Thinking Before We Leap: Examining the Implications of Critical Thinking, Deliberative Practice, and Research Designs for Music Education

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Music educators, in desperate attempts to bolster support in times of retrenchment and cuts to the arts, have been guilty of pandering to the notion that the skills students learn in music classes are transferable to other subject areas and, therefore, our contribution more valuable. Again we seem to be on the brink of embracing that very same idea, disguised in the new nomenclature; critical thinking skills. Critical thinking has become an educational fact of life. The concept pervades all areas of educational practice. As with many innovative educational plans, critical thinking has been woven into the fabric of education only to unravel, and later be reembroidered with new trappings and terminology. From curriculum development to school reform, critical thinking has been hailed as the new saviour. Do we really believe that this one aspect of educational reform is the answer to our woes?

Without correlating critical thinking skills with a rationalization grounded in a framework of general educational theory, research, and practice, it can be argued that the practice of giving primacy to the teaching of critical thinking skills might again subvert a commitment to sound pedagogy and a firm philosophical stance. David Perkins (1992), in examining the phenomenon of educational reform, cynically refers to this hunger for the quick fix, or the "deus ex machina that will put things right in the classroom," as the saviour syndrome (p. 43). Without first examining educational constructs, such as critical thinking, we could be guilty of once again embracing the quick fix and what we perceive to be the next educational panacea.

We have several options. We can make choices that continue to set us apart as specialists, which as Goodlad pointed out does little to "convince grade-level classroom teachers that the arts

are an integral part of a balanced curriculum" (1992, p. 203), or we can make decisions that are grounded in broader educational theory and practice. What we can no longer do is choose nonaction, which in itself is action. Bandwagons stay bandwagons, but if we "look at the essence of schooling—curriculum and instruction—to see how these perceptions and practices contribute to the neglect of the arts," (p. 195) we might better understand the constituent elements of each so-called fad. Then, rather than contributing to the bandwagon, or quick-fix panacea, we could apply what we know about music education though the lens of general educational theory and educational practice. As potential educational leaders, "we must be capable of skilful use of rhetoric of persuasion and elicitation" (Schwartz, 1988, p. 51). Becoming aware of the multitude of issues surrounding, and implicit in, critical thinking theory brings us one step closer to that goal.

Rather than probe every facet and dimension of critical thinking, this paper will explore several different approaches to teaching critical thinking. Understanding these approaches can inform our choices and compel us to examine our practice in more deliberative ways. As will be explained, consideration of reflective practice and deliberative teaching is the first step toward thinking of ourselves as teacher researchers in our own classrooms. Kepler-Zumwalt wrote, "To improve education, ... one educates teachers in a way that enhances their deliberations about teaching. The potential for growth never ends as one continues to reflect on one's own practice" (1982, p. 225). The paper concludes with the rationale that, through informed practice and deliberative teaching, we can construct grounded theory based on data collected in our own contexts and thus become masters of educational rhetoric and advocates for our profession.

Although this paper will explore only a few of the choices there are to be made, it might be fair to warn the reader that investigating the teaching of critical thinking in education will lead to a multi-layered web of interrelated issues. Examining the different approaches to teaching critical thinking will lead to issues of assessment, including authentic or alternative assessment, and, thereby, to the question of whether objective is really subjective, which could lead to a review of literature that addresses postmodern

deconstruction, which is only the beginning.

What is Critical Thinking?

