INTRODUCTION: THE PREMISE OF LEARNING THROUGH MUSIC

by

LARRY SCRIPP

(Editor's preface: this introduction begins a series of interleaved "conversational interludes" and "photo essays" meant to stimulate interconnections among the multiple perspectives from article to article. These "connectives", provided by Larry Scripp, Director of the Research Center for Learning Through Music at New England Conservatory, are written in a more informal style intended to provide imagery, examples, and commentary emanating from ongoing action research at laboratory school sites. They are intended also to introduce each paper and to further the conversations implicit across articles.)

"EDUCATION IS NOT PREPARATION FOR LIFE;
EDUCATION IS LIFE ITSELF."

— *JOHN DEWEY*

In staking out the arguments for music as an essential resource for every child's education, it will be useful to clarify the premise from several points of view: how people approach education through their own life experiences; how research contributes to our understanding of the impact and potential for music in education; and how cultural and institutions of higher learning in music can put learning through music practices into public schools.

Philosophic inquiry has its role in this premise as well. If we agree with Dewey that education is life itself, then the premise of learning through music clearly should stem from the careers of important figures in music as well as from the careers of those influenced by musical experience, skill, and understanding.

THE ESSENCE OF LEARNING THROUGH MUSIC

> *My father taught me that the symphony was an edifice of sound. And I learned pretty soon that it was built by the same kind of mind and the same kind of way that a building is built. When that came to me I used to sit and listen to Beethoven. He was a great architect. The two lines are quite similar because they arrange and build, mount and plan in very much the same way. —(from* Frank Lloyd Wright*, a film by Ken Burns and Lynn Novick, written by Geoffrey Ward, 1998)*

Frank Lloyd Wright learned to play the piano as a child and later developed a life-long appreciation of the relationship of music to his career work as an architect. Not only did Wright's son report hearing him play Chopin late at night, but his grandson recalls Wright's insistence on piping music into the fields and workrooms at Taliesin as his staff and apprentices did their work. The concerts, poetry readings, and plays performed every Saturday night at Taliesen were, Wright believed, "as important as working in the drafting room."

Consider the implications of this provocative example of the role of music in this artist's life's work and teaching style. First, Wright's ability to play Chopin piano music indicates that his musical education extended far beyond what is commonly expected of an American public school student today. Second, Wright's strong assertion that musical

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composition and architecture are created by "the same kind of mind" and that the professions "are quite similar" indicates a level of interdisciplinary understanding that is rarely required or assessed in American public schools.

In an era of increasingly specialized knowledge, Wright's views might sound idiosyncratic and anachronistic. At a time when music and the arts are being reconsidered and in many cases reinstated as important goals for education in the new century, what influence can Wright's "learning through music" experience have on public education today?

LEARNING THROUGH MUSIC AND THE MUSICAL ARTIST-TEACHER-SCHOLAR

From the Wright anecdote we understand that the premise for learning through music relies on at least two conditions: (1) authentic musical training which involves knowledge of repertoire, musical skill and the ability to read music, and (2) the ability to reflect on how fundamental concepts and processes involved in musical study can be shared and connected with other disciplines. There is every reason to believe that significant understanding of separate disciplines is required before those understandings can inform each other mutually. Yet it is not necessary to characterize the process of learning transferring across the discipline boundaries as a one-way, cause-and-effect process. In a "two-way street" model, it is just as likely that Wright's understanding of building sparked his belief in the analogy with Beethoven Symphonies, as his knowledge of musical structure and form provided the basis for a new understanding of architecture. Interdisciplinary learning appears to be reinforced by considerable knowledge of separate disciplines and their resulting interactions.

Wright's example of learning through music will hold little validity, however, if it does not apply to the education of musicians talented and committed enough to pursue music for its own sake.

Leonard Bernstein's background is a good example of an education in music in which the "two-way street" model of interdisciplinary learning is an essential ingredient. Bernstein underwent a rich and varied musical and academic training that prepared him to compose and perform serious and popular music in various styles. This in turn prepared him for a career as an educator and scholar, both in the media (in television and in books) and in the classroom.

Leonard Bernstein's education provides a view of the training that can support accomplishments as a musical artist, educator, and scholar. This is particularly appropriate considering Bernstein's lifelong passion for linking music-making with teaching and scholarship.

