

Constructivism: A Path To Critical Thinking In Early Childhood

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Abstract

The constructivist teacher sees critical thinking as the heart of the teaching and learning process in contrast to the reductionist and developmentalist points of view. Because of this paradigm, the elementary school classroom teacher searches for experiences that will foster the development of alternative and creative solutions to problems, and the development of clear, reasonable, meaningful, and thoughtful communications. This presupposes a thoughtful analysis of not only how concepts are uncovered by the child but also of the physical, emotional, and cognitive environment of the classroom itself. For these writers, as for others, the constructivist perspective encompasses critical thinking as the major component of a comprehensive definition of education itself.

Historically, there are three basic philosophical approaches to teaching in elementary school: the reductionist, the developmental, and the constructivist. The first two can be generally and briefly summarized as follows.

The reductionists believes that knowledge can be directly taught, that accumulation of facts and data must precede thinking critically about them, and that behavior defines learning. Reductionist teaching is programmatic, skills-driven, and dedicated to coverage and exposure.

The developmentalist believes that thinking critically depends on physical and emotional maturity or on successfully resolving psychosocial tasks, that one stage necessarily precedes another and that the stage can

be determined through various tests. Because the developmentalist does not believe that the cognitive structures needed for critical thinking are present in young children, certain cognitive tasks are not presented until proof of maturity is obtained.

From the point of view of the constructivist teacher who sees education and its attendant curriculum goals as the result of children learning by resolving cognitive conflicts through experiences, reflection, and metacognition, critical thinking is at the heart of the teaching and learning process. Such education has as its purpose the fostering of looking at events, experiences, assumptions, and conclusions such that the status quo is challenged, alternate and creative solutions to problems are considered, and communication, whether written or spoken is clear, reasonable, meaningful, and thoughtful. It assumes that all children can think in depth, albeit some more than others, and that it is such thinking that brings about meaningful learning of basic concepts that are applicable and transferable. It further assumes that experiences, direct rather than vicarious, are vital to the critical thinking process and that, for young children, only through such experiences and the struggle with discrepancies, oddities, and anomalies does understanding occur. Such a teacher bases the curriculum and instruction in the classroom around this premise and uses many creative solutions to the diverse ways of learning that children bring to the schooling situation. This presupposes a thoughtful analysis of not only how concepts are uncovered by the child, but also of the physical, emotional, and cognitive environment of the classroom itself.

The basic concepts of critical thinking are being able to understand or figure out what the problem (or conflict, contradiction) is; to direct thinking to the specific purpose of solving the problem; understanding the frames of reference or the points of view involved; identifying and understanding the underlying assumptions; identifying and understanding the basic concepts and ideas that are being used; citing evidence, data, and reasons and their interpretations; following lines of thought that are advanced; and understanding inferences, implications, and consequences. (Beyer, 1985; Nosich, 1993; Paul, 1990). There is a creative component to strong critical thinking such that originality, freshness, and inventiveness are brought into the problem-solving and applications.

This being so, the constructivist teacher sees critical thinking as the process of interacting within the materials and data of a discipline in such a way as to come to a deeper understanding of the basic ideas that drive the theories of the discipline, that create new concepts both within and transferred to other disciplines and make relevant to one's own life the concepts of that discipline. It is critical thinking then, that makes radical (Giroux, 1992) education a way of life rather than a set of facts to be memorized, retold, and then forgotten after fulfilling a certain prescribed set of steps over a prescribed length of time.

Critical thinking applications to education and curriculum are commonly found in middle and high school.. They are seldom included at primary and elementary levels, and those few attempts to do so are reductionist in nature (Ennis, 1994; Lipman, 1988; Paul, 1990). The questions at issue, then, are: Can this process begin in early childhood classrooms? How can it begin in such a way as to make critical thinking a life-long tool for managing change and diversity?

Young Children Think in Early Childhood Classrooms

As a teacher of young students and as a student of critical thinking theory, I could see that young children seemed to be doing a lot of critical thinking, of problem-solving in creative and imaginative ways, of finding new ways of looking at situations. As I observed their learning and thinking, I found that they could do some very sophisticated thinking about the experiences that they had. And I observed that such thinking occurred along with the experiences, not afterwards, and did not occur in lieu of the experiences. In addition, it seemed to me that it was the interaction, the discussion of their perceptions, that generated the understanding rather than any teaching of skills on my part.