As many ways as there are to think, or to think about thinking, there are equally as many ways to interpret, apply, and infuse this information into one's own schema of curriculum development, pedagogy, methodology, and philosophy of music education. What is meant by critical thinking? Is it higher-order thinking skills, reasoning, abstract thinking, informal logic, or reflective thinking (Woodford, 1996, p. 27)? Can it be strong or weak (Ennis, as cited in Norris, 1992, p. 115)? Is it an educational value that can be defined to advance educational goals, or should the meaning of critical thinking be "based upon the research about how people think when faced with certain kinds of tasks" (Norris, 1992, p. 4)? These questions only begin to plumb the complexity of the critical thinking issue. Truly in-depth comprehension of the critical thinking research entails understanding the different ways it has been defined, how researchers have gone about defining it, as well as the distinction between critical thinker, as opposed to critical thinking. Norris has suggested that to examine these aspects one would require a base knowledge in philosophy as well as psychology (p. 14). Grappling with knowing in music begins with philosophical issues of what constitutes knowing (Langer, 1957; Reimer, 1984; D. Elliott, 1995). The literature is daunting and can intimidate the most intrepid educator.

As was stated earlier, this paper will examine different approaches to teaching critical thinking. These approaches are by no means the only ways to teach critical thinking. They do, however, suggest manageable ways of framing this very complex issue. These approaches, as described by Ennis, are the (a) general, (b) infusion, (c) immersion, and (d) mixed approaches (Norris, 1992, p. 23).

The general approach is the "attempt to teach critical thinking abilities and dispositions separately from the presentation of the contents of the existing subject-matter offerings" (Norris, 1992, p. 22). This means that within curricula there is a separate and discrete approach to teaching critical thinking where the "primary purpose is to teach students to think critically using nonschool-subject contexts" (p. 22). The infusion approach to teaching critical

thinking is "deep, thoughtful, and well-understood subject-matter instruction in which students are encouraged to think critically in the subject, and in which general principles of critical thinking dispositions and abilities are *made explicit*" (p. 23). Immersion is the same kind of subject-matter teaching, but in which "general thinking principles are *not made explicit*" (p. 23). The mixed approach involves teaching subject specific critical thinking skills in, say, a music class, while addressing general critical thinking principles in a separate course.

For the purpose of this paper, the general and the mixed approaches will not be discussed. Nevertheless, there are ample problems and choices to be made in narrowing down the concentration to only the infusion and immersion approaches. The biggest choice is defining and operationalizing critical thinking. As Richardson and Whitaker (1992, p. 552) ask, "Among the various definitions proposed for critical thinking, problem solving, or decision making, which one best describes the students' encounter with music?" One way of going about this is to examine critical thinking in terms of thinking in the symbolic domain of music, or, alternatively, thinking in the linguistic domain in order to scaffold metacognitive problem solving and thinking skills. Reimer, in his description of aesthetic perception, states the issue this way, "it is important that many opportunities be given for the concepts which allow *thinking about* to become immersed in the nonconceptual experience itself, in which they are transformed to *thinking with*" (1989, p. 109). Similarly, David Elliott explains that "although competent music making demands many types of thinking and knowing, it is nonverbal and procedural in essence. Knowing *how* to make music musically and knowing that performing involves this-and-that are two different modes of knowing" (1995, p. 60). And just to complicate the picture, there is the performance as music education view; "Surely the ability to *perceive* music is not the same as the ability to *perform* music ... How is the technical production of music related to the understanding of music" (Rao, 1991, p. 1)? Deciding among these choices is difficult; what do we do? One or the other, or all of them?

The Immersion Approach

C. Elliott (in press) contributes to this discussion in the following way. He suggests that music intelligence is the "ability to think *in* sound." However,

> the issue can become confused because, in fact, the various intelligences and symbolic domains are not absolutely discrete. It is possible, for example, to think *about* music in a number of symbolic domains. It is possible to describe and discuss the mathematical properties of music; to describe verbally, extra-musical associations made with particular musical sound patterns ... and so forth. (pp. 4-5)

Elliott is suggesting that children should learn to think in music which would limit "the use of other symbolic domains, such as language to *explain* music." Once students were "thinking *in* music, they would then *think up* music and then finally *think about* music" (p. 14).

