; Stiggins, 1987). This is partly due to institutional restraints and partly to lack of knowledge of alternate assessment methods. Another research finding is that the opportunity to talk freely in a guided situation positively affects students' reasoning. Recent studies of cooperative learning indicate that when students have the opportunity to reason together about content they grow in reasoning ability (Eeds & Wells, 1991; Smith, 1991; Taylor, 1991). And finally, there is the finding that teachers who ask open-ended questions and who do not insist that their own interpretation of a problem is the authoritative one foster more critical thinking than do teachers who retain the role of "fount of all knowledge" (Miller, 1990; Orton & Lawrenz, 1990).

Definitions of Critical Thinking

Ennis (1987, 1989) defined critical thinking as "reasonable reflective thinking that is focussed on deciding what to believe or do" (1989, p.4), a widely accepted definition. Ennis' list of skills and abilities is similar to Beyer's (1985, p.272) more succinct list. Beyer defined critical thinking as comprising a number of different operations, the main ones being,

... distinguishing between verifiable facts and value claims; determining the reliability of a source; determining the factual accuracy of a statement; distinguishing relevant from irrelevant information, claims or reasons; detecting bias; identifying unstated assumptions; identifying ambiguous or equivocal

cal claims or arguments; recognizing logical inconsistencies or fallacies in a line of reasoning; distinguishing between warranted or unwarranted claims; determining the strength of an argument.

However, as Selman (1989) has pointed out, these should not be seen as sequential operations or steps in a particular process, but as "reconstructed" aspects of reasoning which are idiosyncratic, sometimes repetitive or circular, and may involve intuitive leaps. Selman sees reasoning ability being learned in much the same way we learn our native language, so that we are able to follow the rules and standards, but often know them only tacitly. If this is the case, teaching critical thinking becomes much more complex than teaching a set of discrete skills. It will involve modelling, example, and practice as well as explicit reference to the intellectual standards which must be honored. Rather than teaching "thinking skills" at specific times in the school day, a commitment must be made to critical thinking as an ethic, a way of life (Sears & Parsons, 1991) and involve the creation of a "critical thinking classroom" (Court, 1991) in which the spirit of reason permeates and guides all activities. If critical thinking is viewed in this way then teaching it is not really something new and different on the educational scene, but involves the kind of intellectual engagement that some teachers have always sought to engender. If it is possible to "capture" some of what such teachers do, then we may be able to formulate credible rules of practice that can be used to inform teacher education and professional development.

It sometimes seems fashionable in academic circles to assume that professors know more about concepts like critical thinking than do teachers. While academics certainly have more time to develop and articulate theory, and to analyze educational concepts, teachers know more about how these concepts "live" in "the messy world of practice" (Schon, 1983). There are teachers who have made a thoughtful commitment to critical thinking, and we can learn important things from studying their practice and their conceptions. In the interviews reported here, we purposely did not ask teachers to define critical thinking or say what they think good critical thinking is. We wanted instead to gain a rich picture of their conceptions from descriptions of their practice.

Purpose and Outcome of the Study

Despite the personal, professional, and institutional restraints on teachers' learning and teaching of critical thinking, we are in an era of high interest in this topic. If we want to improve both preservice and inservice teacher education, develop materials that will be helpful for teaching and evaluating critical thinking, and begin to change some of the environmental

factors that make schools infertile ground for critical thinking, we need to know where teachers are in terms of their understanding, their practice, and their needs. This study sought to shed light on these factors.

Method

The interview study reported here is part of a larger study (Francis & Court, in preparation) which involved sending questionnaires on critical thinking teaching practice to teachers of kindergarten through grade twelve. One section of questions on the questionnaire dealt with demographic information, one section asked about the frequency of use of a number of different approaches such as commercial "thinking programs" and teaching approaches drawn from the literature on critical thinking, and one section asked teachers to indicate their level of agreement with a series of statements about critical thinking. Some of these statements concerned definitions of critical thinking, some concerned the environment in which critical thinking would likely take place, and some concerned teachers' practices. Of the 120 teachers who completed these questionnaires, 17 agreed to a half-hour telephone interview. The purpose of the interviews was to obtain qualitative data on teachers' classroom practice and their beliefs about critical thinking. Analysis of the quantitative data, and of the relationship between the qualitative and quantitative data, is underway. The present paper reports the results of the 17 interviews.

