Arts-Based Teaching and Learning

Review of the Literature

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1. Introduction

This review of the literature on arts-based teaching and learning addressed three broad questions: (1) What are "arts-based teaching and learning" practices? (2) How are arts-based teaching and learning practices implemented? (3) What are the effects of arts-based teaching and learning practices? In answer to the first and second questions, we found that arts-based teaching and learning can be implemented in a variety of ways, according to several different models, and in a number of different settings. This report describes these models, implementation approaches, and settings.

The literature also describes an array of effects targeted and attributed to arts-based teaching and learning. Targeted effects, or outcomes, influence the model selected for implementation. To affect knowledge of the arts, for example, schools may provide instruction in visual arts, music, dance, or drama, perhaps integrating these four disciplines. To affect general learning, schools may adopt a model that integrates the arts into the general curriculum.

As for effectiveness, our third area of inquiry, the literature reports data to support the influence of arts-based teaching and learning on various aspects of learning. Researchers who have compared results across multiple independent studies have found some relationship between arts instruction and affective and cognitive skill development. Because some of these relationships are either very narrow or very broad, most conclude that research findings, especially those relating arts-based teaching and learning to academic achievement, are inconclusive. Others note that the effectiveness of arts-based teaching and learning depends upon the implementer's desired outcome and should not necessarily be judged by academic achievement test scores. In sum, various authors argue that arts-based teaching and learning should be implemented for its own sake, for its influence on motivation and interest in learning, or to improve general cognitive development.

2. Findings

Our review of the literature revealed information about arts-based teaching and learning models; effects attributed to those models; and recommendations, barriers, and facilitators for successful model implementation. We describe these findings herein and conclude with some reflections on the literature and what it tells us about arts-based teaching and learning.

2.1 Arts-Based Teaching and Learning Models

The literature describes a variety of models for implementing arts-based teaching and learning. Models focus on implementation at the level of community organizations, schools, classrooms, teachers, and special populations of learners. Educators and community organizers use various arts-based teaching and learning practices to improve outcomes for each of these target groups. Such models and practices include the following.

At the community level, arts-based teaching and learning may focus on improved outcomes for special populations or for the community as a whole. According to Project Zero, an educational research group at the Harvard Graduate School of Education, local community arts centers across the country help participants reach social and educational goals. Many of those programs reach out, in particular, to residents who are economically disadvantaged (1c). Community arts programs use arts education, for example, to teach skills that are transferable to the workplace, such as planning and self-assessment (2). Communities also develop arts programs in order to build relationships among community organizations. Arts "partnerships" may include public agencies, schools, and arts organizations (5).

Local communities can look to resource organizations for help in the development of arts-based programs and partnerships. The Community Arts Training (CAT) Institute of the St. Louis Regional Arts Commission, for example, brings artists and social service providers together to implement community arts programs designed to serve at-risk populations. The institute offers organizers training in the areas of history and ecology of arts-based community development, partnership and survival strategies, negotiation and conflict resolution, learning styles, program design and curriculum planning, fund-raising, assessment, public relations, and advocacy (3). The Center for the Study of Art and Community in Minneapolis also provides training in arts-based community development (5). The

Grammy Worksite Music Mentoring program is a national resource organization that assists in the development of local programs for students who may be struggling in high school. In conjunction with the National Mentoring Partnership, the program provides mentors who use a shared interest in music to engage and develop relationships with students at risk for academic and social failure (4).

To increase arts education statewide, South Carolina's ABC Project developed a network of the state's arts community. Members of the network included arts educators, artists, school administrators, classroom teachers, parent agencies of the ABC Project, and arts administrators. The network supported arts education through planning resources, consultation, advocacy, and information sharing across the state. The ABC Project built the network by promoting the need for arts education partnerships during ABC-sponsored meetings, in newsletters, and through outreach to the professional arts organizations (ABC).

In education, arts-based teaching and learning activities may be implemented throughout a whole school. Models include whole-school art activities, whole-school arts-based curricula, and comprehensive school reform. A whole-school art activity may focus on one project in which all the students in the school participate. One elementary school, for example, studied a George Seurat painting for 5 weeks as part of a social studies project (6).