This method of music education would lend itself to the immersion approach of critical thinking. You will remember that the immersion approach is the same as infusion—"deep, thoughtful, and well-understood subject-matter instruction in which students are encouraged to think critically in the subject," except that "general thinking principles are not made explicit" (Ennis, as cited in Norris, 1992, p. 23). What might this look like in a music lesson? Students would need to have numerous opportunities creating and experiencing music. The symbolic notation of music would come only after students had enough experiences in music that would warrant the sound symbol connection. We might conclude that, for C. Elliott, symbols that have not been sufficiently experienced and internalized by the students do not, and cannot, lead to in-depth understanding or synthesis of music. Or, as Dewey put it, "A symbol which is induced from without, which has not been led up to in preliminary activities, is, as we say, a bare or *mere* symbol; it is dead and barren" (Dewey, 1902/1990, p. 202). In C. Elliott's view, students' understanding of symbolic notation would flow from educative experiences *in* music.

Rao also believes that students must be involved in the experience *of* music through the choral music experience. She believes that the primary objective in performance is "developing the student's ability to demonstrate skills and understanding in performing music artistically" (1991, p. 7). This is accomplished through conducting, including gesture, facial expressions, vocal modelling, positive attitude, enthusiasm, and eye contact (p. 16). However, Rao also believes students must be engaged through a discovery method of identifying, articulating, and describing physical sensations. And again David Elliott reminds us that, "While it is true ... that verbal concepts and principles play an important role in learning to make music, the actions of music making can be seen, fundamentally, as the 'em-body-ment' of musical thinking, knowing, and understanding" (1995, p. 58). As you can see, there is great difficulty in separating all of the issues.

The Infusion Approach

What would an infusion approach curriculum look like in a music classroom in which students are encouraged to think critically within the domain of music, but in which general thinking principles are also made explicit?

In the literature, the concept of making general thinking principles explicit lends itself to varied interpretation. For instance, in 1989, a group of music educators responded to the issues raised in the book *Dimensions of Thinking: A Framework for Curriculum and Instruction* (Marzano, Brandt, Hughes, Jones, Presseisen, Rankin, & Suhor, 1988). The authors broke down thinking into five broad categories: (a) metacognition, (b) critical and creative thinking, (c) thinking process, (d) core thinking skills, and (e) the relationship of content-area knowledge to thinking. The music educators chose to respond to this framework by focusing and concentrating on the fifth dimension; the relationship of content-area knowledge to thinking. More specifically, they focused primarily on demonstrating "ways that teachers can structure classroom environments where students not only learn specific musical content and skills but also 'learn how to learn' to think musically" (Boardman, 1989, p. vi). What does this mean? Does it mean learn how to learn to think musically? For Pogonowski it meant

> [creating environments] for our students whereby they, too, can benefit from hearing different perspectives regarding a particular task at hand. As thoughts are shared in the rehearsal by one student they can become the impetus for extended metacognitive thinking by other students. (as cited in Boardman, 1989, p. 11)

DeTurk, in discussing instructional strategies for musical critical thinking, emphasized the language choices a teacher makes in creating a critical thinking environment; for instance, calling attention to the second theme, rather than asking students to begin at measure thirty-seven (p. 24). Pautz, in her chapter, situated her position, as do I in this paper, on the importance of first identifying one's goal of music education, which for her is producing independent musicians:

> In order for this to happen, we must have a dual agenda that will include helping children develop a rich base of musical knowledge and skills while providing them with a repertoire of cognitive and metacognitive skills and strategies that will enable them to use that knowledge and skills efficiently in meaningful contexts. (p. 66)

The authors of the book *Foundations of Music Education* (Abeles, Hoffer, & Klotman, 1994) present an interesting argument for critical thinking principles. They use a framework for problem solving strategies suggested by the mathematician Polya (1945/1985, pp. xvi-xvii) that involves a four-step plan in which students are first asked to understand the problem and then (a) devise a plan based on previous information, (b) carry out the plan, (c) check each step, and then (d) look back, or reflect, on the result. Abeles et al. write

> A curriculum based on critical thinking can be distinguished from one that does not stimulate critical thinking by the opportunity students have for active mental involvement in their learning. Teaching strategies that emphasize giving facts and

