**A FOCUSED RESEARCH AGENDA ON MUSIC'S ROLE IN INTEGRATED LEARNING THROUGH OPERA IS NOW THE MOST IMPORTANT STEP TOWARD UNDERSTANDING THE UNDERLYING COMPONENTS OF INTERDISCIPLINARY LEARNING THAT MAY BE UNIQUELY PRESENT IN OPERA-MAKING PROGRAMS IN SCHOOLS.**

understand that artistic process in opera — storytelling, speaking, singing, composing, movement, etc.—draws on a plurality of 'intelligences' as defined by, but not limited to, Howard Gardner's theory of multiple intelligences (i.e., using linguistic, musical, body-kinesthetic, visual-spatial, logical-mathematical, interpersonal, intrapersonal skills).

Thus, opera functions as a sensory-rich, multiple media learning environment that results in long-term, highly detailed memory and reflective understanding of the elements of the creative learning process, the aesthetic impact of culminating opera performance events, and the critical judgments concerning the meaning of the opera itself and its connections to various aspects of the school curriculum from personal, class, and community perspectives.

### 10. UNDERSTANDING THE CONTRIBUTION OF ARTISTIC PROCESS TO COGNITIVE DEVELOPMENT

Teachers, artists, and researchers report that during opera residencies students show an increased propensity to acquire and express meaning through a particular combination of processes indigenous to, but not limited to, artistic process.

Through the design, composition, and performance aspects of opera-making, students learn to see and hear with increased acuity, use inquiry methods to find and analyze problems, invent and improvise ways to discover and express solutions to problems, demonstrate interpretive understanding of new knowledge through performance, and reflect on the meaning-making and learning that occurred throughout an entire experience.

Thus, more traditional measures of cognitive development such as attention, discrimination, building memory, pattern recognition, perception of figure-ground relationships, closure, association, etc. can all be integrated through the basic auditory, visual, and motor processing that occurs in opera residencies. Because of the highly dense and simultaneous manner of learning and experience in opera, it is believed that these cognitive processes can later be unpacked in application to problem solving in other areas of study in schools, including other arts or academic subjects or in terms of social and personal development.

Although participation in the OMA program, like many other arts-integration projects in the US, can be linked with academic success on standardized tests, I believe the research agenda should now be focused on the relationship between specific components of creating opera programs that predict academic achievement. Although observers of the process of creating opera in the OMA program comment on the empowerment of the individual through the "create and produce" activities of the opera program, there is little systemic assessment data collected that can be used as statistical evidence of specific music or music-integrated learning.

After 1,600 residencies I can describe first hand that individual students have been positively affected by their participation in creating opera residencies. The more important question is *why* these outcomes have occurred. From my point of view, a focused research agenda on music's role in integrated learning through opera is now the most important step toward understanding the underlying components of interdisciplinary learning that may be uniquely present in opera-making programs in schools. The challenge to the Music-in-Education National Consortium and its Research Center will be to investigate the hypothesized ten factors of opera-making offered here, find outcome variables that indicate the quality of each factor, and test the potency of these factors in relation to their impact on learning in other areas of the curriculum—as indicated by assessments of academic achievement more authentic than the paper and pencil, multiple choice or short answer tests that have been used so far.

It is thus my fond hope that when classroom teachers in the future describe how the opera process has positively affected the learning and study habits of their students, researchers will be able to place with confidence these anecdotes into the context of rigorously determined statistical evidence indicating the relative effectiveness of the ten factors of opera-making on music-integrated learning. ¶

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# LISTENING TO EVALUATION

*by*

DAVID REIDER

*This article was written to provide a framework for understanding the focus of assessment process and evaluation methods in the MIENC and in its formation of the LLSN project. "Advancing Music in Changing Times" will demand an evolving role of research and assessment in schools that plan to place music at the center of the public school curriculum.*

### HOW EVALUATION IN THE MIENC CHARACTERIZES MANY OF THE LABORATORY SCHOOL NETWORK OBJECTIVES

The Music-in-Education National Consortium devotes a great deal of thought and effort toward evaluation, which, within the many contexts the group operates, may refer to several meanings. First, the group as a whole and each of its core member sites practice different forms of traditional educational evaluation, drawing from many experiences, methods, and individuals. Second, the Consortium's *modus operandi* of self-reflection and active process analysis allows its project directors to move through complex organizational, intellectual, and managerial issues toward resolution. Third, several MIENC-supported design components of learning-through-music and arts-integration are based on evaluation principles. These components, such as the RUBRICS CUBE and the Digital Portfolio System, are methods to collectively evaluate activities and processes. Finally, the overall project operating goals, such as creating, piloting, and *evaluating* each of the five primary MIENC goals,[1] strongly emphasize measurement (MIENC, 2004). With an organization intentionally placing evaluation as a lead principle, it follows that this tactic should guide the evolution of the Learning Laboratory School Network.