Bernstein's recollections of his early training reveal a broad background in music and academic studies: solfège (sightsinging) lessons in public school, piano lessons at the New England Conservatory, extensive contact with popular music outside of school, and an education at school particularly supportive of an interdisciplinary view of academic studies. Bernstein's impromptu speech at his Boston Latin School reunion, as described in the *New York Times*, captures his passion for interdisciplinary education:

> *Mr. Bernstein soon found his voice and was dazzling the audience with a discussion of the "connections" between George Washington, Haydn, the French Revolution, Paine and the Rights of Man, the birth of Samuel Morse, the death of John Wesley, Mozart's death and the premier of his opera* The Magic Flute, *Wagner, Beethoven, Lincoln and the Civil War, the founding of the Ku Klux Klan and the laying of the transatlantic cable.*
>
> *"Do you see?" [Bernstein said] "A known fact [in isolation] is like a dry, dead thing. But when those connections are made, wham! All those facts become fun to know instead of a drag." (Lee Daniels,* New York Times, *November 22, 1984)*

More importantly, what Bernstein identified as the greatest benefit he had gained from his Boston Latin School education and the basis for his advocacy of interdisciplinary education as a teacher was

> *an initiation into the love of learning, of learning how to learn, that was revealed to me by my Boston Latin School masters as a matter of interdisciplinary cognition— that is, learning to know something by its relation to something else. (Ibid.)*

Bernstein's writings, lectures, and speeches (e.g., *Findings*, 1982 or *The Answered*

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Question, 1976) further testify to the value of an authentic musical education for every public school child and for the study of one subject in the context of another.

The architect who understands how a building might resemble a Beethoven symphony understands more about what architecture is; the musician who understands how a Beethoven Symphony might resemble architecture understands more about symphonic works. For one who understands both disciplines deeply, the whole is greater than the sum of the parts.

LEARNING THROUGH MUSIC AND OTHER DISCIPLINES

> *You know, I often say that I might not have been President if it hadn't been for school music . . . one of the things we know is that learning improves in school environments where there are comprehensive music programs. (President Bill Clinton on* Good Morning America, *June 16, 2000).*

Anecdotes that support a view of music as a fundamental resource for education come from scientists, politicians, teachers, and philosophers. What is striking in these testimonials is that musical education represents more than a narrow display of skill or specialization; music can be appreciated as a distinctive entry point into mathematical concepts (e.g., pattern recognition in musical scales or rhythmic proportions) and reading skills (e.g., developing new kinds of symbol processing skills and discerning relationships between linguistic content or structures and music).

Albert Einstein is cited often for statements such as "I get the most joy out of my violin. I often think in music, I see my life in terms of music" which relate his lifelong musical practice to his career work. How can we imagine an education that supports this kind of experience for every child? Shinichi Suzuki spoke often with Einstein about his premise of developing a preschool violin program based on the principles of early language acquisition displayed by all children. In the course of these discussions Suzuki reports that

THIS PUBLIC SEEMS EAGER TO BELIEVE THAT THE STRONG PRESENCE OF THE ARTS IN EDUCATION IN GENERAL (AND MUSIC IN PARTICULAR) CAN IMPACT ALL CHILDREN'S LIVES POSITIVELY IN THE AREAS OF COGNITIVE, PHYSICAL, SOCIAL AND EMOTIONAL DEVELOPMENT.

Einstein not only supported his innovative violin program, but also offered the conviction that, indeed, musical perception was an important resource for his scientific and mathematical thoughts and discoveries throughout his life. In this case, we see that an education enhanced by violin studies that produced 'extra-musical' benefits for a scientist informed the most important development in early instrumental music instruction of the last century (see *From Plato to Piaget: The Greatest Educational Theorists from Across the Centuries and Around the World*, ed. Cooney, Cross & Trunk, 1993).

Those who grow up with an education that includes the arts in their early education often vigorously support the inclusion of teaching through the arts later in life. Clinton translates his boyhood experience in music, for example, into a model of education that connects music's power to promote self-discipline, patience, and motivation to learn with achievement in math and reading. Suzuki uses concepts relating language acquisition in early childhood to analogous methods of learning the violin in order to support his view that music is not a special talent, but a natural ability of all children. Without specifying a particular discipline, Einstein describes a high-quality education as resulting from "the supreme art of the teacher" whose mission is "to awaken joy in creative expression and knowledge."

It is up to today's educators to decide whether the testimony of last century's most influential musicians and scientists should inform models for contemporary public education. If education policy makers can agree to employ arts education practices as an essential ingredient of public education, then a broader array of stakeholders in school communities will be able to make better sense of seemingly paradoxical statements that link artistic production and inspiration with the higher order thinking necessary for academic excellence.

