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Critical Thinking and School Music Education:
Literature Review, Research Findings, and Perspectives

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Abstract

The most up-to-date validations of educational praxis propose that teachers and learners should engage together in a process of understanding life and the world, should share their anxieties and their problematic issues, look for solutions, make plans for action, express themselves creatively and take a critical stance toward every new datum before accepting it as knowledge. For many years, the dominant view was that the study of certain subject areas--and nothing else--was sufficient to promote students' critical thinking skills. This conviction was overturned by John Dewey, who pointed out that any school subject may promote critical thinking if teachers base their teaching on challenges and issues presented for investigation, as well as encouraging reflection. As music offers the repeated challenge of situations in which there is no standard or approved answer, it can promote critical thinking. This article presents a review of the literature on the definition of critical thinking, points out the importance of the promotion of critical thinking in general education as well as in art and music education, and, finally, proposes for the teaching and learning of music a framework of applications within which critical thinking skills may be developed.

*We know the future will outlast all of us,
but I believe that all of us will live on in the future we make*
Edward M. Kennedy, December 2008

Introduction

The schools of today and tomorrow have to prepare students for new social, political, and economic situations. Among the important qualities to develop in schools, duty and obedience are no longer in the foreground (Brändström, 1998) and are being replaced by principles and strategies that enhance new modes of communication and learning--focusing on both to *what to* (declarative learning) and to *how to* (procedural learning)—with the emphasis on the importance of "learning how to learn". Educational researchers agree that, if we want students to be prepared for our challenging times, teachers must help them to learn how to develop and apply four competencies within core content areas and beyond: critical thinking, creative thinking, collaboration, and communication (the 4 c's). Consequently, curricula would need to be redesigned to reflect the importance of learning to think critically, with appropriate time allowed for activities organized to help students develop forms of meta-knowing, including epistemological understanding (Rotherham, & Willingham, 2010; Pithers & Soden, 2000; Trilling, 2008). In addition, apart from their differences, what various educational philosophies hold in common is that they embrace values of freedom and democracy, as well as focusing on the formation of responsible citizens, individuals capable of critical thinking and of altruism (Ferrero, 2008).

This paper addresses issues such as: How can we define critical thinking? Can critical thinking skills be taught? Does critical thinking constitute a particular discipline? How would we describe the role of critical thinking in school music education? Can music education play a valuable role in developing the critical thinking skills required to prepare young people for coping with higher and more complex everyday demands?

Critical Thinking: A Framework of Meaning

The roots of critical thinking can be detected in the "Socratic Method", when, 2,500 years ago, Socrates established a method of regularising the way that we pose questions.¹ Facile rhetoric gave way to the investigation of conflicting positions, to the recognition of the possible insufficiency of arguments, to the search for evidence and to the promotion of significant questions only. The answering of a Socratic question requires the use of critical thought, a clear, rational and thorough way of thinking. Socrates' ideas were adopted by Plato, Aristotle and other Greek philosophers who maintained that we could begin to see under the surface of things (Paul, Elder & Bartell, 1997).

It is not easy to find a single generally accepted definition of critical thinking. From the point of view of general psychology, we have this: "Critical thinking examines hypotheses, uncovers hidden values, evaluates events and conclusions" (Myers, 2003:11). Robert Sternberg (1985:46) defines critical thinking as "the mental processes, strategies, and representations people use to solve problems, make decisions, and learn new concepts." Barbara Warnick and Edward Inch (1994:11) define critical thinking as the ability to investigate a problem, a question or a state of affairs, an ability that involves all the available information referring to the field. By means of critical thinking, a person is led toward a solution or hypothesis and is able to give reasons for his/her position.²

The 1990s saw the development of the critical thinking movement, with Raymond Nickerson, Karen Kichener, Kuno Fischer and Matthew Lipman as its main proponents who worked to promote a form of educational intervention that took as its principal tool the development of critical thinking in learners at all levels of education as well as in learners with special abilities. More specifically, Lipman (1995) maintains that this kind of thinking relies upon criteria, is self-correcting, leads to judgments and decisions, and that when the learner is familiar with this kind of thinking, then it may also be used in environments other than that of the school. Diane Halpern (1996) takes the view that critical thinking has to do with the use of cognitive abilities or strategies that have enhanced possibilities of producing a positive result. It is that kind of thought that is reflective, can be justified, and is used in resolving problems, drawing conclusions, estimating probabilities and taking decisions. The central element of critical thinking is the capacity to evaluate both processes and solutions.