### EVALUATION AS AN ENTERPRISE

Diverse and complex organizations (arts organizations, institutions of higher education, K12 schools), unified by their focus on music as a strategy for school improvement, will provide a rich testbed for the MIENC to enact different kinds of evaluation methods. These varied observations and evaluation practices will contribute to the ongoing re-defining of what evaluation means, not solely within the context of music or music-in-education (MIE), but for education in general.

Traditionally stated, evaluation is a systematic and objective examination of a planned and ongoing project or activity. Evaluations commonly include formative and summative judgments as to whether or not individual aspects are successful and so help identify ways in which to improve activities. While the MIENC provides summary evaluation to its funders, this organization depends on ongoing formative assessments to guide the evolution of its work. The project directors are aware that all too often formal evaluations are carried out at the end or even after the project has ended, resulting only in a final report, and are thus often of little use to the actual endeavor. These summative documents seek to determine the value of a project or intervention and are used to make decisions about adopting or continuing the work. Whereas summative reports help us decide what to do with a product or idea that already exists (Beyer, 1995), formative assessments based on action research methodologies conversely are conducted from the onset and all along the way, providing an ongoing feedback loop between evaluator and project participants. This allows for improvements to inform and thus help the evolving project.

DAVID REIDER, A FACULTY MEMBER OF THE SCHOOL OF EDUCATION AT UNIVERSITY OF MASSACHUSETTS IN BOSTON AND FOUNDER OF EDUCATION DESIGN, SERVES AS BOTH A RESEARCH ASSOCIATE AND AN EVALUATOR FOR NEC'S MUSIC-IN-EDUCATION NATIONAL CONSORTIUM PROJECTS.

Another way to look at evaluation, or the measurement of intervention efficacy, is to understand the optimal relationship between the two strands of process and outcome evaluation. A long legacy of social science and educational research has focused on outcome evaluation—that is, demonstrating a given treatment's effects without including rich description or sufficient contextual analysis of the processes involved in the program needed to understand how and why the effect was achieved. Process evaluation, conversely, attempts to understand more about the context that suggests how and why a given effect is produced (Judd, 1987). The site directors of the MIENC have taken the perspective that understanding *how* and *why* changes in teaching and learning occurred from both an outcome and process perspective will better serve the widespread integration and eventual adoption of new educational approaches, such as music-in-education programs and design principles.

## AUTHENTIC PERFORMANCE ASSESSMENT AS A CRITICAL COMPONENT OF THE TEACHING AND LEARNING PROCESS

As the field broadens to include more than 22 diverse methodologies (Stufflebeam, 2001), evaluation itself is merging with teaching and learning practices in the classroom, in pre-service and teacher professional development programs. For the MIENC, performance-based assessments and their close cousin *authentic assessments*[2] are important strategies of documenting and evaluating evidence of teachers' *and* students' learning because of their focus on behavioral changes and actual products developed over time (Gartenlaub, 1998). These measures provide a necessary complement to standardized assessments (e.g. fill-in and short-answer tests) and permit for the breadth of different learning styles and differing learning outcomes found in schools.

The MIENC need for authentic assessments in music and music-integrated teaching and learning lies in the belief that: (1) assessment tasks should involve activities that are valued in their own right; (2) assessments should model curriculum innovation and reform; (3) assessments should contribute to instructional improvement by providing instructional targets that are aligned with good instructional activities; (4) assessments should provide a mechanism for measuring professional development outcomes; and (5) assessments should lead to improved learning by engaging students in meaningful activities that are intrinsically motivating (Linn & Baker, 1996).

The Consortium believes in developing and using multiple authentic methods of evaluation because teacher and student learning in and through music is demonstrated through a very rich and complex panoply of skills, exchanges, and experiences that needs to be documented and assessed as part of an ongoing action research process in schools. Music and music-integrated learning also provides a basis from which to document and assess higher-order thinking skills[3] and social-emotional development- in schools. Higher order thinking, while difficult to define precisely, is recognizable when evaluated in the context of rich documentation of learning that is complex, that requires multiple solutions, that involves nuanced judgments and interpretations, that involves finding meaning, and that requires *self-regulation* of the thinking process, or metacognitive actions (Resnick, 1987).