> stimulating the recall of facts do not develop critical thinking skills. Instruction that provides students with the opportunity to work through, debate, challenge information, find support for their perspectives, and establish criteria by which they will use to judge enables students to think critically. (1994, p. 211)

Abeles et al. suggest that this might manifest itself as "the contemplation of which strategy to use to memorize a list of style characteristics of different periods of music history" (p. 211). However, this example does not in fact facilitate active mental involvement; it is just another strategy for stimulating factual recall. In a more holistically conceived infusion approach, students might compare and contrast different stylistic features of two or more compositions while engaged in listening or performing, or, alternatively, compose works incorporating the characteristics in question. But memorizing a decontextualized list of strategies would never constitute thinking in music or about music.

As a teacher researcher in my own fifth grade music classroom, and interested in the concept of learning how to learn, I conducted a project that was geared toward systematically examining how my own pedagogy structured an environment in which students articulated and shared their musical problem solving strategies. I was specifically interested in the ways shared metacognitive strategies would encourage my students to grow as independent musicians. Harste and Short (1988) explain it this way, "learning begins in social interaction and these social processes become internalized and determine our thinking processes. Through an exchange of meanings in conversation we begin to explain things to ourselves and to clarify our thinking. As we experience the perspectives of others, we extend and elaborate our current notions" (p. 12).

My feeling was that if my students had the opportunity of elaborating their own critical thinking processes they would become more musically independent. I audiotaped and transcribed each lesson for a semester and, consequently, made several enlightening and alarming discoveries. First, even though I entered this process

confident that my questioning and modelling strategies already elicited a certain amount of higher-order metacognitive reflection, I quickly (and painfully) rid myself of that personal bias and realized this was not the case. I would ask questions and then allow approximately one nanosecond for the student to internalize the question, synthesize and reflect on it, form an answer, and finally share that answer. If no answer was immediately forthcoming, I would answer for them. If a student began the answer, I would finish it. Considering why I was behaving this way, I decided that, in a sense, I was protecting them. Answering the question for them was the safety net I was certain they needed. I did not want them to fail, so I did not even give them a chance to try.

Dillon (1988) believes that "questions arise in ignorance and perplexity, stimulating the student's thought and empowering his action in an energetic pursuit of inquiry coming to term in an answer" (p. 7). Although I understood the power of my students' own questions, and realized that questions were reflective of their thinking processes, I discovered another fault. Listening to the tapes, I realized I was doing the same thing; if my students began a question, I finished it. Rather than phrasing questions that would demand higher-order thinking processes, I asked rote and recall questions that encouraged rote and recall answers.

Third, and most informative of all, I discovered that I was spending whole class periods on questioning, learning strategies, and the think aloud process and spending very little time on creating experiences that allowed the students to think in music. I never took the next step of allowing the students to internalize their learning strategies in the experience of creating or thinking in music. The balance between thinking in and thinking about music became separated in ways I had not intended. The experience of examining these questions in my own context was invaluable, but because I never considered the overarching question—what was my goal and what was my purpose—something became lost in the process. However, if I had not begun the process, I would have never been confronted with the dichotomy that was present: What did I consider an educative experience that would facilitate and balance thinking in music with metacognitive strategies that provide a basis for thinking about music?

Assessment Implications

One of the issues concerning general educators today is authentic, or alternative, assessment. Designers of authentic experiences have often turned toward the performing arts as a guide for constructing assessment tasks that were "real life" and public in nature. These elements are certainly intrinsic to performing arts and surely all of us have assumed at one point or another that our students' performances are a manifestation of musical knowing. But is this enough to accurately assess our students' understanding in music or about music?