Robert Ennis's definition (1985, 1996, 1997) includes the substantiation of hypotheses, a capacity for logic, the skills of elucidation and evaluation, the identification of valid and reliable sources, and the evaluation of values, convictions and actions. Ennis describes critical thinking as both rational and reflective; he has made particular study of the ways in which we may evaluate critical thinking, while focusing on the matter of how it may be taught and how this may be incorporated into the curriculum. Deanna Kuhn (1999) asserts that critical thinking is both a skill and disposition that can be learned, thus defining it as a meta-cognitive process. Meta-strategic skills are also deemed essential to thinking critically, since they involve applying consistent standards of evaluation over time and situation.

The philosopher Richard Paul and the educational psychologist Linda Elder (2001), two scholars who have paid particular attention to the matter of critical thinking, state that it is a question of a way of thinking, independent of thought's object, content or problem. The thinking person improves the quality of his or her thought when he or she brings the inherent structures of thought under skillful control and imposes cognitive prototypes on them. Paul and Elder further note that it is important for the individual to be able to pose questions of vital significance, to gather all the relevant data, to examine and justify their conclusions and solutions, to keep an open mind while thinking, and to recognize and justify their hypotheses and their consequences on a practical level. In a subsequent study, in collaboration with Michael Scriven, Paul concluded that "critical thinking is an intelligent, disciplined, active process through which the individual skillfully takes in, applies, analyzes, puts together and/or evaluates the data that he or she has gathered from his or her

observations, experiences, reflections, judgments and interaction with others.” In short, Paul and Scriven consider critical thinking to be a process rather than an outcome, a teachable process, and are particularly interested in the sources and means by which people become informed (Scriven & Paul, 2003).

In general, critical thinking is both a process and an outcome, but, foremost, it is a kind of thinking, an ability, a meta-cognitive component which can direct and assess thinking (Kuhn, 1999; Halpern, 1998). As an outcome, it is best understood from an individual perspective. The difficulty of assessing critical thinking as a product is that it is a complex cognitive process. The critical thinking perspective is comprehensive and includes creativity, problem solving, intuition, and insight (Lipman, 1991; Bowell & Kemp, 2002). The variety and range of terms regarding critical thinking (e.g., reflective, analytic, investigative) may suggest that its nature is complex and multidimensional.

The critical thinker is distinguished by skepticism, has the skills of a good listener, is not afraid to subject his positions to re-examination, and seeks valid, reliable sources that will support his or her argumentation. Critical thinkers’ distinguishable characteristics are as follows (Ferrett, 1997; Ennis, 1996; Elder & Paul, 1996a; Beyer, 1985; Costa, 1985). They ...

- pose relevant questions —not random ones
- evaluate statements and arguments
- search for various sources and evaluate the validity of all the information to be used in the composition and the resolution of problem
- can admit their inability to comprehend a datum
- have curiosity
- are interested in the discovery of new solutions and of alternative solutions
- are able to put together, with clarity, an assembly of the criteria for the analysis of ideas
- find analogies and other relations between the items of information that they gather
- demonstrate a disposition to re-examine their perceptions, their values and their ideas in the light of new data
- listen to others carefully and can offer feedback
- do not resort to a conclusion before taking into account all the data gathered
- look for evidence that may support their hypotheses
- are able to re-examine their positions when they find new inferences or information
- examine problems closely
- have the ability to disregard data irrelevant to the problem
- consider that critical thinking is a means of self-evaluation as well as a life-long process

Critical Thinking and Education

For many years, the dominant view was that the study of particular fields of knowledge—school subjects—sufficed on its own for the promotion of students’ intellectual abilities and capacity for thought. This conviction was first seriously questioned by John Dewey ([1933]1971), then subsequently by a large number of scholars, who pointed out that any school subject can indeed promote critical thinking, provided that teachers base their work on challenges and on issues for investigation, while encouraging reflection (Noddings, 2006; Rose, 1995; Lipman, 1991).³ These days, many researchers and theorists of education (Swartz, 2001; Walker & Finney, 1999; Halpern, 1998; Elder & Paul, 1996a; Eisner, 1982; Goodlad, 1990) stress the importance of the development of students’ critical thinking as part of their preparation as conscientious and responsible citizens who will also be able to meet the challenges that the future will bring. Ann Epstein (2003, 2008) draws parallels between critical thinking in children and the capacity for scientific research in adults, emphasizing that children can acquire that capacity when they are encouraged both to plan and to reflect on their activities.