Pablo Picasso said that

> *paintings are but research and experiment. I never do a painting as a work of art. All of them are researches. I search constantly and there is a logical sequence in all this search. (from Gardner,* The Arts and Human Development, *1973)*

In this statement he is alluding to processes intrinsically shared between the arts and scientific inquiry. When the English writer Arthur Koestler states in *Acts of Creation*, that "creative activity could be described as a type of *learning process* where teacher and pupil are located in the same individual," he is pointing toward the intrinsic synthesis of learning and teaching as the genesis of artistic (or intellectual) productivity— a synthesis Wanda Landowska, the Polish musician, describes as "the most beautiful thing in the world" because it "is precisely, the conjunction of learning and inspiration" (from Hartland *Teacher*, 1999).

Clearly music embodies a process that yields particularly generative models of learning as described by some of the most influential minds of the last century. If we translate the learning that occurs through music into education policy, we call on the scientific

method for another purpose— that is, to measure the impact of music in terms of learning in other areas and, if appropriate, to suggest how education practices can translate evidence for the positive effects of learning through music into public school policy.

THE SCIENCE BEHIND LEARNING THROUGH MUSIC

As it is often said, one cannot construct a curriculum based on the education of a Nobel Prize winner or the winner of the Tchaikovsky Piano competition. Yet evidence which is reported in scientific papers, education journals, and popular media has caught the imagination of the public. This public seems eager to believe that the strong presence of the arts in education in general (and music in particular) can impact all children's lives positively in the areas of cognitive, physical, social and emotional development.

RESEARCH SUGGESTS ALSO THAT LEARNING THROUGH MUSIC PROGRAMS WILL SUCCEED IN TRANSFORMING SCHOOLS NOT JUST BECAUSE OF THE UNIQUENESS OF MUSICAL STUDIES, BUT BECAUSE MUSIC INVOLVES A WIDE RANGE OF EXPERIENCES WHICH, LIKE OTHER ART FORMS, WILL CONTRIBUTE TO THE ENTIRE SCHOOL COMMUNITY.

Research reported in *Champions of Change: The Impact of the Arts on Learning* (published 1999 by the Arts Education Partnership and the President's Committee on the Arts and the Humanities) serves as a benchmark for the impact we expect Learning Through Music programs will have on schools.

For example, the Executive Summary of this report entitled "What the arts change about the learning experience" cites support for the assumption that if music programs are linked with successful art-in-education practices, these programs can be designed and implemented with the expectation that they will:

(1) Produce positive social impact on the school community. ("An intervention program of learning in and through the arts can help 'level the playing field' for youngsters from disadvantaged circumstances because there are more significant differences to students from low income backgrounds than for high income students")

(2) Correlate positively with success in the academics. ("Sustained involvement in particular art forms — music and theater — are highly correlated with success in mathematics and reading")

(3) Become most effective if they involve partnership with other cultural programs and resources. ("C.A.P.E. schools — in partnership with dozens of arts organizations —advance even more quickly when compared to arts poor schools in the same neighborhoods").

Researchers warn, however, that to oversimplify expectations for learning transfer from the arts to the academics may limit the impact of arts-based programs. Research suggests that interdisciplinary learning transfer effects are more complex and less linear than the usual "cause-and-effect" models of education that the general public expects from the popular media (indicated by the enormous amount of public attention on the "Mozart Effect," for example). Researchers from the Center for Arts Education Research at Columbia University report that significant examples of learning across domains occur primarily because of the inherent interdependency of various subject areas required for learning transfer to occur:

RESEARCHERS WARN, HOWEVER, THAT TO OVERSIMPLIFY EXPECTATIONS FOR LEARNING TRANSFER FROM THE ARTS TO THE ACADEMICS MAY LIMIT THE IMPACT OF ARTS-BASED PROGRAMS.

> *Arts learning...calls upon a constellation of capacities and dispositions which are layered and unified in the construction of forms we call paintings, poems, musical compositions, and dances...What is critical is not that the capacities and dispositions transfer from the arts to other subject areas, as has often been argued, but that they are exercised broadly across different knowledge domains. Given this interpretation, no subject has prior rights over any other subject, for to diminish one is to diminish the possibility and promise of them all. If the arts help define our path to the future, they need to be become curriculum partners with other subject disciplines in ways that will allow them to contribute their own distinctive richness and complexity to the learning process as a whole. (Burton, et al.,* Champions of Change*)*

Research suggests also that Learning Through Music programs will succeed in transforming schools not just because of the uniqueness of musical studies, but

because music involves a wide range of experiences which, like other art forms, will contribute to the entire school community by:

- Connecting learning experience to the world of "real work"
- Enabling young people to have direct involvement with the arts and artists
- Requiring new forms of professional development for teachers
- Providing learning opportunities for the adults in the lives of young people
- Engaging community leaders and resources.