Whole-school arts-based curricula may be used to increase arts instruction in the school or as a way to blend subjects in an interdisciplinary approach. Arts-immersed schools, for example, require all students to take classes in visual arts, drama, dance, and music (7). A whole-school model can involve school personnel, artists, and the community in the implementation of an interdisciplinary curriculum with instruction in music, dance, drama, and visual arts for all the students in the school. Such an approach blends arts instruction across media. It can also blend instruction across academic subjects (8). An arts-based school is one that integrates the arts across all curriculum areas. The literature notes school principals who have taken the leadership in converting their entire school's curriculum from traditional to arts-based teaching and learning (9).

Schools have also implemented arts-based teaching and learning as a comprehensive school reform model. The Federal Comprehensive School Reform (CSR) initiative promoted the use of research-based, whole-school strategies, rather than isolated programs, to achieve schoolwide change (10). According to the literature on arts-based school reform, the reform model not only increases and integrates arts education but also fosters instructional strategies that engage students through hands-on

activities and experiential learning opportunities (11). The New American Schools (NAS), a national nonprofit school reform resource organization, endorsed the Leonard Bernstein Center for Learning as a comprehensive school reform model. The Bernstein Center features arts instruction for its own sake, as well as the arts instruction to blend and reinforce teaching and learning across academic subjects (4).

Other implementation models focus on arts-based teaching and learning activities at the classroom level. Classroom models bring art activities to students in a regular classroom setting. An "artist-in-the classroom" or "artist-in-residence" works cooperatively with the students' regular teacher to plan and implement art or arts-based lessons (13). In one model, for example, a professional artist visited individual teachers weekly for a period of 2 years to help them integrate arts into their language arts, mathematics, science, and social studies curricula (12). ABC, a statewide project in South Carolina to increase access to arts education, also implemented an Artist-in-Residence Program model. Schools and districts contracted professional artists to assist arts educators and classroom teachers in planning, developing, and implementing standards-based arts education (ABC). Horowitz (date) described a range of artist residency models, from an artist in the classroom teaching art; "elaborated residency," in which an artist teaches both art skills and non-art skills; capacity building, in which an artist teaches the classroom teacher how to implement arts-based instruction; and co-teaching, wherein an artist and classroom teacher cooperatively plan lessons that integrate common concepts across curricula (14).

The literature also discussed team teaching models that involve a classroom teacher and the school or district's art teacher. Rather than contract a professional artist from the community, such models provide opportunities for teachers of academics and arts to link their instruction. One such model made explicit links between arts with literacy. Art and reading teachers taught the arts as different "languages" for self-expression and comprehension. Explicit instruction in the relationship between arts and literacy reportedly helped students develop cross-disciplinary thinking skills (15).

While most of the classroom models we reviewed brought arts to the academic classroom, some models bring social and cognitive activities to the arts classroom. Project Zero is studying implementation in arts-based high schools in which art teachers help students achieve positive cognitive and social outcomes (1d).

A professional development approach teaches teachers to use arts-based instructional strategies. The literature described preservice and inservice professional development activities designed to improve teaching through arts-based teaching and learning. Teacher training in arts-based instruction

was based on the premise that the arts engage all learners. Teachers learn how to use the arts to facilitate cooperative learning groups, self-directed learning, project-based learning, and self-assessment (16, 1e).

In addition to general instructional strategies, some professional development models teach specific tools and practices. The Leonard Bernstein Center for Learning, for example, developed a program for training teachers to engage their students in a specific arts-based learning process. The Bernstein process includes multiple steps of "experience, inquiry, creativity, and reflection" (17).

Professional development may also focus on technology. Teachers may be taught to use creative application software to engage students in self-directed and cooperative learning activities (16). Use of technology with the arts is particularly effective with difficult-to-engage students, according to the literature, including students with learning disabilities and attention deficit disorders (18).

Cross-disciplinary professional development helps diverse instructors learn a common language and strategies for learning, and explore the possibilities of co-teaching. Cross-disciplinary professional development models bring teachers, arts instructors, and artists together to address common strategies for differentiating instruction, stimulating multiple intelligences, and activating various parts of the brain (19). Building on shared knowledge, arts and academic teachers can more easily develop cross-disciplinary curricula and plan co-teaching activities (15).