Currently, there is evidence to suggest that vital critical thinking skills should be explicitly taught to students, since they are not necessarily innate processes (Astleitner, 2002). Diane Halpern (2007) convincingly argues that explicit instruction for critical thinking skill acquisition is necessary. Educational research showed that critical thinking is significantly anchored within curricula and related teaching goal taxonomies, but it is not supported and taught systematically in daily instruction (Astleitner, 2002). Howard Zinn and Donald Macedo (2005:54) observe and denounce the “total lack of critical thinking found in schools”. Similarly, Richard Arum and Josipa Roksa (2011) focus on the failure of colleges to develop the capacity for critical thinking and complex reasoning and assert that over the past three decades there has been much less research in this area than is commonly believed.

Although research findings were used as a basis to develop programs for promoting critical thinking skills in students, only very few of these programs realized a comprehensive "critical thinking program" in a way that is actually suggested by educational researchers and instructional designers (Halpern, 1998; Maiorana, 1992). Such programs for promoting critical thinking should have, among others, the following features: 1) they should take into account a possible disposition or an attitude against critical thinking; 2) they should regard critical thinking as a general skill that must be deepened within different subject matters or contexts; 3) they should offer instructionally fully developed training in specific skills; 4) they should focus on all (or many) relevant subskills of critical thinking and integrate them; 5) they should include parts for stimulating the transfer of knowledge; 6) they should support meta-cognitive skills for assisting self-regulation activities; 7) they should train students for a long period; and 8) they should consider the organizational context of classroom instruction (Astleitner, 2002).

Elder and Paul (1996a; 1996b), studying the educational dimension of critical thinking, conclude that teachers who focuses on the development of critical thinking demands of the students should:

- state and explain their aims and ambitions
- clarify the questions that are to be answered as well as the problems that are posed for solution
- collect and organize information and data
- evaluate in-depth the meaning and the importance of information that is given to them
- demonstrate comprehension of certain concepts
- define their hypotheses
- reflect on repercussions and consequences
- examine questions from many points of view
- examine and check for accuracy
- focus with persistence on questions, issues and problems, without allowing their thoughts to wander at random
- express themselves accurately and in specific terms
- deal with the complex nature of problems and issues
- take others' points of view into account
- express their thought with rational arguments
- distinguish between important and trivial issues.

In sum, the--not new--appeal to schools is to educate "critical students" (Lang, McBeath, & Hebert, 1995). But, in order to achieve this complex goal, schools and teachers have to be assisted by educational theory and research (Astleitner, 2002). Students who have not practiced critical thinking are at risk of being easily led astray by various social and political forces, of adopting facile stereotypes and prejudices, of engaging with false dilemmas. They cannot argue for their positions; they are easily satisfied with simplistic solutions; they reject or fail to cope with criticism directed against their positions or their errors; they reject information That is inconsistent with their positions; they are influenced by the mass media and suffer from a world view that is both egocentric and ethnocentric (Elder & Paul, 1996a; 1996b).

Critical Thinking, Arts Education, and Music Education

In a world inundated with a bewildering array of messages and meanings, arts education can help learners explore, understand, accept, and use ambiguity and subjectivity. In music, as in other arts, there is no single correct answer to questions. As music offers the continual challenge of situations in which there is no standard or approved answer, it can promote critical thinking (MENC, 1986).

The skills of critical thinking are directly connected with creativity and with a willingness to explore, elements that condition all artistic processes (Small, 1987; Pogonowski, 1987). When such skills are promoted in arts education, they suggest a framework for approaching new knowledge that can be also used in other subjects; that is, students are able to pose essential questions and seek evidence in order to reach concrete conclusions (Dorn, 1993; Slavik, 1993; Brewer, 1991; Perkins, 1990; Vigilante, 1989; Eisner, 1982).

