

# The Paradigm Shift Toward Teaching for Thinking: Perspectives, Barriers, Solutions and Accountability

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## Introduction

A continuing educational concern in the United States is the need to teach thinking skills at all educational levels from primary grades through college (Costa & Lowery, 1989; Halpern, 1998; Meyers, 1987). According to Haycock (1996), even students who arrive at college with high school grades reflecting an A or B average cannot think critically. A review of educational literature indicates a plethora of information has been available for several decades on the issues of thinking in schooling.

Throughout the history of health education, primary emphasis has been on content transmission and teacher-centered instruction. This type of approach limited opportunity to develop critical thinking in students and contributed to minimal interest by health educators toward issues relevant to teaching thinking. However, current guidelines for health education professional preparation and the recent National Health Education Standards indicate a growing concern by health educators toward teaching skills of thinking. In addition, many initiatives undertaken as part of the current U.S. educational reform demonstrate efforts to restructure America's schools to prepare students for high thinking work rather than low skilled tasks. Reform strategies to develop this kind of schooling have direct impact on teacher educators, the structure of professional preparation programs, and entering teachers of all disciplines. Meagerness of discussion in the health education literature on the topic of teaching for thinking provides minimal guidance to the teacher educator and others desiring to be more fully informed or to become an active, effective participant of the paradigm shift toward teaching for thinking.

To address the paucity of our own professional literature, this article serves as a concise discussion highlighting past and recent educational literature most relevant to critical thinking. Within this overview the classroom practitioner will be introduced to four areas that are predominant in the educational literature. The first area focuses on perspectives regarding teaching for thinking expressed in the

literature. Second, barriers to teaching for thinking will be described. Third, a discussion will follow on specific suggestions identified in the literature on how to reduce some of the barriers impeding the present paradigm shift toward developing student thinking in educational practice. Last, accountability factors for teaching thinking in health education will be identified.

## Perspectives on the Need for Teaching Thinking

Meyers (1987) points out that it is evident in the literature there is a need to address critical thinking at all levels of education in this country. While there are various terms and definitions related to thinking, educational theorists, philosophers, cognitive psychologists, and researchers of pedagogy generally agree that thinking is a skill learned through opportunities for practice and coaching by others, and it should have a more important role in the learning process (deBono, 1994; French & Rhoder, 1992; Hester, 1994; Howard, 1990; Paul, 1995). Although theorists provide different definitions for thinking and believe their definition best conveys the basic concept of thinking, they do not view other definitions as wrong or not useful. The proposed definitions are more similar than different and should not allow an educator to dismiss the importance of teaching for thinking because the experts do not seem to find agreement on a definition among themselves (Paul, Binker, Martin, Vetrano & Kreklau, 1989). Even writers whose definitions of thinking differ share consensus that it is an essential skill needed for success in a rapidly changing world.

The historical roots of critical thinking that most educators agree upon originate in the era of ancient Greece with the teachings and treatises of Socrates, Plato, and Aristotle. The term "critical thinking" is commonly used in education today. According to deBono (1994), this term perpetuates the view of teaching engaged in by the "Greek Gang of Three" which emphasized the skills of analysis, judgment, and argument through a dialogue involving continuous questioning. The word "critical" comes from the Greek word, *kritikos*, which means "judge," while "Socratic

questioning” is a method of asking deep questions to probe one’s thinking for rationality to claims of knowledge. Socrates demonstrated over 2,500 years ago that even persons with power or in a high position representing authority could not always be depended upon for sound knowledge and insight, hence the need for critical thought.

Although teaching for thinking began hundreds of years ago, it continues to be of concern for today’s society. According to Hester (1994), beginning in the 20<sup>th</sup> century, U.S. schools had a major goal of mastery of thinking or reasoning yet the achievement of this goal is still lacking. For example, concern over content vs. process was expressed by Alfred North Whitehead in 1929 who advocated for a needed change in education and suggested that the “. . . real fruits of education are the thought processes that result from the study of a discipline, not the information accumulated” (Meyers, 1987, p. 2). This early concern described by Whitehead as separation of content from process has been a point of concern and clarification continuing into current educational discussions.