Professional development was a key element of Arts for Academic Achievement (AAA), a 5-year partnership between the Minneapolis Public Schools and the Perpich Center for Arts Education. In this model, classroom teachers were taught to understand, implement, and advocate for raising student achievement through the arts. AAA provided staff development retreats and conferences on "the power of integrative arts education." According to the Annenberg Challenge Arts Projects, AAA staff development inspired the development of preservice teacher training in the Minneapolis area. After experiencing information on the topic from AAA, three local colleges reportedly began to offer new courses in integrative arts education for their preservice teachers (43).

Other models create arts-based learning opportunities for specific types of learners. According to Eisner (2002), arts instruction introduces flexibility to standardized education environment through which teachers can promote diversity and individuality (21c). Diverse "special populations" of students who benefit from arts-based teaching and learning include students who struggle with academics. In one program for third graders struggling with reading, artist-teachers and reading specialists combined

performing arts with instruction. They found that students who participated in this program, compared with their peers who did not participate, were better able to demonstrate comprehension of the story they performed (20).

2.2 Effects Attributed to Arts-Based Teaching and Learning

The literature attributes various effects to arts-based teaching and learning. Organizations that became involved in arts partnerships were said to experience improved climate and cooperation. Teachers participating in professional development reportedly became more creative. Arts-based teaching and learning practices raised students' interest and motivation levels and, according to some reports, improved cognitive skills for gains in academic achievement.

At the community level, arts-based teaching and learning improves relationships and, therefore, cooperation among partners. The literature reported positive effects associated with community involvement. Community arts partnerships, for example, were said to build relationships among organizations. Such relationships resulted in better cooperation and more creative problem solving (5).

Whole-school reform models that involve the community create partnerships with other organizations, as well as with parents. Partnerships increased access to resources from other organizations. Parent participation increased as parents became more involved in their child's education through arts-based school activities. Involvement in arts-based teaching and learning activities made parents more aware of the curriculum guiding the education of their children (8, 11).

Arts-based teaching and learning improves classroom and school climate. Increased attendance, student participation, communication, and flexibility associated with arts-based teaching and learning practices improve classroom climate, according to the literature. Students who participated in an artist-in-the-classroom project, for example, showed improvement in test scores, in part due to better attendance. The success of such activities, researchers noted, can vary according to the regular classroom teacher's level of interest and participation (13).

Authors reported that implementation of a whole-school arts-based curriculum increases student levels of participation. Authors linked student interest in learning with increased communication,

and attention to creativity and self-esteem (9,11). Seaman (date) found that arts-immersed schools demonstrate positive social and environmental factors, or "strong school ecologies"(7). Burton (date) observed both art-rich and "low-arts schools." He described learning in an arts-rich schools as complex, continuous, open, and flexible. In "low-arts schools," arts-based teaching and learning was described as "inconsistent and sporadic" and, therefore, less beneficial for students (14).

Arts-based instructional practices improve teacher quality. The literature asserts that teachers who implement arts-based instructional strategies achieve are more enthusiastic, do their jobs better, and develop a "higher order" of thinking. According to Eisner (2002), academic teachers who learn arts-based instruction become more artistic and creative (21b). A collaborative, interdisciplinary teaching experience provides deeper learning experiences for both teachers and students (15). Teachers who became involved in whole-school reform also became more enthusiastic about teaching (8). Teachers in high arts schools, according to Burton, are more innovative, more flexible, and more likely to participate in professional development activities (22).

Arts-based teaching increases a teacher's repertoire of engaging instructional strategies. Participating in the instruction of a blended curriculum, for example, helps teachers become more child-focused, more aware of student capacity, and better able to assess child progress (14, 11).

The literature describes both affective and cognitive benefits for students who participate in arts-based learning. In *Critical Links*, a compendium of arts education research (date), Catterall discussed relationships among affective development, cognitive development, and learning. As a learner develops cognition, according to Catterall, he develops abilities and expertise that support academic and social learning. Affective development, on the other hand, increases a learner's interest in learning and feeling of self worth which, in turn, increase his willingness to learn and apply new skills (23). Thus, affective and cognitive effects of arts-based teaching and learning are closely related. In this section of the literature we will present them separately, but in later sections we will discuss their relationship further.