EVIDENCE OF SPECIFIC LEARNING CONNECTIONS WITH MUSIC

There are strong reasons why music is a unique resource for learning success in specific subject areas. Music is an art form with a unique symbol system and literature. It has a unique presence in interdisciplinary forms (opera, musical theater, and film, for example) and stimulates aspects of social/emotional development that are unparalleled in other art forms. For these reasons, music constitutes a medium for learning that provides unique entry points into other subject areas by virtue of its emphasis on fundamental learning processes, concepts, and representations that are shared with other disciplines.

As reported in *Champions of Change*,

> *there are good reasons...to believe that intensive involvement in a single discipline would act differently than scattered attention to diverse artistic endeavors. This is because different effects are touted for different arts disciplines, and depth of involvement in one might be expected to intensify particular effects. (Catterall, J., et al., in* Champions of Change*)*

Research shows that concentration on music, for example, can yield particular benefits in mathematics. Findings that connect intensive musical involvement with mathematical reasoning from early childhood to math proficiency in high school (and its dramatic effect on low SES students which increases over time) argue strongly for evaluating the interdisciplinary effect of music across the curriculum. In making practical choices for incorporating the arts in education, we cannot ignore scientific evidence which suggests that a school's deep investment in a particular art form is necessary for establishing the integrative value of that art form with respect to other subjects in the curriculum.

MUSIC ON THE FRONTIER OF EDUCATIONAL RESEARCH

Research reported in popular media continues to expand its coverage to include evidence that connects music to various aspects of human potential. These reports raise the bar for the general public's expectation for music in education. Sharon Begley (writing for the Science and Technology Section of *Newsweek*, July 24, 2000) summarizes that studies on music and the brain provide new areas of research in learning because:

(1) Music in humans is universal (that is, 'prewired' as evidenced by research on discrimination of musical elements and melodic contours by infants)

(2) Music is a powerful window onto the working of the brain (scanning techniques reveal that regions of the brain are dedicated to music)

(3) Music matters in general education (as indicated by studies linking early piano study with significantly higher performance on math test of ratios and fractions)

(4) Music may "level the playing field" in public education (as indicated in studies which suggest that inner city second-graders who receive piano training can outperform older suburban children on math tests)

(5) Musical study may promote connectedness in the brain (as indicated by research on musicians which reports an enlargement of the front part of the corpus callosum, a thick cable of neurons that connects the two halves of the brain)

(6) Internal musical practice may be as engaging as external musical practice (as indicated by brain scans that indicate that mental rehearsal engages the brain as much as physical practice)

Whether it be the anecdotal evidence of important figures of the past century or recent scientific evidence suggesting the broad positive effects of musical study in schools, the premise of Learning Through Music should motivate musicians, researchers, educators and parents to explore new models for music in public education in the coming century.

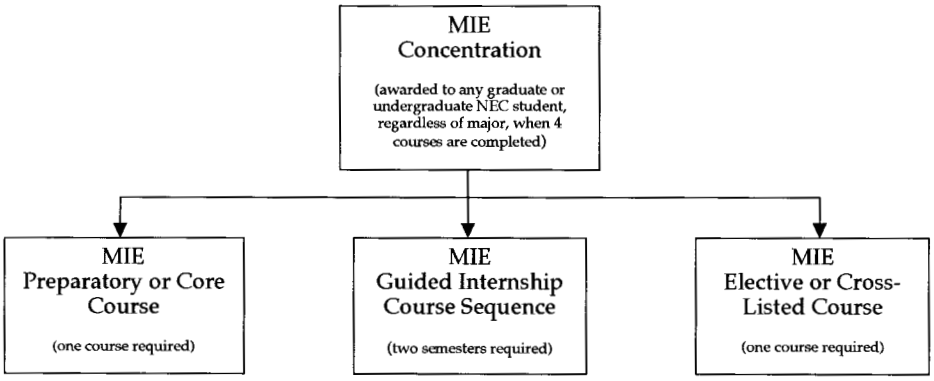
MUSIC CONSTITUTES A MEDIUM FOR LEARNING THAT PROVIDES UNIQUE ENTRY POINTS INTO OTHER SUBJECT AREAS BY VIRTUE OF ITS EMPHASIS OF FUNDAMENTAL LEARNING PROCESSES, CONCEPTS, AND REPRESENTATIONS THAT ARE SHARED WITH OTHER DISCIPLINES.

THE MISSION OF MUSIC IN EDUCATION

HIGHER EDUCATION INITIATIVES AT NEW ENGLAND CONSERVATORY

If music education is to become a model for integrative learning for schools, steps must be taken by cultural organizations and institutions such as New England Conservatory to support new roles for musicians and music educators in schools. In order to support such a venture, a conservatory community must ask how it can carry out its mission to provide the highest caliber of professional training for musicians, while, at the same time, it supports and nurtures public school Learning Through Music programs.