I sensed a conflict between what I was reading about children's thinking and what I was observing in the young children I taught. For example, one of the foremost promoters of higher order thinking in young children and a proponent of the skills-driven approach to critical thinking, Lipman (1988) wrote that:

It is just too much to ask of students that they acquire at one and the same time the skills that a subject presupposes, which students must bring with them, and the skills needing to be learned in order to think in the subject. (p. 31)

Lipman (1988) recommended instead that:

. . . the teachers at any grade level teach their students the skills that will be needed in subsequent grades, not the skills needed at their own grade level, for those skills will have been implanted in the students earlier on. . . . (p. 31)

Lipman then concludes "*That children should behave philosophically should be sufficient*" (italics added by author) (p. 179).

What Lipman seems to be inferring is that by being able to perform such skills as, for example, constructing sentences of the if/then format and using them in prescribed instances such as are found in his books for children, the child is behaving philosophically, and therefore, once all the skills of philosophic behavior are acquired, the child is then able to think critically about philosophic issues.

Although Lipman (1988) recommended philosophy as a way of teaching children to think, a view with which I can agree, when he designed a series of books to do this, he did so from a male, Eurocentric, and elitist point of view that is unfit for the classrooms of today. For example, he says "We all know that philosophy emerged in Greece about a hundred generations ago . . ." (Lipman, 1988, p. 11). And his books, he explains, are peopled with characters he designed to be models of learning behavior for the children who read them and contain stories intended to become "a paradigm for the live children in the classroom" (p. 6). As I read this, I thought about my Native American students, my Asian students, my African-American students, my Indian, Jewish, and Arabian students. All of them come from cultures with highly developed philosophical thought as old or older than Greek philosophical thought. And I wondered what kind of critical thinking this could be? And would this kind of thinking, that of holding up one kind of philosophical thinking as correct or best, foster true critical thinking among my students?

Behaviorist Learning Theory

This view seemed to be in line with behaviorist thinking that posits that the behavior defines the learning. That is, if a student can produce an appropriate behavior, then the thinking will follow the behavior, and that behavior is evidence of internalization of the skill and can now be transferred to new situations. For example, if, when shown a picture of three ducks and a chicken, the young child can mark the chicken as the one that doesn't belong, then this approach assumes that the child is developing an understanding of the concept of categories. Or, in the case of Lipman's (1988) series, if the students can construct a series of if/then type sentences, they now understand the logic of philosophy. This is a way of shaping thought with the outcome controlled by the teacher, not a way of teaching a skill to be used by the child to produce an outcome under her own control and direction.

Conflicts with Piaget and Others

It seemed from my observations that teachers, even well-intentioned ones, were doing their students a disservice by not giving them opportunities to use higher order thinking even though many knowledgeable people seems to imply that they can't do it, or that they can only do so much in very specific ways. Elkind (1988), for example, echoes Piaget in discussing stages of thinking in children:

. . . although children think, it is not until adolescence and the appearance of formal operations that young people think about thinking. . . . Thinking about their own and other people's thinking is a unique achievement of adolescent mental operations. (p. 112)

Taking into consideration the implications of Piaget's formal reasoning stage appearing in adolescence, and Erikson's psychosocial crisis of industry versus inferiority in early school years, the Hunter (six-step) method of teaching led teachers to concentrate on transmission of facts and to leave reasoning and critical thinking to a later time. Because, according to Piaget, the child has neither the cognitive structures in place nor the experiences necessary for formal reasoning until adolescence, he would advise the teacher of the

young child to provide experiences that would predispose such reasoning rather than formal reasoning itself.

Problems with Piaget for the critical thinking theorists who would like to see critical thinking begin in early childhood arise from the notion that abstract thinking or formal reasoning is the same as critical thinking. In contrast to abstract or formal reasoning which Piaget defines as manipulation of symbols without connection to concrete objects, critical thinking has to do with how thinking is done and not necessarily with what. It is possible for a young child to think critically long before thinking symbolically; that is, formally or abstractly. Such criteria as reasoning from an alternate viewpoint, examining evidence and basing predictions or decisions on evidence, making reasoned judgements, and solving problems creatively within a dialogical and dialectical format do not require the ability to reason formally.