2.3 Effects of Arts-Based Teaching and Learning on Affective Development

As defined by Catterall, **affective** development in this context means an increased interest in learning, self-worth, and willingness to try new things. According to the literature, arts-based teaching

promotes affective development by increasing the learner's interest, motivation, and enthusiasm for learning. Improved enthusiasm and motivation can be the result of the higher expectations for students associated with whole-school reform (8), or from specific art and academic activities that engage students, such as art and reading activities that build upon children's literature (25).

Arts-based instruction increases interest and motivation. All students, including diverse learners and those at risk for academic failure, can reportedly achieve more and are more likely to stay in school when they have a "love for learning" (17, 24). Students who struggle with school because they are not part of the dominant culture benefit from arts in education because the arts make education more equitable. According to a review of national projects, arts-based teaching broadens and increases access to education by providing multiple ways, along with representation from multiple cultures, to derive meaning from academic and social curricula. Equitable access to education motivates learners, especially those at risk for disenfranchisement (44). In *Critical Links,* Catterall noted that Howard Gardner's multiple intelligences theory supports the use of a wider range of instructional strategies than those typically found in school to motivate learners. Arts-based teaching and learning strategies are among those that appeal to multiple types of intelligence and engage multiple ways of learning (23).

Arts-based instruction increases self-esteem and willingness to try new things. As students become more engaged in learning, their attitudes toward school, and toward themselves, improve. Students with a positive attitude toward learning are more willing to try new things (27, 28). As Eisner put it (2002), the arts allow people to "invent and reinvent themselves" (21c). As attitudes improve along with a willingness to experiment, arts-based learning activities give students skills with which they can "explore uncertainty" (29, 11). Burton found, for example, that students in high-arts groups were better able to express thoughts and ideas than their peers in low-arts groups. Better communication skills allowed high-arts students to "act on their imaginations and curiosity," cooperate with other students, and display their learning publicly (22).

2.4 Effects of Arts-based Teaching and Learning on Cognitive Development

As defined by Catterall (date), **cognitive** development in this context means areas of ability and expertise that can be applied successfully to academic and social learning situations (23). Authors describe these abilities and areas of expertise to include creativity, self-direction, and complex thinking. Arts-based teaching and learning practices reportedly influence the development of such skills.

Arts-based instruction develops learning abilities. The literature provides some evidence of cognitive skill development through the arts. Standardized tests of creativity showed more highly developed creativity in students who participated in arts-based reform (17, 22). Burton noted that students in high-arts groups performed better than those in low-arts groups on measures of creativity. He concluded that creativity is a "capacity" for learning that can be developed through an arts-based curriculum. In related areas, high-arts students also demonstrated better capacity than low-arts students in the areas of fluency, originality, elaboration, and resistance to closure (22).

In addition to creativity, arts programs help students develop self-assessment, organizational, and planning skills (2, 23). Students in high-arts groups, compared with students in low-arts groups, also demonstrated better rapport with teachers and more sustained focus (22). Such abilities help students connect with themselves, each other, and the outside world. These connections, along with self direction and self-assessment skills, help prepare students for the workplace (24).

Arts-based instruction develops thinking skills. Thinking skills attributed to arts-based teaching include improved comprehension, interpretation, and problem solving. The cross-disciplinary learning environment associated with arts-based instruction, in particular, helps students develop deeper, broader, or "higher-order" thinking skills. Such skills enable the learner to recognize, contrast, and compare varying elements of the world around him and, therefore, to comprehend its complexity (2, 15).

Efland (2002) relates higher levels of thinking to the comprehension of symbols: the ability to interpret symbols and construct their meaning. The arts, in its various media and approaches, offer a broad range of symbols and other ways of representing ideas. Students who experience the arts learn to interpret symbols and understand abstract ideas. Students of the visual arts, for example, learn visual problem solving by interpreting the symbolism of visual artworks. The ability to construct meaning through various representations leads to deeper, more conceptual thinking (30). As Eisner put it (2002), the arts allow representation of ideas that are not otherwise easy to process. Once an idea is represented, it can be processed through comparison and discussion. Processing of information and communicating about it lead to new learning (21c).