In response to this challenge, several New England Conservatory faculty members and administrators worked together to:



A Music-in-Education Concentration, as well as service-based scholarships, are awarded to all Conservatory students who, regardless of major, complete courses which support a guided internship in the areas of private lesson instruction, artist in schools programs, interdisciplinary music classes, performance ensembles, general music classrooms, or "Learning Through Music" specialist roles in schools.

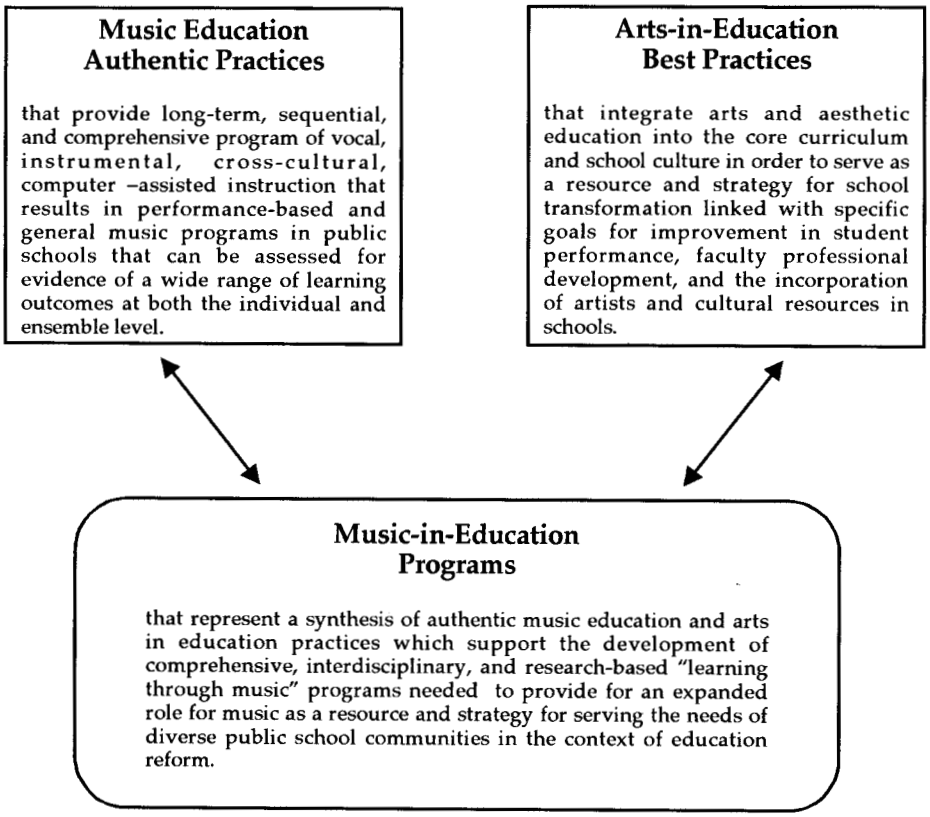
(1) Support educational outreach programs appropriate to the conservatory and its community (a new Research Center for Learning Through Music manages research, education, and outreach projects that serve the entire Greater Boston community)

(2) Transform the way music education is incorporated into conservatory training (a new Music-in-Education Program now provides teaching and artist-in-residence *guided internships* and fellowships for all Conservatory students, regardless of their major)

(3) Bring recognized musical artists into schools (professional development fellowships now support conservatory faculty willing to develop and implement a new Music-in-Education curriculum or Learning Through Music programs in public schools)

(4) Create a network of Partnership School Programs (diverse kinds of Learning Through Music school programs now exist in Boston, Cambridge, Nahant, and Lynn school districts and, most extensively, at the Conservatory Lab Charter School which opened in September, 1999.)

(5) Publish findings and disseminate practices (a new professional journal, public and invitational conferences, publications in print and electronic media, and planning for a new Music-in-Education National Consortium all serve to publish and disseminate the work of New England Conservatory and other arts in education programs and their particular attention to music and learning).



Music-In-Education Programs are formed as a synthesis of authentic practices from music education and best practices from arts and education programs.

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Violin instruction available to all students fosters standards for individual excellence in public schools. The violin program at the Conservatory Lab Charter School (a public school which admits students by lottery and not by audition) requires all students to study violin and achieve high standards of fine motor skills, home practice, the ability to concentrate and memorize, and evidence for social, emotional, aesthetic, cognitive, and musical development through music.