Of course, evaluating or assessing critical thinking skills only complicates the discussion of critical thinking. How do we know if our pedagogy is providing instruction for students to think critically? What are the assessment implications embedded in the different approaches? Richardson and Whitaker (1992) review different types of music education research studies that investigate assessment of students' critical thinking and find that this area "generates as many questions as it satisfies, creating many implications for future research" (p. 551). In order to envision instruction in any of these approaches to critical thinking instruction, it is imperative to go one step further and operationalize what the assessment or performance task for it would entail.

Musical performance, like the perfect recitation of the multiplication tables, tells us very little about the process of learning, or the criteria of standards. Whitaker and Richardson (1992) examined several kinds of research studies in which different instruments and assessment strategies (essay tests, observations, verbal protocols, etc.) were employed. A classroom environment that emphasizes critical thinking should also provide for assessment of the progress and mistakes that contribute to knowledge construction. In this kind of constructivist environment, students and teachers generate rather than choose responses; process as well as product become necessary areas for teacher deliberation. Whether the assessment tools be essay tests, observations, clinical interviews, or verbal protocols, the decision must be made based on standards, criteria, and be congruent with purposes and goals (Herman, Aschbacher, & Winters, 1992).

Deliberative Teaching

We have discovered that critical thinking and its assessment are not nearly as simple as we might have hoped. As educators, we know that the choices we make each day involve a combination of practical knowledge, intuition, theory, and informed practice, coupled with on-the-spot judgments, managerial decisions, and parental-community-peer involvement. Nothing is simple, but these are the very choices that form the basis of deliberative teaching. Zumwalt (1982), in examining teacher education, remarked

> Because [teacher educators] view good teaching as good deliberations, their concern is not that teachers follow a set of rules ... but rather that teachers view teaching as a process of constantly making choices about means and ends—choices that can be informed by [research], experience, intuition, and one's own values. (p. 226)

How do we fit critical thinking into this already complicated picture? How do we stop from treating critical thinking as another rule to follow? Deliberation, like any construct, can be superficially addressed. Without interest, purpose, or understanding, deliberation becomes another task, another rule. As Dewey observed, "A person who is trained to consider his actions, to undertake them deliberately, is in so far forth disciplined ... [however], deliberation will be perfunctory and superficial where there is no interest" (Dewey, 1916/1944, p. 129).

Once again we need to examine our interests and purposes as educators. Are we rising to the challenge to prepare our students for the new century and equip them with the skills necessary to compete in the global community? Or are we content to languish in the arms of the National Standards in the hope that they will confirm our growth as a profession and, hence, for our students. As Dewey pointed out,

> It is not of course a question whether education should prepare for the future. If education is growth, it must progressively realize present possibilities, and

> thus make individuals better fitted to cope with later requirements. Growing is not something which is completed in odd moments; it is continuous leading into the future. (1916/1944, p. 56)

At this point, it is important to note that at this conference we have chosen to focus on critical thinking as context or domain specific. It is also important to remember when reading Dewey that, for him, every construct, whether it be growth, reflective thinking, curriculum development, or pedagogy, was embedded in the larger picture of social problem solving. Decontextualizing constructs from the larger social context is akin to examining critical thinking only as a domain specific construct. Although it is valuable to address critical thinking in music education, the issue to keep in mind is the larger context of education and our purpose and growth as educators.

Teacher as Researcher

Teachers, rather than outside researchers, are in a better position to understand what they do through examining, identifying, and articulating a problem or question within their own contexts. In the book *Inside/Outside,* Cochran-Smith and Lytle (1990) refer to this kind of teacher research as a "systematic and intentional inquiry carried out by the teacher" (p. 7). Rather than have outside researchers enter our classrooms and form studies that are necessarily limited in scope, we can become engaged in examining our own practice and reconstructing our own knowledge grounded in existing theory. By this means, we can regenerate our own practice, build knowledge, and create for our profession a shared set of tools for systematic inquiry.