Arts-based instruction develops neural systems. Its influence on neural systems is another way to associate arts with learning. By engaging the brain, the arts enhance neurobiological systems that support cognitive, emotional, attention, and immune systems. Music, for example, has been found to

synchronize neural firing patterns. Instruction in music promotes and maintains this synchronicity, which increases the efficiency and effectiveness of the brain. Authors attribute such brain activity with increased ability in the areas of spatial reasoning, creativity, and general math (29). Catterall asserted that any experience will change the brain and, therefore, will influence cognition. The influence of art on cognition is in its development of thinking abilities and motivation for learning. These capabilities generalize from arts learning to non-arts learning (23).

Social development may be related to arts-based learning. The arts help students develop communication and cooperation skills. When students learn to express themselves more effectively, their relationships with other students and teachers improve (22). Arts-based teaching and learning also helps link students with the community (24). In terms of social behavior, researchers for the New American Schools noted that students involved in music activities exhibit fewer at-risk behaviors than those who are not involved (17).

Arts-based learning generalizes to other learning. The question of "transfer" emerges in this discussion of effects. Some authors have questioned the extent to which effects from an arts-based activity can transfer to more general learning and, ultimately, to academic achievement. Mardirosian and Fox (2003), for example, found that a performing arts reading program increased third-graders' comprehension primarily for the story the students performed, with less impact on general reading and writing skills. Authors concluded that arts-based teaching is more likely to produce "near" learning – the understanding of the arts-based activity in which students engage, than "far" learning -- the ability to generalize or transfer learning to academic areas that were not part of the arts-based activity (20).

Critical Links also addressed the question of transfer. Some studies in this compendium of arts education research compared transferred learning with original learning; others compared the transfer of cognitive learning with the transfer of affective learning. In a summary of this research, Catterall concluded that problem solving learned in one circumstance does not necessarily generalize to a different circumstance, or even to a similar circumstance. Because it is difficult to achieve, he recommended a broader view of transfer that encompasses skills and abilities that are related to cognition. Drama, for example, increases interpersonal relationship and communication skills which improve learning. This, Catterall noted, may be considered transfer (23).

A study of *Learning In and Through the Arts (LITA),* as noted in *Champions of Change* (24) supports this notion that arts learning has a positive, albeit indirect, effect on general learning. Authors

suggest that learning across subjects and domains goes back and forth, stimulating one another, and creating a "constellation" of influence. This complex web of stimulation and influence creates an enhanced learning environment in which the arts contribute critical opportunities for engaged, active, cross-disciplinary teaching and learning. An enhanced learning environment such as this is key to academic achievement (24).

In a similar assertion, Burton discussed the capacity of arts instruction for developing skills and abilities that support student achievement. The arts teach students to solve problems, elaborate ideas, and to structure and organize different kinds of experiences. Such skills are transferable to science, math, and language, although this transfer cannot be characterized as "one-way." Similar to the conceptualization of a web or constellation of influence across learning domains, Burton described the dynamic, reciprocal relationship in which learning activities, such as visual art, music, literature, reading, and social studies, are combined so that one subject challenges another (22).

In a review of studies from 1950–99, however, *Reviewing Education and the Arts Project (REAP)* researchers did not find a strong relationship between arts instruction and academic performance. Authors such as Winner and Hetland (2000) concluded that, given this lack of evidence, educators should not base an argument for arts instruction solely on what it can do to improve academics. Although it is tempting to seek funding for the arts by associating it with improved academics, this argument could actually backfire when improvement does not occur or cannot be attributed to involvement in the arts. Schools should include the arts in their curriculum based on "inherent merit," rather than effect on academics, according to Winner and Hetland (34a).