THE IMPACT OF A RESEARCH AND PROGRAM DEVELOPMENT FOCUS AT NEW ENGLAND CONSERVATORY

As a result of the Research Center's initiatives, many changes have occurred at New England Conservatory. NEC students will benefit from the availability of curricular options that provide a synthesis of artistic training with substantive teaching experiences and challenging scholarly pursuits. Faculty members now benefit from greater participation in the design and implementation of the new music education curriculum and from direct involvement in community service projects and school partnerships programs.

Equally important, public school students are benefiting from Learning Through Music programs.

In Learning Through Music programs, New England Conservatory faculty members work with classroom teachers to ensure that Learning Through Music projects are implemented both in music classes and in academic classroom instruction. These programs also combine musical and learning technology resources that support electronic student portfolio assessment systems that store data and student work for analysis. Research conducted at the school sites will include detailed evaluation of how specific musical abilities associate positively with specific dimensions of academic skill achievement and social/emotional development. Sustainability of programs in the future will depend on how parents and others participate in Learning Through Music school communities.

THE QUESTION OF INTEGRITY

Samuel Hope reminds us in the following article that many of the challenges to the success of comprehensive, interdisciplinary music programs revolve around issues of integrity.

One consideration of integrity involves authenticity. If a conservatory supports the implementation of Learning Through

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Creating opera in schools is one way to foster interdisciplinary learning through music. At the Conservatory Lab Charter School setting the text of an original or traditional fairy tale to music facilitates memorization of the play and challenges all students to add expressive elements to the story through music.

Music programs, it will be because these programs sustain the highest standards of an authentic musical education. Establishing standards for the integration of music into the elementary school curriculum, however, requires that teachers and music educators work together to determine what fundamental concepts can be shared between music and other academic disciplines. They then create new interdisciplinary curriculum and evaluation practices that make these connections productive for young children's learning.

The issue of authenticity in conservatory supported Learning Through Music programs also requires a strong presence of musical artists in schools. When children listen to music in the school, they also engage in discourse with musicians who perform the music. As illustrated here, children at the Conservatory Lab Charter School meet in weekly assemblies in which they interact with artists in listening, discussing, and reflection on musical works as part of the Learning Through Music curriculum.

According to Samuel Hope, to design Learning Through Music Programs with integrity requires that we make consistent distinctions among musical learning processes and in the contexts in which they take place. Learning through Music *listening* experiences should never be confused with what can be expected from learning through musical *performance* or *composing* activities. The context of *learning about music* or *learning with music* (through the process of reflective writing or guided inquiry, for example) should never be confused with what can be achieved only through direct musical experience.

Composer Philip Glass (joined by NEC graduate student countertenor Geoffrey Scott and conductor Beatrice Jona Affron of the Boston Lyric Opera) explains his compositional choices for his opera Akhnaten to the Conservatory Lab Charter School children who have learned to sing a part of an aria from the opera and who are studying heiroglyphics.

The issues that Hope raises further the debate about the role of music taking shape in contemporary educational policy. If the promise of new music in education practices is to hold sway with musicians, researchers, and school policy makers, we cannot advocate for the value of music in interdisciplinary education by simply providing philosophical stances, as Plato did in his *Republic*, when he states

> *I would teach children music, physics, and philosophy; but most importantly music, for in the patterns of music and all the arts are the keys to learning.*

Instead, we must establish school programs that show how the premise of Learning Through Music can be grounded in contemporary educational practice and its success determined by rigorous, ongoing evaluation.

Only then will we be able to convince skeptics of music's expanded role in education and answer with new conviction the challenge raised many centuries ago by Aristotle:

> *What we must first seek to answer is whether music is to be placed in education or not, and what power it has of the three we raised questions about— whether as education, play or pastime.* ¶

Children attend closely to Philip Glass and other visiting artists in weekly Learning Through Music assemblies at the Conservatory Lab Charter School.

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INTEGRITY IN INTEGRATIVE APPROACHES TO MUSIC PROGRAMS

by

SAMUEL HOPE

Over the past five years, professional musicians and music teachers have come to a new level of understanding about their strategic position with respect to the future of music. This understanding has developed from both personal experience and general observation. It is also based on growing sophistication about the extent to which music study and music-making, as dedicated musicians understand them, are valued in a society that fragments culturally by the hour. In short, those serious about doing music and teaching it understand now more than ever that the future of music depends on leadership emanating from knowledge and skills in the field. Individuals and groups with other fundamental agendas and expertise are critically important to any musical effort; however, they cannot lead in terms of music itself. The Learning Through Music program of the New England Conservatory is one manifestation of new energy being brought by musicians to shape the future of the field. This program is based on the fact that the relationship of music to education is multifaceted. There is nothing new in saying that music and education have a variety of relationships, but there is something new in attempting to address and integrate several of these relationships institutionally, in K-12 education, while retaining the integrity of each. Specialist K-12 teacher preparation, school-based internships for performance students, and professional development associated with teaching the young and introducing them to the breadth of what music can do, all can be nurtured and connected in this new program.