Is this a new way of conducting research? The evolution of research methods and designs is as complicated as critical thinking. As new theories of teaching and learning have emerged, new methods of researching and examining these theories have also evolved. As research paradigms have shifted from simply looking at what the teacher does via student output, to more of a constructivist theoretical approach in which consideration is given to what students and teachers bring to the learning process, new ways of making sense of critical thinking seem in order. Because music

teachers have unique insights into what happens in their teaching contexts, one might think that a qualitative or naturalistic, as opposed to quantitative, research design is most appropriate in assessing critical thinking.

Dewey, however, would disagree. He understood the power of dualistic kinds of thinking and often framed his own arguments in those terms (*Child and Curriculum*, 1902; *Democracy and Education*, 1916; *Experience and Education*, 1938). He did so in order to highlight the destructive quality of polarization. Dewey would examine the dualism of research paradigms and suggest that it should not be a case of one or the other. In order to find more effective solutions, the two research paradigms must never be thought of as adversaries. For educators, the comfort lies—and thus the danger—in situating ourselves in prescribed research camps that can alleviate thinking, decision making, reasoning, or growth based on thoughtful inquiry and that prevent the educator from seeing the educative process as a whole (Dewey, 1902/1990, p. 182). It is not a matter of throwing out the scientific paradigm in favour of a humanistic paradigm, but of understanding and deliberating the choices and choosing which research method best answers the questions being asked:

> True, reflective attention ... always involves judging, reasoning, deliberation; it means that the [teacher] has a *question of his own* and is actively engaged in seeking and selecting relevant material with which to answer it, considering the bearings and relations of this material—the kind of solution it calls for. The problem is one's own; hence also the impetus, the stimulus to attention, is one's own; hence also the training secured is one's own—it is discipline, or gain in power of control; that is, a *habit* of considering problems. (p. 149)

Reimer writes, "The impact the profession can make on society depends in large degree on the quality of the profession's understanding of what it has to offer which might be of value to society" (1989, p. 3). By linking our own research to existing research we will establish a professional base that can be of value to

society—not a collection of random, personal stories—but reflection grounded in theory and systematic inquiry. Stated another way, regenerating our practice (and therefore our profession) through actions as informed, deliberative educators, is similar to changing the test to effectuate better practice and pedagogy. However, changing the test or, for that matter, creating National Standards means nothing unless we are moved to become accountable for the choices we make and the knowledge and information we choose to analyze and synthesize:

> Arts education standards can make a difference because, in the end, they speak powerfully to two fundamental issues that pervade all of education—quality and accountability. They help ensure that the study of the arts is disciplined and well focused, and that arts instruction has a point of reference for assessing its results. (*National Standards for Arts Education*, 1994, p. 9)

The Standards ensure nothing unless we immerse ourselves in the broader context of education and take ownership for our choices and actions.

Conclusion

Two aphorisms seem to apply here, "look before you leap," and "he who hesitates is lost." Should we be paralyzed in the face of this latest onslaught of jargon-laden theory? No, we must be propelled into action. Remember how your band or choir director used to tell you, "We are only as good as our weakest link?" I never really understood what that meant and never believed it had anything to do with me. I am also fairly certain that no one became better or stronger by this chastisement. So it is with our profession. We can no longer defend our profession based on fashionable but meaningless promises, nor can we pretend that we are not responsible or accountable. As Reimer warned, "too many convictions have been based on platitudes, on attractive but empty arguments, on vague intimations that music education is important with little in the way of solid reasoning to give backbone to beliefs" (1989, p. 4). We must remind ourselves that we have chosen a path that is an intellectual and moral pursuit not separate from the

context of education and educating. These discussions of critical thinking and research theories can only "sharpen (our) deliberative skills and provide meaningful input into the decision making process" (Zumwalt, 1982, p. 246).