Harvard's Project Zero research group searches for strategies to construct what they call "cultures of thinking." Critical thinking, creativity, and the search for knowledge are basic fields for the research. The use of different learning styles and multiple intelligences are studied to enhance the cognitive growth of the child. They study different ways of thinking about the arts as well as the ways children use symbol and symbolic notation, not just in the arts, but across the curriculum. Students can become problem solvers instead of rote memorizers (Gardner, 2000),

In a number of places, the philosopher Maxine Greene (1981) discusses the unique pleasure people seek to derive from works of art but are often unable to realize due to their lack of adequate knowledge and skill. Greene takes the goal of aesthetic education to be the development of aesthetic literacy, which she defines simply as the capacity to access the inherent values of works of art. Aesthetic education may also ameliorate the stringent technological imperatives of modern life and help individuals avoid stereotyped ways of thinking and feeling. She stresses that, because aesthetic literacy implies knowledge of art and mastery of the requisite interpretive skills, it is also necessary to foster a general grasp of aesthetics and a degree of critical acumen, both of which enable young people to engage more effectively with works of art.

David Perkins (1990) states that a critical viewpoint is not included in the teaching and learning of the arts, so it should be cultivated; that is, teachers should be encouraging learners to think critically as well as offering them opportunities to apply knowledge. He further notes that a large quantity of knowledge may form a barrier to the development of critical thinking skills, while only probing deeply into a field can lead to reflective processes.

In the field of music education, though many draw close parallels between critical thinking and creative thinking and recommend that they be cultivated together, there is in fact a clear distinction to be made; while the latter has to do directly with musical creation, the former is a matter of the evaluation of musical creations and offers alternative approaches to musical activity through problem-solving techniques, comparison, classification, reflective processes and the appraisal of activities (Webster, 1988).

Recent literature on the inclusion of critical thinking instruction in schools has revealed positive effects on children's academic achievement (Wenglinsky, 2004), cognitive performance (Zohar & Dori, 2003), meta-cognition (Hardiman, 2001), and self-efficacy (Hotvedt, 2001). Despite the importance of critical thinking instruction in schools and educational settings, there are few empirical studies that investigate the teaching of critical thinking strategies in school music education.

Daniel Johnson (2006) claims that music teaching that is in accordance with critical thinking strengthens all the higher functions of thought as well as reviving students' interest. Johnson studied the progress of two groups of Year Five students (N=82), who, during sixteen 45-minute lessons focused on listening to works of music. With the first group, Johnson used a strategy of teaching involving critical thinking (*Critical-Thinking Instruction – CTI*) while for the second group a

strategy of active participation by students was adopted (*Activity-Based Instruction – ABI*). Each group was given four questions about listening, to which the students responded in writing, both at the outset of the study (pre-test) and after completing the lesson-cycles (post-test). Both groups focused, through repeated listenings, on musical terms and concepts (dynamics, instrumental tone color, tempo, melodic movement, bars, accentuation, form and cadenza) and participated in listening response activities (sound-producing movements and playing non-tuned percussion instruments, conducting, musico-kinetic activities, explanation of their choices). Students' answers were analyzed using content analysis, and it was concluded that the *CTI* group displayed much higher performances on the post-test, compared with the pre-test, while for the *ABI* group there were no statistically significant differences. In all, the researcher found that listening to music can be more effective when teachers use critical thinking questions as an educational technique.

The author of this paper, researching the philosophical underpinnings of official music curricula, found that any references to critical thinking were extremely limited. In fact, nowhere was there to be found any direct and unambiguous reference to the development of critical thinking skills. More specifically, an exhaustive study of the National Music Curricula for Primary Education in seven European countries or regions found that (Kokkidou, 2006):

- In the Austrian curriculum there are three references related to critical thinking, referring to a critical stance towards music and, in general, toward the musical and acoustic environment.
- The Berlin curriculum includes two relevant references, one to the need to promote critical thinking and the other to the intellectual approach to music and its functional role.
- The Hellenic (Greek) curriculum at two points mentions the importance of critical contact with works of music.
- In the curriculum for Catalonia two references were found, having to do with the critical evaluation of musical performances and with students' general attitude toward music.
- The Swedish curriculum indicates that students should develop their ability to examine facts and relations critically (*Introductory Unit*) and that they should improve their skills in the critical examination and evaluation of music.
- Neither the Bulgarian nor the Russian Federation's curricula made any reference to critical thinking.