Academic development may be related to arts-based learning. In terms of specific academic skills, the literature presented some data to support relationships with art. Burton noted that "competencies and dispositions" developed through arts-based teaching also emerged in other subject areas, such as science, math, and language (22). In *Critical Links,* Catterall and others found evidence to support positive relationships between arts and academics as follows:

- Drama develops higher-order language and literacy skills;
- Music enhances language learning;
- Music enhances spatial reasoning;
- Art experiences develop writing skills; and

- Arts experiences develop literacy and numeracy skills (23).

Arts-based teaching may be particularly effective with diverse learners. Across the literature, authors seem to agree that arts-based teaching engages a wide range of learners. As Fiske put it, the arts challenge all students—including the hard-to-reach, the gifted, delayed learners, and others who may be, for a variety of reasons, at risk for academic failure (24). Arts-based teaching and learning work as a school reform strategy because the arts give everyone a chance to learn and succeed (9). Instruction in the arts involves different kinds of learning activities that are meaningful for different kinds of learners (28, 21c).

According to some authors, arts-based teaching and learning practices are particularly effective with learners from diverse cultures (26). Ingram (2003) reported a significant relationship between arts-integrated instruction and improvements in reading and math, especially for disadvantaged learners and students whose test scores form the lower end of the race and ethnicity achievement gap (30). In addition to providing alternate forms of learning, art teachers also appeal to multicultural learners. High school students who participated in interviews about arts instruction reported that art teachers are more likely to promote multiculturalism, and are more likely to be diverse themselves, than their academic counterparts (21c, 9).

2.5 Recommendations for the Implementation of Arts-Based Teaching and Learning

Based on these effects, the literature makes recommendations for implementing arts-based teaching and learning models and practices. Recommendations address professional development, infusing arts into the general curriculum, implementing interdisciplinary curricula, co-teaching, and developing community relationships.

Teach teachers arts-based instructional strategies to engage learners. Because students demonstrate various learning styles and interests, teachers must use an array of instructional strategies to engage them. Teachers can learn to use arts-based instruction as a vehicle for a broad range of learning experiences, including trial and error, experiential, real-life, inquiry-based, hands-on, and metacognitive learning (29, 33, 28). On assessments of learning, students who experience an arts-infused curriculum outperform peers who experience traditional instruction (28). Stronge noted that most teachers do not use engaging instructional strategies and need professional development to broaden their teaching repertoires (28).

Once teachers learn arts-based instructional strategies, administrators must support their use. Administrators must expect and encourage teachers to continue arts-based practices and ensure that such practices are rich and in-depth (22). Administrators must also help teachers maintain environments that foster arts learning; children will not necessarily develop artistic skills without instruction and nurturance (21b).

Give the arts a permanent place in education. Throughout this review, the literature makes a strong argument for placing and keeping arts in the curriculum. The argument is based in part on learning experiences the arts can provide for which there is no substitute. According to Eisner, the arts provide a way to view the world through an aesthetic framework. From this viewpoint, learners may understand the qualities of various aspects of the world around them, learn to judge and compare these qualities, and thereby comprehend the complex relationships among them (21c). Experimenting with different media allows students to make decisions, problem solve, and think in different ways (21c, 29). Art adds richness and depth to learning and instruction, helping learners with communication, expression, and perception (22, 29). As one report concluded, the arts help disadvantaged students learn, re-energize teachers, and encourage out-of-school learning for students who are preparing for the workplace (24).

Although this review emphasizes arts-based teaching and learning, the literature also emphasizes art for art's sake, not for the sake of its effect on general learning. Project Zero researchers (2003) conducted a meta-analysis of arts education research and concluded that the arts are critical regardless of their impact on other subjects (1b). Eisner (2002) and others agreed that art in the curriculum need not by justified by what it can do for learning outside the arts. It should be justified by its unique contributions to learning. Through the aesthetic experience, learners can communicate distinct and different forms of meaning and develop creative and perceptive forms of thinking (34c, 34a). Eisner further observed that there is not "one true aim" for the arts, but many different aims, depending upon the circumstances (21c). Horowitz called the argument between art for art's sake and art for augmenting academics a "false dichotomy" because the arts, he said, do both (45).