Goodlad points out that the "separation of the arts from much of the rest of teacher preparation is particularly deleterious to the place of the arts in school" (1992, p. 202). Conversely, the separation of general educational theories from music education has contributed as well to the separatist notion of the arts teacher as the specialist. We can no longer afford to separate the music teacher from general research and theory. It might seem daunting, but, as a profession, we must construct an understanding of educational rhetoric, including critical thinking, and we must begin with ourselves. In closing, allow me to quote Eleanor Duckworth, "The virtues involved in not knowing are the ones that really count in the long run. What you do about what you don't know is, in the final analysis, what determines what you will ultimately know" (1996, p. 68).

References

Abeles, H., Hoffer, C., & Klotman, R. (1994). *Foundations of music education* (2nd. ed.). New York: Schirmer Books.

Boardman, E. (Ed.). (1989). *Dimensions of musical thinking.* Reston VA: Music Educators National Conference.

Cochran-Smith, M., & Lytle, S. (1990). *Inside/outside: Teacher research and knowledge.* New York: Teachers College Press.

Dewey, J. (1944). *Democracy and education* (Rev. ed.). New York: The Free Press.

Dewey, J. (1990). *The school and society; and, The child and the curriculum: A centennial edition* (Rev. ed.). Chicago: University of Chicago Press.

Duckworth, E. (1996). *The having of wonderful ideas and other essays on teaching and learning.* New York: Teachers College Press.

Elliott, C. (1996, September). *Music as intelligence: Some implications for the public schools.* Paper presented at the Ithaca Music as Intelligence conference, Ithaca, NY.

Elliott, D. (1995). *Music matters: A new philosophy of music education.* New York: Oxford University Press.

Goodlad, J. (1992). Toward a place in the curriculum for the arts. In B. Reimer & R. Smith (Eds.), *Ninety-first yearbook of the National Society for the Study of Education: The arts, education, and aesthetic knowing* (pp. 192-212). Chicago: University of Chicago Press.

Harste, C., Short, K., & Burke, C. (1988). *Creating classrooms for authors: The reading-writing connection.* Portsmouth, NH: Heinemann.

Herman, J., Aschbacher, P., & Winters, L. (1992). *A practical guide to alternative assessment.* Alexandria, VA: Association for Supervision and Curriculum Development.

Kepler-Zumwalt, K. (1982). Research on teaching: Policy implications for teacher education. In A. Lieberman & M. McLoughlin (Eds.), *Eighty-first yearbook of the National Society for the Study of Education: Policy making in education* (pp. 215-248). Chicago: University of Chicago Press.

Langer, S. (1957). *Problems of art.* New York: Charles Scribner's Sons.

Marzano, R., Brandt, R., Hughes, C., Jones, B., Presseisen, B., Rankin, S., & Suhor, C. (1988). *Dimensions of thinking: A framework for curriculum and instruction.* Alexandria, VA: Association for Supervision and Curriculum Development.

National standards for arts education. (1994). Reston, VA: Music Educators National Conference.

Noddings, N. (1992). *The challenge to care in schools.* New York: Teachers College Press.

Norris, S. (Ed.). (1992). *The generalizability of critical thinking: Multiple perspectives on an educational ideal.* New York: Teachers College Press.

Perkins, D. (1992). *Smart schools: From training memories to educating minds.* New York: The Free Press.

Polya, G. (1945/1985). *How to solve it* (2nd ed.). Princeton, NJ: Princeton University Press.

Rao, D. (1991). *Artistry in music education: Teaching children through choral music experience* (Vol. 4). New York: Boosey & Hawkes.

Reimer, B. (1989). *A philosophy of music education* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

Schwartz, H. (1988). Unapplied curriculum knowledge. In L. Tanner (Ed.), *Eighty-eighth yearbook of the National Society for the Study of Education: Teacher education professional development* (pp. 148-174). Chicago: University of Chicago Press.

Woodford, P. (1996). Developing critical thinkers in music. *Music Educators Journal, 83* (1), 27-32.

Zumwalt, K. (1987). Are we improving or undermining teaching? In L. Tanner (Ed.), *Eighty-eighth yearbook of the National Society for the Study of Education: Teacher education professional development* (pp. 148-174). Chicago: University of Chicago Press.