At Minnesota State University, Karen Boubel runs a project called *Critical Thinking in the Process of Writing Music*. In Boubel's (2006) view, before actually composing music, students must reflect on their preparedness for the work of composition, making sure that they possess the elements of creativity, decisiveness, self-confidence and the need to seek out something new. That is to say, they need to think critically before they begin to put their musical ideas down on paper. At the next stage, students investigate sound and at the same time compose music while being involved in a process of analysis, evaluation, revalidation and reflection. The task of composition is rounded off with the student-composer's self-evaluation. The project's general aim is to strengthen the role of critical thinking in music students, in the field of musical creativity.

Many music education philosophers and theorists have taken up the issue of the involvement of critical thinking in musical learning and creativity. Bennett Reimer (1970), though he makes no direct reference to the development of critical thinking, clearly promotes its value through the imprimatur he gives to critical thinking to most areas across the seven musical behaviors (engagement, response, production, semantic approach, analysis, evaluation and appraisal of the worth of music).

David Elliot (1995) propounds the importance of students' critical responses to music activities (critical listening, a critical stance toward musical performances and creations) and clearly declares that we must vigorously resist the promotion of that kind of thinking that serves only educational ends. He maintains that music educators should urge their students to reflect critically upon all aspects of music, on listening, performance, interpretation and creation--their own and others'--and notes that through such an approach students will develop team skills and cooperation and will be able to deal comparatively with whatever they hear or do. According to Elliot, criticism

helps us to explore and deepen our understanding of our emotions as well as our understanding of music on the levels of interpretation, aesthetics, structure, style, expressivity and ideology-culture.

In turn, all the above contribute to the cultivation of critical thinking (pp.84-87 and 96-101). Thomas Regelski and Terry Gates, presenting the analytical agenda of The MayDay Group, declare that the two broad purposes of the MayDay Group are: 1) to apply critical theory and critical thinking to the purposes and practices of music education; and 2) to affirm the central importance of musical participation in human life and, thus, the value of music in the general education of all people (Gates, 1998). Additionally, they state that they “intend to be critical of music education practice and to hold the point that music in education should be carried out by people critical of their own teaching and sceptical of their unexamined pedagogical habits” (p.202). As for the students, regarding musical action, the following is included in the MayDay Group agenda (Gates, 1998):

Too much mindless sound-making happens. Too many well-meaning people give too much credit for mechanical music making and over-produced performances. Too much emphasis is placed on music-related activity that seems creative and entertaining but leaves little behind in the person when the fun is over. Wouldn't it be great to have students who take seriously what they do in music, people who remember from class to class what they learned in the last class, people who know what to fix in the music they are making, people who are eager to get to the next step in whatever they are working on in music? A critical approach to music making is an indispensable first step in producing this result. A critical approach is also a dominant and permanent attitude, not just the first step. Critically reflective musicianship is what happens when a person intends to do something effective musically, and uses that intention as a standard to assess what actually happens (p.203).

According to MENC (recently renamed NafME--National Association for Music Education), arts education benefits the student because it cultivates the whole child, gradually building many kinds of literacy while developing intuition, reasoning, and imagination, and helps students by initiating them into a variety of ways of perceiving and thinking. MENC clearly sets out the fundamental aims of music education, among which we find, “[Students] should be capable of aesthetic judgments based on critical listening and analysis” (MENC, 1986). However, MENC doesn't specifically focus on the value of critical thinking in school music education.

Janice Dressel (1988) maintains that critical thinking requires systematic cultivation; both lessons and rehearsals offer many occasions for this, and music educators should foresee and exploit such occasions. In addition, Dressel wonders how far music teacher education prepares pre-service teachers for this course of action, that is, whether future music teachers enjoy, during their studies, such experiences that might convince them to encourage their students to think critically.

Wanda May (1998) stresses that critical thinking requires meta-cognitive skills, links critical thinking in music education with the aim of social efficiency, and notes that such activities as the playing of instruments through imitation, the reading of scores and the memorization of songs do not promote critical ability. Furthermore, she maintains that critical thinking is teachable and that students who practice critical thinking take an interest in seeing to it that the results of their efforts are creative and include a critical aspect. Within the framework of music learning, May argues that we should not expect our students to acquire a certain ideal level of knowledge before practicing critical thinking, though at the same time she notes that understanding of, and familiarity with, concepts, techniques and music history render learners more able to proceed to the evaluation and comparison of musical works, their own and others', in regard to their composition and performance. In all, while giving preference to musical creativity, she also states clearly that promoting critical thinking may also have to do with the processes of understanding a concept, investigating a field, of the meaningful defense of a position, argumentation, research, problem-solving, the synthesis and interconnection of fields and data, and decision-making.