## ARTS LEARNING REQUIRES COMPLEX EVALUATION

When taught competently, the arts teach nonalgorithmic thinking. They are complex; they beg for and provide multiple solutions. They demand nuanced judgments and interpretations; they ask for meaning and require instructors and students to regularly think about their own thinking processes. Following this logic, it is not difficult to connect arts learning and the attainment of higher-order skills.

Given that arts learning entails complex cognitive processes and rich social-emotional engagement, an assessment system of matching complexity would be appropriate. Schools that value the arts know the criteria that distinguish authentic assessments from the narrow mode of content testing on multiple choice tests. These schools support instructional activities matched to standards but valued in their own right, engaging activities that also become professional development that transforms classroom teaching. These are the same criteria that define a high quality learning environment.

**THE SITE DIRECTORS OF THE MIENC HAVE TAKEN THE PERSPECTIVE THAT UNDERSTANDING HOW AND WHY CHANGES IN TEACHING AND LEARNING OCCURRED FROM BOTH AN OUTCOME AND PROCESS PERSPECTIVE WILL BETTER SERVE THE WIDESPREAD INTEGRATION AND EVENTUAL ADOPTION OF NEW EDUCATIONAL APPROACHES, SUCH AS MUSIC-IN-EDUCATION PROGRAMS AND DESIGN PRINCIPLES.**

Evaluation then becomes *how* a teacher learns to improve curriculum design, as well as how his/her students are performing; evaluation is not *something done* to the teacher. Evaluation is a measure of contribution to a school culture of inquiry,



*Third-graders participating in the Boston Symphony Orchestra's Connections for Literacy project enthusiastically respond to learning how rhythm and chant were a necessary component of African agricultural practices. In their music classroom, these students are learning vocabulary, history, reading, and of course, song.*

documentation, evidence and reflection. The stronger and more comprehensive the teacher's documentation and assessment practice skills, the more value is added to the school community (Vaishnov, 2005).

To envision evaluation as an essential component of learning, let's take an example of a music student who regularly engages in formative evaluation (*using higher order thinking processes*) whenever she documents or reflects on her practice or rehearsal sessions, identifying performance problems in the music and adjusting fingering or intonation deficiencies throughout the preparation for musical performance. In this process of self-assessment she regularly compares results, or how the phrase is currently played, with objectives, or how the teacher or student wishes the phrase to be played (*finding meaning*), and so makes subtle, but consistent improvements (*nuanced judgments and interpretations*). Improvements and advances are made as needed, sometimes leading to an unexpected leap in skill (*non-algorithmic or non-linear*). The sequences of learning that incorporate ongoing assessment over time demand time on task that moves the student from one developmental level to the next, each stage becoming increasingly complex in the application of discoveries made in the rehearsal process that transform the quality of the final performance (Fineberg, 2004). It is this continual self-reflection and correction loop that helps the student inch toward her objective through any number of problem finding and problem solving strategies (*multiple solutions*).

Students who are comfortable and familiar with this kind of learning may readily *transfer* this reflective concept to other domains, such as learning mathematics or a foreign language. Many studies now suggest this idea of transfer (Bransford, et al.; Perkins ) becomes more likely to occur with a curriculum that may pose interdisciplinary problems that are supported by ' teaching for transfer ' strategies (Perkins, Catterall, 2002).

In the case of the student described above, understanding how to examine one's own learning process (*metacognition*) is a valuable tool for extending one's growth as a learner in and through music. The documentation and assessment of higher-order thinking skills trains teachers and students to use *evaluation* to learn. For precisely this reason, the music-in-education framework embraces inquiry, documentation, reflection and evaluation as a central tenet of its Learning Laboratory School Network. The Consortium plans to support authentic assessments throughout the network to capture students' work, diagnose learning, and improve student outcomes.