Several experts on thinking, such as deBono (1994), Howard (1990), and Costa and Lowery (1989) clarify that thinking skills are needed in addition to content, but not at the expense of eliminating the disciplines’ major concepts and key information. Salient to these individuals is the idea that thinking skills need to be taught directly as a part of classroom time. Advocates of this approach offer evidence, which demonstrates increases in student performance, and further suggest that this method shows students that thinking skills are a key component of education. Such an approach is based on a philosophy that thinking can be taught separately as process-based instruction, then taught in a meaningful context with deliberate teaching for skill transfer through repeated practice (Costa & Lowery, 1989). However, within this field of thought differences abound as to how thinking skills should be taught, that is, step-by step or in a holistic manner (Paul et al, 1989).

Others, most notably Richard Paul (1995), a leader on critical thinking from Sonoma State University, espouses infusion of thinking and content as a single educational endeavor. From this perspective it is believed that thinking can only occur in the presence of content thereby producing contextualization and indivisibility between thought and its subject. This represents a direct contrast to those advocating

thinking skill instruction separate from teaching content. Sternberg (1987) cautions educators to not be subject to binary choices, such as separate instruction for teaching thinking versus instruction with infusion of content and thinking. He advises careful deliberation of such artificial dichotomies and suggests teachers seek a third option better than the two presented, namely, a combination of these approaches.

Regardless of differences in how experts view the relationship of content and thinking and approaches to teaching thinking, they enumerate a variety of valid reasons for teachers to engender needed changes in teaching for thinking. A reason often providing support for a paradigm shift toward teaching for thinking is frequent reference to the latest educational reform movement.

The impetus for the most recent reform movement in this century began over 15 years ago with a federal publication identifying the poor status of American education as shown through student achievement scores (Levine, 1996). Steinberg (1996) cites the significance of the 1983 federal report, *A Nation at Risk: The Imperative for Educational Reform*, and the trends indicated by data gathered from the National Assessment of Educational Progress (NAEP). The NAEP is a federally administered assessment of students’ proficiency in mathematics, reading, writing, and science. Steinberg points out that scoring on the NAEP relies less on rote memory of facts known by students than their general skills, such as writing a coherent, persuasive argument or solving a problem using scientific information rather than demonstrating possession of the knowledge alone. French & Rhoder (1992) further elaborate on the importance of the early 1980s results of the NAEP, often referred to as the “Nation’s Report Card”, as evidence that American students do not do well with thinking. The same authors also report following the publication of *A Nation at Risk* that the Harvard School of Education in 1984 recommended adoption of critical thinking as a basic skill along with reading, writing and math. Today, the movement for teaching for thinking is viewed as an integral part of school improvement and efforts to improve student learning (Hester, 1994).

A second reason cited by experts on thinking is that we are living in an information age with complex demands on people for organizing information in order to benefit from it (deBono, 1994; French & Rhoder, 1992; Hester, 1994). According to deBono (1994) who

is a leading authority in cognitive studies, our current thinking which is inherently non-critical is not adequate for the rapidly changing world in which we live and the attended demands.

Closely related to the "information age" rationale is yet another argument, which focuses on the role of schooling in preparing students to enter today's society and the new century. Education needs to provide students with the thinking skills essential to becoming autonomous, self-reliant citizens (French & Rhoder, 1992) who, as independent and creative thinkers, problem-solvers and effective decision-makers, can make positive impacts upon their environment through innovation, invention, and discovery (Hester, 1994). According to economists, the future of our country's success is dependent upon the academic achievement of students fostering their ability to succeed in a highly competitive international economy (Steinberg, 1996). Perhaps, deBono (1994) summarizes it best by stating, "Thinking is the ultimate human resource. The quality of our future will depend entirely on the quality of our thinking" (p.xi).