All of the 17 teachers interviewed were committed to critical thinking as an important educational goal. Nine of the 17 were male and eight female. Seven taught elementary school and ten high school. The seven elementary teachers were generalists except for one who taught learning assistance. Of the ten high school teachers, four taught English, one English and Social Studies, two Fine Arts, one Science and Computer Science, one Business Education, and one Industrial Education. The interviews were conducted over a six-week period. Teachers were telephoned at prearranged times at their homes in the evenings. Interviews were tape recorded and the tapes transcribed. Transcripts were read through several times to gain familiarity with the responses, then answers to each question were summarized and similar answers were grouped into categories. From these categories four central themes emerged.

Results

Interviews were structured around five questions:

(1) *Describe a successful lesson you taught recently in which your students were doing good critical thinking.* Lessons described had students involved in taking and arguing a position; analyzing and solving a problem;

and collecting or generating information. Most teachers stressed that to do good thinking, students had to be able to talk, preferably to each other. Almost all of the lessons described involved students, for at least part of the time, in cooperative work or group discussion.

(2) *How do you know your critical thinking instruction is working? What kinds of evidence are you able to collect?* Most teachers said they find evaluating thinking a difficult area and they feel unsure of themselves because the evaluation is quite subjective. Only one teacher mentioned testing. All the others said that they listen in on group discussions, talk individually with students, and evaluate their writing. The criteria by which they evaluate students' thinking are growth in depth and thoughtfulness of ideas; growth in independent problem-solving ability (independent from the teacher); ability to give evidence for claims; ability to generate ideas; and tenaciousness in pursuing the solution to a problem.

(3) *What factors work against your teaching of critical thinking?* In answer to this question most teachers mentioned a number of factors such as their own poor training and lack of knowledge; pressure to cover the curriculum (mentioned by teachers of grade seven and up); students' closed minds, their lack of motivation and their addiction to the "right answer"; large class size; the difficulty of dealing with varying abilities in class (because it seems to inhibit discussion); the teacher's old beliefs and habits and addiction to the "right answer"; teacher isolation and the need for time to plan together; the rigidity of the secondary timetable; and the need to discipline and "manage" students. One teacher who said religious fundamentalism is strong in her area complained about the need to censor some political topics and literature, and one said that he does not know by what standards to judge thinking.

(4) *What factors help you teach critical thinking?* Some teachers mentioned more than one factor. Items mentioned were the teacher's personal ability, teaching methods, and belief in the importance of critical thinking; the opportunity to talk and plan with other teachers; the administrative stress on problem-solving, discovery, and student self-evaluation; and a supportive school environment, principal, and school district.

(5) *What would be the ideal conditions for you to teach critical thinking?* Teachers were asked to fantasize about the ideal world and how they would design it if they could have any conditions they wanted for teaching critical thinking. Most teachers gave more than one response. Items mentioned were abundant funding, resources, and media; larger blocks of uninterrupted time; large classrooms with movable tables; smaller class size; better teacher training and inservice; time for teachers to plan and teach together; changing the evaluation system away from exams; freeing

both teachers and students from their old habits and biases; and freeing the educational system from censorship.

Themes identified

Four main themes run through these responses. They are not discrete, in that most of the teachers expressed ideas relating to more than one theme. These themes are: an **attitude** of open-mindedness, a **method** that allows interaction, and **activities** that involve students in problem-solving and argument.

Open-mindedness. A pervasive attitude and atmosphere of open-mindedness ran through these teachers' descriptions of what they do and how they would like the world to be for critical thinking to flourish. Freeing both students and teachers from their past habits and biases, engaging students in discussion and problem-solving that do not lead to a predetermined right answer, and freeing the school system from censorship are manifestations of open-mindedness. Also related to this idea are the structural ways these teachers would like schools to change - away from examinations and to a more flexible timetable that gives teachers time to work together and gives them larger blocks of time with students. Open-mindedness means being open to new ideas, to be able to change, to accept other points of view. It is a desirable attribute of students, teachers, and the educational system itself. One teacher said: "What I want most is to foster the understanding in my classroom that there is no right or wrong way to go about doing things, that learning and thinking are a continual process, that things are always changing, and to try to get them away from the idea of 'what's the right answer, how am I supposed to do this, what's the teacher looking for'." Another teacher said: "All teachers need to have a healthy dose of self-doubt, so they're always questioning, they never assume that they've got it right, they're always approximating their goal."