## EVALUATION AS LEARNING IN THE MIENC

The MIENC aims to identify, implement, support and evaluate programs, ideas, and trends in Music-in-Education programs that will support the evolving role of music in public school communities. The Consortium's members convene regularly to discuss projects, processes, or ideas, engaging in a dynamic discourse that seeks and invites input from all members around particular issues or problems. The group collectively evaluates solutions or actions to be taken, and members proceed with specific tasks. The evaluation process is central to the group's mission and is even identified as one of their ten guiding principles. [4]

In the MIENC we find several different types of evaluation practices. The Consortium is able to draw on the knowledge and experience of its many project leaders who represent collectively the perspective of arts organizations (MOG), Arts Education Partnerships in Schools (CAPE), schools of education degree programs (FAU), music education teacher preparation programs (GSU), training for performance majors (NEC, GSU, Mannes), and K-12 educational reform movements (A+ Schools). Georgia State University's Sound Learning Model[5] and their music education/music-in-education guided internship program, for example, requires very specific evaluation designs, both of which will be very useful to K-12 schools whose music-in-education activities include community partnerships and guided internship programs. CAPE conducts action research program evaluations focusing on increasing the capacity of its teaching artists as action researchers to serve the educational objectives of schools through local partnerships, while some NEC projects like the BSO Connections for Literacy or Music Ventures or the Learning Through Music Project in Minneapolis examine curriculum-specific learning outcomes.

Over the past four years, the MIENC programs have continued to work together as their conceptions of research-based program development have evolved. Through an informal but acknowledged process of reflection and self-evaluation, the group is now focused on creating a national network of schools dedicated to a comprehensive examination of factors that effect the success of music-in-education programs in public school communities. As this network is forming, issues of inquiry, documentation, evidence and reflection as the basis for integrating the arts into the curriculum are paramount. The agreement to establish this network as an information sharing organization is a radical departure from the ethos of schools that see evaluation and joint research as a threat to their mode of operation or their standing in their local community. On the contrary, Learning Laboratory Schools understand that the processes of consortial action and productive collaboration and evaluation is vital to understanding how the effort to integrate music and the arts into the curriculum can succeed in this era of accountability and school reform.

## THE RUBRICS CUBE SYSTEM: A MODEL FOR CONSORTIUM-WIDE EVALUATION

In the MIENC the program design components of learning-through-music and arts-integration are based on evaluation principles as expressed above in the RUBRICS CUBE System, a unique three-dimensional matrix that organizes an individual's or institution's development along specific criteria. The three axes of the cube represent: (x) four points of growth along an Action Research Cycle; (y) seven kinds of outcomes, or one designation for each of the seven cubes; and (z) different types of institutions (Arts Organization, Higher Education, K12 School).[6] As a structure for documenting and assessing growth, the RUBRICS CUBE is an evaluation instrument, an organizational tool with which to gather, examine, compare, and reflect upon input data. The Digital Portfolio System is a web-based electronic portfolio environment where users will archive personal or institutional data in RUBRICS CUBE structures. The tool will allow institutions not only to share outcome data, but actual artifacts such as lesson plans, classroom videos, and "lessons learned comments," assisting both novice and experienced practitioners. Graduates of pre-service teaching programs will be able to take their electronic portfolios of academic and practicum artifacts, methodically organized within the RUBRICS CUBE, and make a stand-alone copy, essentially providing a dynamic resumé for job interviews. Arts Organizations will be able to assess the effectiveness of teaching artist action research responsibilities in school settings. Schools will be able to construct a comprehensive tour of their school curriculum and assessment practices, as well as professional development outcomes and their relationship to school improvement plans. The Digital Portfolio provides the mechanism and space in which to evaluate personal or institutional growth.

Finally, evaluation of the MIENC as a whole is central to the overall project evaluation that includes the creating, piloting, and evaluating each of the five primary MIENC goals: (1) electronic portfolio assessment systems, (2) a professional development exchange program, (3) an action research network of MIE laboratory school programs, (4) a central MIENC communications website, and (5) MIENC "working conferences." With the role of evaluation as a cornerstone of design and practice in the Consortium, the group's Learning Laboratory School Network will become the central focus of the efficacy and value of music in public school communities.

## WHAT EVALUATION WILL MEAN TO THE LLSN

The Learning Laboratory Schools will help teachers and musicians build their capacity as reflective practitioners through a *scholarship of teaching* that involves documenting, analyzing, and sharing their own work and evidence of student learning. As research centers, these schools will use complex assessments throughout each part of the curriculum. School Improvement Plans will call for the collaboration between music teachers and classroom teachers to develop teaching and assessment practices that support music learning and music integration strategies across the curriculum. The MIENC is committed to establishing and supporting the school network to:

> develop common data collection and evaluation instruments, common database structures, common rubrics, common pre-service and in-service professional development standards, common learning environment contexts for studies, [and] common digital portfolio assessment management systems (MIENC, 2004).