In Lori Custerdero's (2002) view, music activities should offer students opportunities for

active participation; when carrying out a lesson, students' suggestions and interests should be taken into account. Open approaches to education promote critical thinking and are linked to students' decisions in favor of life-long engagement with music. In a similar way, Lucy Green (2003) focuses on the ways in which students respond critically to various kinds of music, on the arguments they use in evaluating a work, as well as on how their musical values affect their musical practices, and vice versa. Although Green does not specifically highlight the importance of critical thinking, she refers to "Critical Musicality"--listening critically/analytically for musical understanding in all types of music, while adopting a sense of open-mindedness and awareness in listening to music--as a key factor of her perspective (Green, 2008).

Richard Colwell (2011) summarizes the issues as follows:

Establishing one's competence in critical thinking would not look like today's education portfolios with their collection of events or even like the uninterpreted related research in many doctoral dissertations. (p.143) [...] The process of thinking is supportive of and part of pedagogical content knowledge because there is not a set of separate critical thinking skills that can be acquired and deployed. Infusion of critical thinking into subject matter instruction is deep, thoughtful, well understood, and both the general principles and the dispositions and abilities of critical thinking are made explicit. (p.144) [...] Music education must be more than acquiring performance skills for the town band, or a "subject" that terminates at some period during secondary school when one's schedule no longer allows participation. Music teacher educators can become familiar with strategies that allow for the assessment of how music can contribute to the quality of life; and the individual can learn dispositions from motivation, transfer, assessment, and critical thinking which can integrate life's experiences and knowledges (p.145).

The potential uses of critical thinking to music teaching-learning

Students are not empty vessels waiting to be stuffed with a plethora of information and knowledge. They are people, each with his or her own personality, in whom teachers can inspire a love of learning and a need to seek out knowledge, while helping them to develop a range of abilities so that they may progress toward their own completion as individuals. Music teaching-learning must, and can, contribute to this aim, as it offers students the possibilities of a critical approach to various issues, of creative activity, of reflection and conscious choice (Kokkidou & Papapanagiotou, 2009).

The value of promoting critical thinking in music education is not a mere matter of a theoretical or intellectual conception, but can be translated into action, into activities, into practice. However, researchers and scholars find that music educators are interested, first of all, in performing and creating music, without attaching much importance to reflection, knowledge about knowledge, or the students' own verbal expression, that is, to those processes which promote critical thinking (Colwell, 2011; May, 1989; Bamberger, 2000; Woodford, 2005; Johnson, 2006). In other words, while the dialog about the role of critical thinking in music education has been increased, there have been minimal changes in the content of the national curricula, in the U.S.A. and in many European countries, regarding the importance of critical thinking (Kokkidou, 2006). Richard Colwell (2011) concludes that critical thinking skills are not easily employed in a music practice-based curriculum.

What types of games and activities can be applied in the classroom to address the need for the development of critical thinking skills? I propose that critical thinking strategies should be linked to various fields of music teaching-learning, such as:

- **Musical creativity**⁴--Students: try out various solutions in order to arrive at specified results; set down their ideas and provide support for their opinions; meet complex challenges; use imagination and the inner ear to compose a musical phrase;

amend their aims when they are dissatisfied with their results; plan, carry out and evaluate their compositions; experiment with sound sources in order to draw conclusions; discover the basic means of sound production in musical sources; learn to explain their aims; understand that a musical composition or improvisation is subject to the listeners' judgment.⁵

- **Musical performance**--Students: distinguish the limits and the limitations of a musical performance; recognize their own mistakes in performance and try again in an attempt to improve; reflect on the role of practice in the development of their music skills; hypothesize as to the use of symbols; realize that a musical performance is subject to the listeners' judgments.
- **Listening to music**--Students: listen carefully and consciously to a work of music; articulate different ways to interpret and analyze its structure and its content, and identify its essential characteristics; evaluate the result by comparing the various interpretations and determining which one is most effective; argue in favor of their own preferences; use the terminology they have learned to express their value judgments; learn to listen to and compare different performances and arrive at judgments on these; perceive the role of multinational recording companies in forming taste; learn to stand up against imposed tendencies in music; read the code in the lyrics of modern songs so as to learn to face up to various social issues; predict or hypothesize the sound that a home-made instrument will produce; hypothesize how an instrument should be constructed with a view to producing a particular kind of sound; identify the limitations on the ways in which a particular instrument can produce sounds.
- **Musical literacy**--Students: learn to classify the terms that refer to musical concepts; become familiar with various realizations of the same musical phenomenon; collect information about a period in music history and identify its principal tendencies; relate abstract concepts to the use of specific techniques; cross-link the items of data that they have on an issue and give an opinion on their precision or correctness; deal with school course-books as just one source that may be enriched or checked for accuracy; go more deeply into questions of the functional role and influence of music in human life; apply new knowledge in daily life.