For decades, oceans of ink have carried various messages about the values of music education. Simply stated, the principal theses have been: music is a discipline worthy of study in and of itself; music is the basis for connections with other studies in the humanities, sciences, and social sciences; and music is a fun thing produced for your pleasure by musicians and organizations that are also interesting and fun to know. In short, these approaches focus on music as something we learn to do, something we learn to talk about, and something we learn to pay for and enjoy. In recent years, scientific findings and promotional enterprises have produced a fourth primary purpose: music is something that develops us — our brains and minds, our emotional understanding, our social orientation.[1]

The Learning Through Music project starts with the premise that all of these purposes and variations are valid, a conclusion verified by reason, experience, and experiment. However, each purpose, when pursued as a focus of the connection between music and learning, produces different results. Such a statement would not be worth making except for the fact that for at least 35 years, partisans of the various points of view have promulgated images of equivalency that have no basis in reason or fact. One example is pretending that attending a children's concert or experiencing a short-term artist residency is better than, equivalent to, or an adequate replacement for regular, sequential, curriculum-based programs led by qualified music teachers. Such substitutions are divisive on many levels. They produce conflict between presenting and educational institutions and interests on an issue where there should be the deepest cooperation. The failure of such substitutions is one of the major forces energizing musicians to take the policy lead once again. Individuals with professional musical credentials are in the best place to understand the similarities and distinctions among various educational purposes for

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music. They have the depth of understanding that enables the deployment of successful programs based on these purposes, both singly and in various groupings.

In moving down this road, it is important to consider a critical fact about simple and complex combinations, especially integration which connotes blending and synthesis. Unless there are some distinctions among things, they cannot be combined or integrated. In other words, if there are no distinctions, then combination and integration have happened already. Therefore, a key to integrity within programs that combine and integrate is being clear about distinctions and working with them honestly in terms of what these distinctions mean for student achievement. As we have noted, it is counterproductive to pretend that the learning through music gained by listening to a performance is the same as that gained by learning to play an instrument. Each of these two functions can support each other, and each can be pursued with educational integrity, both separately and in various integrations. However, to equate experience with study creates a falsity that requires ever-escalating mendacity to defend. The same is true with talking about musical experiences or using music to teach other disciplines. Verbal expression about musical stimuli and connections to other disciplines and ideas are all possible without ever learning music itself. Clearly, one may learn a great deal about music or learn to enjoy music at a high level without ever learning music. As scientific discoveries unveil the connections between music and the brain, we will learn more about which kinds of connections between music and learning produce which kinds of mind/brain development. Most musicians' experience tells them that music itself is a rigorous developer of musical and other mental capacities that do not come from any other kind of study. But in the present age, the word of musicians is not enough. Only science seems to be able to develop credible positions on these issues and science is beavering away, intrigued by musical phenomena and increasingly respectful of their powers.[2]

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Students at the Johnson Elementary School in Nahant were enraptured by the experience of sitting amidst an orchestra rehearsal in New England Conservatory's Jordan Hall.

When thinking about issues of integrity and making combinations and integrations, it is valuable to examine three of the levels at which lessons are taught. First, as far as the specific lesson is concerned, what knowledge and skills did the student acquire in a particular subject during a particular hour of study? Second, what lesson about the discipline is taught by the nature of the curriculum as a whole? For example, what knowledge and skills do a series of lessons over a year provide? Third, what are the background lessons being taught? For example, if learning math requires regular study with homework and delineated expectations for advancing achievement, while music requires only sharing feelings about favorite songs, what is the impression left about the value of music as a basic connection with either learning or the work of the world? What is the lesson about music as a mental or intellectual discipline? Given the critical connection between the answers to these questions and public valuing of music and music study, *what is done and how various purposes are combined* are critical matters that continue to require the deepest thought and the most careful application. Without such care, it is possible to be perceived as doing wonderful things for music and learning, while actually damaging the way music is valued in society as a whole. Depending on how it is used, assessment can promote or prevent such damage.