To see this happen, schools must re-conceptualize evaluation practices as closer to those described above, where evaluation is a central part of the curriculum, perhaps in the context of teachers-as-action-researchers. What exactly does this mean? In action research, teachers engage in reflection based on information they have systematically gathered themselves; the research is carried out through dialogue with colleagues within and outside the school; and their pupils (or other target groups of practitioners) are used as an important source of information (Ponte, 2002). As such, teachers must proactively collect student data as evidence of student learning, and do the same with professional development data for themselves. And as researchers, the teachers must collect the data methodically and reliably. Administrators must encourage collaboration and enable the sharing of student data among teachers and among LLSN schools. The LLSN design builds the research agenda into the School Improvement Plan, which includes a profile of the school in terms of assessment and evaluation plans and procedures for data collection and information sharing mapped to themes common across the entire school network.

**THE LEARNING LABORATORY SCHOOLS WILL HELP TEACHERS AND MUSICIANS BUILD THEIR CAPACITY AS REFLECTIVE PRACTITIONERS THROUGH A SCHOLARSHIP OF TEACHING THAT INVOLVES DOCUMENTING, ANALYZING, AND SHARING THEIR OWN WORK AND EVIDENCE OF STUDENT LEARNING.**



*Chelsea, MA music instructor Kate Smallidge relates fundamental aspects of folk song musical form to English composition frameworks used in the students' third-grade classroom.The links between musical composition—form, shape, tension, and density—each correlate to standard literacy measures, allowing researchers to investigate how learning in the music domain affects learning in other domains (and vice-versa).*

Finally, these schools will use MIENC digital portfolio systems for gathering, assessing, and sharing curricular design work, rich documentation and assessment of student work, test scores, and other forms of evidence of school improvement and achievement. This online system will provide a comprehensive data set of student assessments, curriculum assessments, and professional development artifacts cataloguing authentic work. By sharing this information across the LLSN community, participants will learn from colleagues in other sites, and researchers will have a wide collection of unique and reliable data from which to investigate some of the fundamental questions about arts, music, and music-in-education learning.

LLSN schools are education centers that value the hard work of complex assessment and evaluation in a different way than merely as an accountability measure. They are dedicated to being *participants* in the data collection and analysis, not just the subjects. These schools realize that research is *always* going on and that to be a research-based school is not just a matter of conforming to a specific model, but of taking part in a research community. The LLSN schools are not alone as research-based centers; they work with partners in academic research, partners in arts organization, and most importantly, with partners in all other LLSN schools.

The research and evaluation efforts from individual LLSN schools must be distributed across the entire LLSN collection. Only then will the data reflect the impact of the school network model. For this reason more than any other, each school must adopt an ethos of an action research center that promises transformational learning.

Certainly this may seem a tall order for many schools, but we must realize that the change will occur gradually and in many schools the pieces are already in place. Since LLSN schools are partnered with a researcher, guided interns and an arts organization or institution of higher education, the support for evolution is there.

## A CASE IN POINT: BSO CONNECTIONS MUSIC LITERACY PROJECT

I have been very fortunate to work in several school districts as program evaluator for music-in-education projects. Some of these schools may be LLSN candidates. The Boston Symphony Orchestra is supporting a 3rd and 4th grade music and literacy program in four Boston area school districts. In its first year, the program is already showing promise of how classroom teachers collaborating with music teachers can produce enhanced curriculum that helps students thrive in overall learning.

Each of the four districts has implemented the program differently. One music teacher commented on how preparing a musical performance based on the history of the Star Spangled Banner taught her students (over 50% non-native English speakers) important language and speaking skills, while the art teacher and the classroom teacher reported increased student interest (compared to previous years) in the historical component.

In another case, a classroom of 4th graders wrote a play about Beethoven after studying his life, history, and some of his compositions. The music teacher guided student listening and musical inquiry while the classroom teacher and the school librarian guided the writing activities.

In a third school, the music teacher and the classroom teacher, collaborating on a unit about slavery, brought into the mix slave songs, African folk songs, and social studies lessons about slavery and the Underground Railroad. For nearly four weeks, students encountered these themes in both the classroom and the music room.

There are many more examples of curriculum integration to cite, but the primary lesson we've learned so far is that the sharing has appeared to be much easier than first anticipated, and more importantly, that students seem to be learning certain skills and concepts in a deeper way than previously. None of these classroom teachers are musically trained, and few, if any, of the music teachers are certified to teach language arts or social studies. Yet, in conferences together, learning shared across disciplines became facilitated through the sharing of documentation.