A fourth reason is a growing body of knowledge related to the thinking processes offered in the literature and available to practitioners. Many authors comment that teachers do not use teaching methods or pedagogy to encourage and develop thinking in students, but are teaching just factual knowledge (French & Rhoder, 1992; Meyers 1987; Rath, Wassermann, Jonas & Rothstein, 1986). The range and depth of this literature requires educators to do considerable reading to become familiar with descriptive information on differentiation in thinking, such as creative, reflective, analytical, and lateral, coupled with pedagogy appropriate to develop each type of thinking. Continuous and careful review of the literature will assist educators to better understand their role in nurturing thinking in ways, perhaps, that were neither addressed nor taught in their undergraduate professional education courses.

### **Barriers to Teaching for Thinking**

Realities of present day schooling and the educational world present a variety of barriers that interfere with attempts by teachers to create a learning environment for teaching thinking. The type of barrier fluctuates according to the level of education as well as specific educational setting. However, each barrier serves as a reminder of typical restraints impinging

upon the practitioner who is making a serious attempt at teaching for thinking.

Within the school environment are several identifiable barriers impeding teachers' progress toward participating in the paradigm shift toward teaching for thinking. Factors such as large class size, faculty reward structures that work against a critical thinking emphasis, and the time and effort required to shift one's teaching orientation are cited as possible barriers by Haas and Keeley (1998). Teaching to tests which are based on recall of what has been read and heard serves as an obstacle to developing student competence as thinkers (Rath et al., 1986). Another barrier identified by Meyers (1987) are the 50 to 60 minute class times which allow little time for students to adequately process or interact with subject matter and to reflect upon what has occurred in a learning activity.

Even if time were not a factor, Meyers characterizes teachers as products of the way they were taught so they continue to rely upon assignments, methods, and objective tests that emphasize recall of information rather than offer potential for higher order thinking skills. Teachers seldom engage students in dialogical (thinking that involves dialogue or extended exchange between different points of view or frames of reference) or dialectical reasoning (thinking that tests the strengths and weaknesses of opposing points of view), but rather require no more thought than recall (Paul et al, 1989).

Stated more strongly than being a product of the past experiences, Haas and Keeley (1998) describe faculty resistance to teaching for thinking in higher education as a common problem. According to the authors, although college instructors purport to acknowledge critical thinking as an educational outcome for their students, it is evident many faculty fail to make critical thinking a reality in their classrooms. Reasons cited for this failure are: critical thinking was not included as part of their own educational experiences, their mentors exhibited only teaching methods of lecture and served primarily as dispensers of information, a lack of confidence in teaching what they have not been trained to do, and belief that attention to critical thinking is incongruent with content coverage and interferes with content transmission. Meyers (1987) adds that few opportunities to learn about teaching critical thinking are available through professional development,

disciplinary conferences and everyday collegial dialogue.

Another barrier to teaching for thinking is the limitation of most textbook writers to incorporate consistent aspects of critical thinking terminology and use of thinking skills by students (Raths et al, 1986). When there is some effort to include checklists for evaluating reasoning or analysis of an argument, there is an overall avoidance of asking the textbook reader to view the argument as a whole and evaluate it as a whole. Frequently arguments are not presented as complete arguments and students receive only portions of the issue. Many texts suggest debates as extensions of teaching, but do not emphasize the need for students to rationally evaluate their views, assess arguments, or justify their conclusion. Likewise, many texts only ask students to either agree or disagree with the conclusion, again without providing reasoned evaluation (Paul et al, 1989).

A final obstacle to teacher engagement in teaching for thinking cited in the literature is the attitude of intellectual passivity or disengagement of students in classrooms that replaces the sense of wonder or inquisitiveness exhibited in them as children. Natural curiosity can be thwarted as early as the middle grades in elementary school creating a challenging situation for those teaching higher order thinking in subsequent grades (Meyers, 1987).