Interaction. One of the strongest notions to come through in these interviews was that for students to think critically they must be able to generate, explore, and refine their ideas in interaction with others. This is not to say that there are not individual phases of thinking, reading, and writing. But these teachers expressed repeatedly their belief (grounded in experience) that exposure to others' views, critical analysis of ideas, weighing of evidence, and the refining of arguments is best done in a forum of collaboration and debate. The teachers themselves, by expressing their desire for time to plan and team teach with colleagues, showed how much they value interaction. One's ideas can only go so far, it seems, in one's own head. Their sharpening and refinement occur best in a public forum. A primary teacher said: "I feel that the key to the thinking that's going on in my classroom is the sharing - I think that talking and thinking go together."

If they just have to sit there and have their own little thoughts, they don't get the chance to flex their ideas against others' ideas."

Problem-Solving. In terms of what teachers actually get students to do under the rubric of critical thinking, problem-solving is prominent. This takes many different forms depending on the content. The industrial education teacher in this study described having students, in pairs, choose a material (such as wood, steel, or glass), research its properties in the library (both the librarian and the physics teacher having been called on to contribute their expertise), then set about to solve the problem: designing a desk organizer according to certain parameters, refining the plans in light of the material's properties, then finally going into the shop and building it. A fine arts teacher described having students discuss in groups an ambiguous phrase like "Boulevard of Broken Dreams", then solve the problem: reinterpreting the phrase in visual terms and creating a piece of art. This would be followed by a group critique. A primary teacher described having students do dramatic role plays in which they had a problem to solve, such as finding a wallet with a lot of money in it on the street. These would then be discussed by the whole class. A key element in all of these descriptions of problem-solving was that the problem be open-ended (within some parameters of acceptability and possibility). In no sense are students supposed to "discover" a predetermined right answer. Even in mathematics, where teachers might be expected to adhere closely to the notion of a right answer, teachers described having pairs or groups of students design and then solve a problem, so that they were not "discovering" the answer to the teacher's problem. A grade seven teacher described having groups of three decide on an item they really wanted to buy, research and discuss what a fair price would be, imagine that the item was on sale and specify a reasonable discount, then together calculate the final price. One intermediate teacher described his stress on problem-solving as "responsibility training. Teaching a child to be individually responsible is the main thrust for all my programs, and that includes content as well as how to get along with each other."

Argument. A number of teachers described having students take and argue a position on a particular issue. This was more likely than problem-solving to be an individual activity, though an individual's position was usually discussed in group or whole-class settings. Teachers described asking students to research and then write a position paper about the Gulf War, to write an essay ranking three short stories using critical concepts learned in class, to argue for or against the historical validity of Richard III. There were no such lessons described for primary teachers, who tended more toward idea generation followed by problem-solving. Senior teachers were also more likely to list "giving evidence for claims" as a criterion against which they measured their students' growth in critical thinking

ability. There is some overlap between "argument" and problem-solving in that in some of the activities classed as problem-solving, students did in one phase have to argue their position. The primary drama lesson described above, for instance, involved having students defend the approach they took to dealing with the wallet found on the street.

Discussion

We were impressed with these teachers' dedication to the ideal of a critical thinking classroom, and with the ways they described their students engaging in generation of ideas and with each other. Many of the teachers did express feelings of inadequacy in terms of assessing critical thinking, but these feelings did not appear to inhibit, as some other researchers (Orton & Lawrenz, 1990; Stiggins, 1987) have found, the teachers' attempts to teach critical thinking. This may be because these 17 teachers are exceptionally dedicated to promoting critical thinking. They are not representative of the general teaching population, in that their interest in critical thinking made them agree to be interviewed. It is not unreasonable, however, to assume that there are other classrooms like theirs. Clearly these are not classrooms that live by the textbook, the worksheet, and the right answer. While these teachers are struggling to identify the standards by which they can evaluate students' thinking, their intuitive valuing of open-mindedness, the ability to generate ideas, to work together to design solutions to diverse problems, and to be able to take and argue a position on current events, literature, and personal decisions embodies many of the characteristics of critical thinking that Beyer (1985) and others have identified.

Although these teachers suggested that abundant high-quality resources and funding for things like teacher planning time and better physical space would help them teach critical thinking, much can be done to improve critical thinking teaching practice without great expense. Our sense is that increased dialogue between academics, who can help with the articulation of intellectual standards, and teachers, who understand the life of schools and can generate creative ways to translate theory into practice, is what is called for. Rather than waiting for institutional restrictions like examinations or the valuing of obedience to change, those dedicated to critical thinking should strive to learn and improve their own practice. Perhaps this will change the institutions.

The enthusiasm and even hunger with which the teachers in this study greeted the chance to talk about critical thinking bodes well for a school-university dialogue from which enlightened critical thinking praxis may emerge.

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