One of the most serious issues to be faced is the long-standing myth that only those who are talented and oriented toward a professional career in music can benefit from learning to do music itself. At its base, this is a ludicrous proposition. First, music is not the only field of endeavor where certain individuals exhibit outstanding talent and career direction early in their lives. One almost never hears that learning math itself is only important for those who wish to become professional mathematicians. It is regrettable when nonmusicians make this argument about music; it is tragic when musicians do so, because when they do, the background lesson they are reinforcing is that music as a discipline in and of itself does not have parity with other disciplines as a mode of thought and action.

As the Learning Through Music project seeks to make distinctions, combinations, and integrations among lessons *in* music,

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Musical curiosity is fostered through attendance at musical events where elementary school children can meet a pen-pal from the New England Conservatory Symphony Orchestra.

lessons *about* music, lessons *with* music, and lessons *for* music, it may find the following series of questions useful in clarifying the inevitable complexities it will face in the search for educational integrity as curricular and program development proceed[3]:

1. What subject matter, techniques, technologies, disciplines, or issues are to be addressed in the specific lesson, curriculum, or program?

2. What content, methods, and perspectives will be used to consider the subject matter, techniques, technologies, disciplines, or issues to be addressed; and, are the content methods and perspectives consistent with and expected to produce learning consistent with the goals and objectives of the lesson, curriculum, or program?

3. What are the expectations regarding breadth and depth, either across objectives or within them?

4. What are the expectations regarding problem-setting and problem-solving in music; in other disciplines?

5. What are the aspirations and expectations for specific artistic, intellectual, scientific, or other disciplinary engagement?

6. What specifically are students expected to know and be able to do upon completion, and how can we honestly and forthrightly assess these achievements in terms of what is learned in, about, with, and for music? In, about, with, and for other disciplines?

7. How can we be sure that our answers are grounded in artistic and educational substance rather than public relations or funding urgencies?

These questions are rather simple and without "correct" answers — as they must be — if they are to broadly applicable. But asking them and answering them with precision lead to clarity of purpose and avoid illusions about projections for accomplishment. They can be particularly useful in illuminating delusions that claim one agenda will produce the results of another. They can produce distinctions that enable thoughtful combinations of purposes and lessons, curricula, and overall programs. For example, in a sequence of lessons involving music and math, the focus on Day Five might be teaching math with music, with no intent to teach music itself. On Day Six, the priority could be reversed. On Day Seven, work in math and work in music could be done together. In order for this kind of integrity to be assured, it is necessary to develop deep understanding of the substance of each discipline and each learning goal, so that one can know when substance is being developed in one field or both or several, with a high degree of accuracy. It is wonderful that music can be the subject of study in and through so many other fields. For example, writing a term paper about the life of Beethoven is essentially a humanities project about a musical subject. Learning to count by adding up the number of people in a picture of an orchestra is focused on math skills, not musical skills. These and similar examples are worthwhile and can have integrity as long as they are not presented as the study of music, or to be rigorously fair, as music education.

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Top: Public school children performing music with movement express their joy of music at Boston Music Education Collaborative's Spring Festival at New England Conservatory.

Bottom: A comprehensive recorder program challenges students to perform, memorize, read, and reflect on a wide range of music as these students in Martha Watson's recorder ensemble at the Beethoven Elementary School demonstrate at the Boston Music Education Collaborative's Spring Festival at New England Conservatory.

The Learning Through Music project seems already well aware of the need to make these kinds of distinctions as a basis for bringing the best qualities of all types of learning associated with music into various productive mixtures and balances that can be worked on and worked with in a spirit of honesty about what each does and does not do for students, and for the more general development of certain kinds of musical understanding. Centered in Boston, joined with similar efforts around the country, and imbued with artistic and academic integrity from a long and honorable tradition, Learning Through Music Programs can indeed produce new insights on music study and its relationship to general education. The leadership of musicians, whatever they do in the musical world, will be essential to assure the critical connection between learning music itself and learning through music. Only those who know how music works can truly put music to work in the service of learning in ways that build musical knowledge and skills. ¶

[1] An overview of scientific work will be published in *The Journal of Aesthetic Education*, Vol. 34, Nos. 3/ 4, Fall/Winter 2000. Ellen Winner and Lois Hetland are Guest Editors. An analysis of purposes for arts education may be found in "For You, Dear — Anything! Part 1, *Arts Education Policy Review*, Vol. 100, No. 4; March/April 1999, especially pages 1-10.

[2] Music instruction for children has received a recent boost because of heavy reporting of scientific studies linking music study to numerous benefits. "The Mozart Effect" has become a buzz phrase. Scientific-sounding evidence, no matter how tenuous or over-promoted, trumps other kinds of evidence in a society seeking simple cause and effect answers to complex issues.

[3] Variations of these questions are regularly asked in evaluations conducted by the National Association of Schools of Music.