There are obvious conflicts among critical thinking theorists, between the skills-oriented perspective (Ennis, 1994; Lipman, 1988; Ruggiero, 1991) and the more holistic and content-dependent approach (Parks & Swartz, 1992; Paul, 1990; Weil, 1992). Because these ideas drive curriculum and instruction, and the controversy between the rational, Eurocentric and the political, transformative philosophers has implications in the diverse classrooms of early childhood, they are important for teachers to study and understand.

The Constructivist Approach

Frank Smith (1986), in disagreeing with a programmatic, step-by-step approach to skills acquisition in learning to think critically said:

. . . thinking in critical ways involves far more than learning a set of skills. Such a reductionist attitude could only interfere with the development and expression of critical thought, by focusing on extraneous "training" aspects and ignoring essential situational, individual, social, and political factors. (p. 105)

He said also that in order for children to think critically, they must have the authority to do so, and that it must matter to them to do so. He explained:

One reason that critical thinking is broken down into numerous components is to make it fit into the constraining framework of current testing and instructional technology. Did the designers of such packages themselves become thinkers by learning to select the odd man out, the geometrical design that does not belong, or the best way to ferry missionaries and cannibals across a river: Could such considerations ever authorize anyone to think critically? The expectation that students and teacher should follow rigid guide lines of exercises, tests, and discrimination might be seen as the antitheses of fostering critical thought. (p. 106)

He continued:

Children learn to think critically when they have opportunities and reason to think in critical ways; when they see (or hear) others engaged in critical thinking; and when they are admitted into arguments, challenges, and debates based on respect rather than power or exploitation. (p. 107)

Duckworth (1987) also endorsed the idea that thinking critically about something important to the student is the best way for children to learn to think critically. She said:

Teaching linguistic formulas is not likely to lead to clear logical thinking; it is by thinking that people get better at thinking. If the logic is there, a person will be able to find words adequate to represent it. If it is not there, having the words will not help. Drilling children in sentences of the "if/then" format is not likely to develop in them the notion of logical implication. (p. 25)

The Constructivist Perspective

While Weinstein (1991) said that ". . . the critical thinking movement has not yet consolidated around particular pedagogical models, nor carefully addressed the relationship of critical thinking to other educational ideals, for example, mastery of content and cultural transmission" (p. 18), it seems that the

constructivist model most nearly resembles the instructional model embraced in theory by critical thinkers. The fit between constructivist methods of struggle with and reflection upon experiences and data, and the critical thinking methods of dialogue, questioning and reflection is one that facilitates both critical-thinking and construction of knowledge.

Paul (1990) recommended a dialogical model, with risk-taking and struggle at its core. He said, "There is no way to take the thinking out of knowledge, or the struggle out of the thinking, just as there is no way to create a neat and tidy step-by-step path to knowledge that all minds can mindlessly follow" (p. xv). Brooks and Brooks (1993) explained:

A constructivist framework challenges teachers to create environments in which they and their students are encouraged to think and explore. This is a formidable challenge. But to do otherwise is to perpetuate the ever-present behavioral approach to teaching and learning. (p. 30)

They explained that such teaching begins with a problem that is relevant to the child, either directly or through teacher mediation, and then gives the student time to pose, challenge, and answer questions that arise out of the problem and possible solutions. Such an approach sees critical thinking not as an add-on, but as an integral part of the curriculum.

For many, the constructivist perspective encompasses critical thinking as the major component of a comprehensive definition of education itself. In fact, Morgan (1993) defined education in terms of both constructivism and elements of critical thinking theory. He stated:

Education is not in the "business" of providing human resources to industry and commerce. Education implies a seeking to understand, the preparedness to approach difficult problems-problems of significance to human beings. Education in today's world means becoming the architect of one's own meaning; participating fully in the great conversations of our culture, and being able to ascertain the significance of their meaning. Education means not just thinking critically and creatively but doing both well. (p.15)

Gardner (1983) agreed with this perspective, and explained:

I would say that many schools and educators do not even have the idea that understanding is both important and elusive. Most schools are bent upon the mastery of facts, even though facts have nothing to do with disciplinary mastery or with understanding. Most standardized tests are also fixated on the accreditation of facts. Thus, everything from our teachers to our tests to our television game shows projects precisely the wrong image of what it is to be an educated person. (p. 3-4)

The Constructivist Teacher

Duckworth (1987) in explaining her idea of the constructivist classroom, stated that in order for young children to think critically, they must be given time and opportunity to do so. The constructivist teacher must not only be open to young children's ideas and accepting of them, but also must provide a setting that enables them to be caught up in ideas of their own making. Duckworth believed that when children are given the opportunities to be intellectually creative, their general intellectual ability is enhanced. Her concept of struggle in order to understand is like Dewey's (1991) idea of thinking as a way of being in the world, of being alive. Wonder, excitement, curiosity, puzzlement, and what she calls "dawning certainty" (p. 67) are part of the real struggle to make meaning and come to an understanding of real problems and their solutions. Duckworth explained that knowing the right answer is the most passive of intellectual functions and is the one she considers automatic and thoughtless.

The constructivist approach to learning and thinking begins with where the students are at the time, and with what they already know. Morgan (1993) stated, "We have linked education with schooling. For us, this is a linkage of convenience rather than one of reality, for most of what we know is not learned in school" (p. 17). Barell (1991) also addressed this. He wrote, "One of our challenges then, is to create settings where students' thinking is encouraged as a natural process in school" (p. xiii). He recommended

that in order for students to think well in school, we as teachers must give them not only opportunities to do so, but also the authority to do so. He wrote:

Students will not and cannot feel empowered if everything is done for and to them. If they have no opportunity to set goals design strategies, and feel responsible for these decisions, they will leave school with less than a feeling of confidence in their own ability to take control of their lives. (p. 70-71)

Barell (1991) stated that schools and adults do more to stifle thinking and question-posing than any other element, and this may be because of accountability to state and local assessments, to covering content, and other such restrictions. To give children opportunities to explore, to question, and to take risks is to create a rich environment for critical thinking.

The Constructivist Classroom

Giroux (1983) defined the critical thinker as one who questions knowledge that is presented as a priori, or self-evident, looks for the assumptions on which knowledge is based, considers implications and alternative outcomes and solutions, and works for a restructuring of those parts of school life that do not support and facilitate critical thinking. Giroux equated critical thinking with political action, and stated that critical thinking as a pedagogical tool "models a form of resistance and oppositional pedagogy" (p. 62). For Giroux, the dialogical and dialectical nature of the classroom combined with a classroom pedagogy that encourages questioning, challenging, and looking at issues from many perspectives built on the active, hands-on construction of knowledge by the students themselves is one where our society restructures its future to a more democratic society. In fact, Giroux defined empowerment as "the ability to think and act critically" (p. 51). Critical thinking theorists like constructivist teachers call for a classroom of challenges, questions, and oppositions, and recognize critical thinking as the source of any real knowledge obtained by the students.

In the course of observing and interviewing young children, ages 5 to 7 years old, I learned that these children are already thinking critically. Not only do they talk about their thinking, but they demonstrate unmistakably that such thinking is being used. Because of this, reductionists and developmental teaching methods fall short when compared with a constructivist method. Where the reductionist would insist on reducing all critical thinking to a programmatic set of skills to be mastered in a particular way by everyone regardless of way of learning, and the developmentalist would wait until mode of learning as well as development of concepts is seen through prescribed testing, the constructivist would encourage the diversity of critical thinking applications that the many ways of learning develop without waiting for them to be prescribed by the teacher or a programmatic curriculum. That the children think in those diverse ways is reason enough to encourage and facilitate their happening. For the constructivist classroom, divergent thinking, critical dialogue, and creativity would be the prevalent attitude. If our students are to become empowered to take control of their own lives, teachers and schools must allow them to become competent at controlling themselves and their education. Thus, the supremely political act that Giroux (1981) envisioned has a chance to make major changes in injustice, to challenge the status quo that so endangers the future of our students. The danger is not that our students will not be able to get a job when they graduate. It is that they will not be able to think critically, to construct meaning within a changing society.

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