Steinberg (1996), author of *Beyond the Classroom*, offers an interesting view on the evolving student disengagement displayed in schools. He first proposes students perform according to the method of evaluation, thus any attempts to teach for thinking is resisted by students who continue their passivity because they know involvement in thinking skills is not requisite to evaluation activities. His second explanation is based on his studies on forces outside of the school affecting students' interest and performance in school. Their findings suggest that schools are not alone accountable for the poor performance of students, lack of motivation, and general disengagement. Contributors to these latter problems include parents who display serious disengagement regarding interest in the child's performance and progress in school, peer culture which affects students from trying as hard as they can for fear of what friends will say, and students' activity schedules that interfere with any energy directed to schooling beyond the classroom. Thus, student disengagement is more

likely to result from external forces such as parents and employers who contribute to the devaluing of education which is then transferred and reflected in the students' attitudes and values about education.

## Solutions to Overcoming Barriers

Writers in the educational literature spend little time in providing ideas or solutions on how to overcome the barriers facing teachers in the move away from didactic teaching recognized as counterproductive to teaching for thinking. Most ideas can be narrowed to two areas of concern. First, a concern is expressed to provide training related to those preparing to become teachers, and second, proactive strategies are needed to address the resistance by current educational practitioners to teach for thinking.

Although often there is a lack of courses in teacher preparation that give systematic instructional training in how to implement teaching for thinking (Raths et al, 1986), some authors in the educational literature mention increased resources available to those who desire to participate in training future teachers differently. Consensus for recommendations of specific resources to use in teacher education programs is not clear. Likewise there is a lack of discussion of approaches or models employed by university and college teacher education units to successfully prepare individuals to teach for thinking.

Some writers with an interest in higher education do provide information regarding opportunities for resisting change by faculty at colleges and universities who often do little more than embrace thinking as a major teaching goal. For example, Meyers (1987) offers hope for such college and university professors by stating, "Happily, things are beginning to change" (p. 102). In his opinion, more resources are available to these educators, and there is increasing interest in a number of professional organizations to include workshops to exchange teaching ideas. National conferences, interdisciplinary in nature, are being offered that focus on critical thinking.

According to Haas & Keeley (1998), the right incentives and a supportive environment encourage educators to attempt to make changes in teaching. Specifics described by the authors are teaching philosophy changes to show emphasis on development of thinking skills with follow-up changes to reflect the change in emphasis in forms of evaluation used by administrators, peers, and students. Individual

exploration and group meetings to discuss teaching concerns in initiating changes for teaching thinking are staff development strategies advocated for overcoming resistance by faculty. Group discussions with leaders who have experimented with critical thinking approaches offer structure and focus to collegial exchange. At least one faculty member needs to be knowledgeable, thereby garnering the respect and interest of colleagues. In a similar fashion students who began as resisters but developed into enthusiastic critical thinkers can share their experiences with student resisters.

### **Accountability for Teaching Thinking in Health Education**

Current national education standards and national health education guidelines demonstrate the significance of performance-based standards articulating what both students and teachers should know and be able to do. A review of these standards and guidelines revealed frequent references to thinking skills as an outcome-based goal. Being aware of documents providing such references is especially pertinent to the health educator redesigning the health education professional preparation curriculum to meet recent standards, to the teacher educator preparing school health teachers, and to the veteran teacher incorporating new practices to provide high quality education for all students.

*The National Standards for Quality Teaching* are specific to licensing new teachers. These standards articulated by the Interstate New Teachers Assessment and Support Consortium (INTASC) redirect the focus from student completion of courses and credits offered to descriptions of what entering teachers should possess as qualities, know, and be able to do in order to teach diverse learners. INTASC is a program of the Council of Chief State School Officers. Specifically, these standards identify 10 principles that reflect the knowledge, dispositions, and performances deemed essential for new teachers regardless of their specialty area. One principle describes the new teacher as a reflective practitioner, one who continually evaluates the effects of choices and actions on others, and actively seeks out opportunities to grow professionally. One disposition related to this standard is the teacher who values critical thinking and self-directed learning as habits of the mind (Interstate New Teachers Assessment and Support Consortium, 1995).

Another set of national standards, *The Standards for Teacher Educators*, is the work of the Association of Teacher Educators, which is solely interested in improvement of teacher education for both the school and campus-based educator. The first of the seven standards describes the master teacher as modeling teaching practices that reflect the best available practices in teacher education. One indicator the campus-based teacher is proficient in meeting the first standard is by demonstrating and encouraging critical thinking and problem solving to prospective teachers. For example, videotapes of students engaging in critical thinking can be included in a teaching portfolio (Association of Teacher Educators, 1996).