In the general school, music lessons are norm arguments to convince their classmates to make decisions while bearing in mind a specified desirable result of a musical activity; compare each group's choices and results before arriving at a judgment of value; regulate their own behavior and take responsibility for their actions. Students as a group: combine their ideas in order to proceed with the planning of a creative musical activity; argue for and compare their ideas on a certain kind of music; plan, carry out and review their activities.

Finally, students, examining **the musical environment**, could use critical thinking to filter and assess the information that they get from the environment and handle its complexity; learn to look for reliable sources of information; develop independent reasoning regarding the role of the dominant music culture in a society; look for ways to resist the tendency toward mass-standardization imposed by the multi-national recording companies; accept the diversity of the music scene; perceive and evaluate the coherence of a series of events; detect the basic characteristics of a situation or a set of circumstances and make hypotheses, pose questions, identify and understand the causal relations involved in a specific issue.⁶

The strategies/ideas described above could refer to musical as well as to para-musical activities and forms of instruction, such as drawing, drama, story reading, group discussion, and exploratory play. It could be argued that any type of intervention has a potential to enhance student's critical thinking skills.

To summarize, I believe that educating must be teaching to think, to think critically. By applying these general principles of critical thinking to the discipline of music, we can help our students understand the nature of music and their experience of it, and to gain insights into how

their values about music integrate and conflict with other values related to their moral, social, cultural, political, economical and religious experiences and convictions. The critical examination of their general beliefs about music can increase perceptual sensitivity in the approach to music works, as well as help them make better decisions on what music they choose to listen to, as well as to perform and create. I do not imply that music education must emphasize extra-musical benefits, nor that music education must be conceived as a useful instrument to acquire a certain repertoire of skills.⁷ I rather suggest that we must pay more attention to teaching-learning strategies that help students understand what and how they are learning, to think critically.

Coda

In recent years, researchers in the educational sciences have demonstrated the importance of critical thinking in the development of higher cognitive functions and in the formation of learning behaviors. Up-to-date curricula, therefore, must focus on the promotion of activities that contribute to the development of critical thinking.

Educational systems and schools, taking their cue from the larger societal goals, must exercise the initiative in preparing the young to make critical judgments that are derived from critical thinking and skills, for use both in maintaining life and for continuing progress. Students need to know how to think clearly, choose wisely, and act responsibly for their own individual, group, and societal good (Roxroy, 1994).

Music as a subject, like the other subjects in the field of arts education, offers a suitable context for activities that develop critical thinking. Music lessons are offered in open learning environments. There is no single right answer, because personal artistic expression has many manifestations, every outcome is subject to evaluation, as the intellectual approach to the processing of works of art is not a closed procedure. It involves the recipients' experiences, knowledge and preferences; students can deliver learning relevant feedback more often than other disciplines.

In music education we should adopt such practices that will enable students to take a critical approach to current social reality and to its reflection in every field of society. We must renew the dialog about the aims of music education⁸ and its relationship to creating the kind of society in which we hope to live.⁹ Thinking critically is setting up differences. This implies debate, a battle of ideas. And not thinking means silence--another form of death. So as not to die, it is necessary to re-think the certainties that modern conception has crystalized, to question them from the standpoint of the crossroads at which this age of postmodernism has placed us (Giacaglia, 1998).

That which distinguishes, or at least ought to distinguish, human thought is the capacity for reflection on knowledge, for the critical examination and bringing into consciousness of thoughts and of the ways of approaching an issue (Csikszentmihalyi, 1993). On the one hand, study of a field of knowledge, a school subject, can indeed help develop thinking that is more analytic, more investigative, more creative (Willingham, 2007). On the other hand, students also need to feel at home with procedures that teach them to evaluate the effectiveness of their thinking, to reflect on as the bedrock for learning in all disciplines. The question of how to teach to different levels of critical thinking is still in need of additional research. Further investigations in the field of critical thinking could also focus on students' beliefs about their ability to think critically and independently.