After the first semester, an important question raised by teachers was how to effectively assess student learning. In each of these urban districts MCAS (Massachusetts state standardized test administered at 4th, 8th, 10th and 11th grades) guides all curriculum and improvement goals. That becomes the drive *and* the measure for all schoolwork and student outcomes. This certainly is not unique to these four districts in the context of our nation's current educational climate. However, rather than *fearing* the "big, bad test," each of the participating teachers perceive this project as an asset and opportunity. They found ways to connect arts curriculum with state standards and believe that activities that increase interest and attention in learning will most probably result in better test performance.

The fact that in a short while we have been able to get multiple districts to demonstrate that collaboration between music teachers and classroom teachers can produce positive learning results has given everyone confidence to move toward the next steps: (1) to develop teaching and assessment practices that support music learning and music integration strategies across the curriculum, which most likely will be done with support from myself and the MIENC; and (2) to institutionalize these transformations, involving additional teachers and grade levels.

The instructors are already re-evaluating their own approaches to teaching. What we need now is to develop a reliable method with which to measure the varied student learning, archive those measures, and catalogue the artifacts so others can learn from this wonderful work. With support from the Consortium, the Digital Portfolio System will be an ideal solution. The activities these teachers have created seem to be valued on their own, have provided high quality instructional goals, and have been motivating and meaningful for the student. Additionally, site-based teacher collaboration, building-integrated curriculum, and project-wide (inter-district) workshops have been professional development bonuses. Whether intentionally or not, each of these teachers and sites have been constructing useful and replicable models of authentic assessments.

## TOWARD WIDER EDUCATIONAL IMPROVEMENT

The failure of the single schooling model of yesterday has shown us that plurality of ideas and educational approaches is as healthy as the number of different kinds of learners. Successes in school change have produced many new teaching and learning models, and integrating the arts is but one to consider. By connecting the strong links between arts-learning, higher-order thinking skills and authentic assessment, we hope to make a strong case for the viability of MIE as a general educational improvement tactic. The Learning Laboratory School Network will demonstrate how schools as research centers contribute to the larger objective of quality education. This demonstration will only be valid with reliable data and evaluation systems, which can be provided by the Digital Portfolio System and MIENC research partners.

The Consortium exhibits capacity for many kinds of evaluation, from group self-reflection about its own organizational direction to designing complex teacher, student, and institutional rubrics to evaluate individual schools and programs. The *Laboratory* in the title *Learning Laboratory School Network* refers to a risk-taking research-based center in which participants study new forms of learning. The multiple dimensions of evaluation should provide a robust scaffold for this network to thrive. The lessons learned promise to serve the general educational community beyond arts or music-in-education programs. ¶

[1] The proposal submitted to FIPSE states that the project goals include, "…creating, piloting, and evaluating: (1) electronic portfolio assessment systems, (2) a professional development exchange program, (3) an action research network of MIE laboratory school programs, (4) a central MIENC communications website, and (5) MIENC "working conferences."

[2] Authentic and performance assessments are very similar methods which measure actual work samples, products or behavioral changes. Authentic assessments are based on objectives selected by the student, whereas in performance assessment, a student completes or demonstrates a behavior an assessor desires to measure (Meyer, 1991).

[3] Following on the message from the SCANS (U.S. Dept. of Labor, 1991) report on workplace skills of tomorrow, The Partnership for 21st Century Skills emphasizes the need for our K-12 educational institutions to identify ways to teach higher-order thinking skills and metacognitive learning strategies (Partnership for 21st Century Skills, 2004).

[4] Principle 10 from the MIENC Prospectus states: "Diverse Assessment Strategies: We make a commitment to develop, document, and disseminate multiple assessment strategies, including new technologies, in order to illuminate the complexity and scope of teaching and learning processes, to refine definitions of quality, and to address a variety of audiences and purposes.

[5] Sound Learning is a collaboration among the school's music faculty and students, the Center for Educational Partnerships in Music, the Atlanta Symphony Orchestra, and local elementary schools. Begun in 1999, SL is a focused, intensive curricular effort designed to coordinate the resources of partnering organizations and individuals for excellence in music teaching and learning and, by extension, for cross-curricular integration.

[6] Each of the seven cubes measures development and progress within seven outcome categories: Curriculum and Program Design, Implementation, Documentation, Assessment, Professional Development, Organizational Advancement, and Contribution to the MIENC Network. (See Scripp, "Embracing the Challenges of Complexity in Music-in-Education Research" earlier in this *Journal*).



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