In addition to national standards related to the performance of beginning and experienced teachers, *A Framework for the Development of Competency-Based Curricula for Entry-Level Health Educators* published by the National Commission for Health Education Credentialing, Inc., (1985) supports development of critical thinking skills in students during their undergraduate education. Although not explicitly labeled as critical thinking in the guidelines that identify the seven responsibilities and competencies of an entry-level health educator, many aspects of the critical thinking and reasoning process are evident. Competencies such as interpreting concepts, purposes and theories of health education, selecting valid sources of information, seeking ideas of others, applying criteria for effectiveness, and inferring implications are traits common to the critical thinking process. These seven responsibilities and competencies serve as the standards used in the American Association for Health Education and the National Council for Accreditation of Teacher Education (AAHE/NCATE) portfolio process conducted during the NCATE accreditation of professional teacher education programs.

A decade later, the *National Health Education Standards* were released by the Joint Committee on National Health Education Standards (1995). This document was intended to reform health education by emphasizing the essential knowledge and skills elementary and secondary students need to be healthy. School health educators are charged with the responsibility to develop health literate individuals. Within this document, one of the four characteristics identifying the health literate individual is being a critical thinker and problem solver. The national

standards serve as a framework for state and local curriculum revision and fundamentally alter ways in which health instruction is planned, delivered, and evaluated.

Another set of standards that accompanies the *National Health Education Standards* document is the *Opportunity to Learn Standards for Health Education*. These standards have direct implications for those instructing future school health educators. For example, undergraduate students should develop the ability to design K-12 curriculum, instruction and authentic assessment for both health content and health related skills. Beginning school health educators should feel competent to develop in their students the skill of critical thinking as requisite to selecting and adopting health-enhancing practices (Joint Committee on National health Education Standards, 1995).

Previously discussed national education standards and the professional health education guidelines and national standards have direct implications for health educators. It is evident health educators have several responsibilities specific to teaching thinking. Responsibilities include health educators as:

- Planners and implementers of professional preparation programs, to structure curriculum, instruction and assessment that enable students to be critical thinkers during undergraduate education and as entry-level health educators;
- Instructors and mentors, to regularly role model the process of reasoning and critical thinking to students;
- Teacher educators, to prepare beginning school health educators to provide regular opportunities for their students to practice and assess their own thinking skills;
- Master teachers in health education, to demonstrate and encourage critical thinking among those with whom we work, including our colleagues and other teacher educators.

### Summary

As evident by a review of the educational literature, most writers challenge the U.S. classroom tradition of didactic teaching characterized by an emphasis on lecture, passive student learning, and lower cognitive skill development, such as memorization and recall of information through assignments, activities, discussion, and testing. They

provide sufficient reasons supporting the need to teach for thinking at all levels of schooling in this country. However, many of the same writers admit to the difficulties and variety of barriers encountered in shifting to an emphasis on teaching for higher order thinking.

Salient to a successful paradigm shift are major changes in undergraduate preparation of new teaching professionals and strategies to overcome practitioners' resistance to teaching students skills of thinking. Although both of these changes are identified and advocated for in the literature reviewed, discussion on how to proceed with making changes in the way teachers are prepared for teaching thinking in the classroom is extremely limited to nonexistent in sources reviewed by authors of this article. More evident are proactive strategies intended to provide encouragement to current educational practitioners who resist the current paradigm shift toward teaching for thinking.

Health educators are directly affected by current educational reform initiatives involving adoption of education standards, national or discipline specific, to guide reforms of preparing and licensing teachers, accrediting teacher education institutions and professional preparation programs, and recognizing master teachers with advance certifications. Health educators should review the current national education standards and more specific health-related standards and guidelines to clarify their role and responsibilities in teaching thinking. The literature on teaching thinking, current national education standards, and recent health education documents on professional standards and guidelines should prompt health educators to engage in serious thought about active commitment to and participation in teaching for thinking.

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