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- ¹ Socrates maintained that the unexamined life is not worth living. Implicit in his claim is the view that our actions and attitudes are guided by our beliefs, our principles, and our values and that the rigorous, critical examination of these is an important part of what it is to be a human being. In a contemporary view, we can say that critical reflection, which also constitutes philosophical inquiry, is related to our personal development and our happiness, since it helps us to clarify issues, discriminate among options, and make better decisions. See, Crawford, D.W. (1991). *The Question of Aesthetics*. In R. A. Smith & A. Simpson (eds.) *Aesthetics and Arts Education*, 18-31. Urbana: University of Illinois Press.
- ² Brookfield (1995) adds that part of the critical reflective process is to challenge the prevailing social, political, cultural, or professional ways of acting. Through the process of critical reflection, adults integrate knowledge gained from experience with knowledge possessed and come to interpret and create new knowledge and actions from their experiences. Critical reflection blends learning through experience with theoretical and technical learning to form new knowledge constructions and new behaviors or insights. See, Brookfield, S. (1995). *Becoming a Critically Reflective Teacher*. San Francisco: Jossey-Bass.
- ³ Critical thinking and problem solving have been components of human progress throughout history, from the development of early tools, to agricultural advancements, to the invention of vaccines, to land and sea exploration. What's actually new is the extent to which changes in our world mean that collective and individual welfare and success depend on having such skills. This distinction between "skills that are novel" and "skills that must be taught more intentionally and effectively" ought to lead policymakers to different education reforms than those they are now considering. See Rotherham & Willingham, 2010.
- ⁴ Michele Kaschub and Janice Smith explore the ways in which we can encourage and nurture critical and reflective thinking through composing. See, Kaschub, M. & Smith, J. (2009). *Minds on Music: Composition for Creative and Critical Thinking*. Lanham: Rowman & Littlefield Education.
- ⁵ Ken Robinson states: "One task being creative is to hypothesize and think of possibilities and look at alternatives ideas - to speculate. To be imaginative. But an equally important part for every creative process is to act critically on the ideas you're coming up with. To evaluate them ... [Y]ou have to figure out which ideas are good and bad. Which work and which don't. Which are worthwhile and which ones are not. Then, of course, it raises the old question of whose criteria you're using and whose values you're operating, and that's a part of the conversation. Being creative isn't just about blowing off new ideas. It's about critical judgment, as well." Accessed on May 10th, 2010, at <http://blog.ted.com/2009/08/12/ted_and_reddit_1/>.
- ⁶ Do music educators help students gain the deepest satisfaction music can offer? Do they develop good listening habits in schools? Do they offer them the freedom to choose Bach or Bernstein instead of Madonna or Lady Gaga? Do they teach students how to listen intelligently and critically? Today, music is so easily available to all who choose to be engaged with it. In our contemporary media-dominated society, music is the central component in the profitability of the entertainment industry. The popularity of pop stars rises and falls with an intensity that is nothing less than illustrative of the power of music to affect people's lives almost instantly. But, most people, instead of listening to music "consume" music at an enormous rate. The only freedom most young people have in this situation is the freedom to spend their money. For further reading, see also Walker, R. (2005). A worthy function for music in education. *International Journal of Music Education*, 23(2), 135-138.
- ⁷ The benefits of music that lie outside music are seldom given any priority in school music education. However, the skills learned through music are essential and fundamental to almost everything we do in life. Self-confidence, self-discipline, critical thinking, cooperation, taking direction, leadership, eye/finger coordination, and socialization: these are just a few of the valuable tools we reap from studying music.
- ⁸ Critical thinking is also a great opportunity for music educators to rethink their own beliefs on what it means and takes to be an effective and creative teacher.

- ⁹ In his book *Democracy and Music Education*, Paul Woodford (2005) suggests that “Although critical thinking is supposed to develop independence of mind” it is almost always equated in curriculum documents “with the application and development of abstract thinking skills and abilities divorced from social, moral, ethical or political considerations” and that “Few music teachers realize that this separation of mind and matter is a perversion of what Dewey, one of the fathers of contemporary critical thinking movement, intended.” See, Woodford 2005: 95.