Catterall reached similar conclusions in his discussion of "near" versus "far" transfer of learning. Because the literature searches for evidence that arts education generalizes to very different contexts, it would seem that "far" transfer is considered superior to "near" transfer. Students who demonstrate better story comprehension and writing after acting out a story, for example, are considered to have experienced near transfer. But if drama improves comprehension and writing, Catterall asks, does

it matter whether transfer is considered near or far? Regardless, he concludes, results show that the arts, drama in this example, are an effective strategy for teaching language arts (23).

Provide an interdisciplinary curriculum. The literature also strongly recommended the integration of arts and academic curricula. An integrated curriculum ensures interaction among various learning domains and disciplines (23). Students learn from these interactions by categorizing new information, which can be compared with old information, and by using art metaphors to construct meaning (30). According to the National Research Council (2000), an integrated curriculum also offers an opportunity for students to apply knowledge to new problems and practice new skills in multiple contexts. Applying concepts across domains and disciplines allows learners to identify subtle differences in meaning, providing the basis for deeper understanding of those concepts (33).

Authors further tout the interdisciplinary curriculum as a multimodal education strategy that reaches students with varying learning styles and strengths (8). The arts help develop communication skills, providing alternative "languages" through which students can process and express information (32).

Support co-teaching to implement interdisciplinary curricula. Optimally, team-teaching, or co-teaching, brings educators together from various arts and academic disciplines. This kind of collaboration, co-planning and co-instruction, brings a "mix of different skill sets" to the learning environment. The variation creates an in-depth teaching and learning experience in which both teachers and learners must think across disciplines. In a co-teaching model described earlier in this report, art and academic teachers participate in professional development activities to learn how information links across disciplines. They then co-teach, and in their teaching they both make cross-disciplinary linkages "explicit" by making those linkages explicit for the learner (32).

Several factors contribute to the success of co-teaching. Flexibility, particularly in scheduling, is required for teachers to communicate regularly and to teach side by side (32). This calls for strong school leadership. Administrators must ensure that teachers have the time to devote to this level of collaboration (14, 9).

Connect with the community. A study of school districts with strong arts education across the country found that the "single most critical factor" in sustaining the arts was "active involvement of influential segments of the community." Parents and families, artists, arts centers, businesses, civic

leaders, and cultural institutions were among those who contributed resources when they were involved in arts education. A program in Redondo Beach, California, for example, trained parents as volunteer art teachers. The district offered evening adult education classes that strengthened the presence of art in the schools and "gave back" to the community. Districts also engaged community members by inviting them to student art exhibits and performances. Even parents who avoided their children's schools tended to assist with or attend arts events (41).

Especially in light of budget shortfalls, schools must look for much-needed support from the local arts community. School collaboration with organizations such as local institutions of higher education and community art centers can mean added resources as well as networking opportunities and shared decision making (7). Resources are sometimes available to assist schools in developing partnerships. The Kentucky Arts Council, for example, offers grants to county school districts for establishing arts programs (37).

Schools can also partner with community organizations to develop and operate programs for special populations. According to an issue brief prepared for the National Governors' Association (NGA), arts educators should collaborate with the community to prepare at-risk students for success in the workplace. Partners in such endeavors may include schools, community art centers, and juvenile retention centers (2).

School partnerships with arts-based programs in the community also help students develop important relationships with the "outside world" (9). As described by the National Research Council, connections to the outside world benefit students by providing them with the opportunity to interact and develop relationships with adults who are unrelated to school. Involvement in programs outside the school can motivate students, teach them about responsibilities and consequences, and instill in them a "sense of community" (33).

2.6 Barriers to the Implementation of Arts-Based Teaching and Learning

The literature describes two major barriers that can impede the successful implementation of arts-based teaching and learning models. One is the question of research to prove the effects of the arts; the other is the current push for test scores to show academic achievement.

Research cannot prove that arts-based teaching and learning will result in higher academic achievement. Although many small studies show that arts instruction can help students learn (17, 23), the results of research to prove a relationship between arts and standardized academic tests are, overall, inconclusive (14). According to Horowitz and others (date), it is difficult to study the complexity and multiple dimensions of arts education. Especially when integrating a whole-school curriculum, for example, it is difficult to use random sampling and control groups. Researchers must adhere to the methods of classic experimental design in order to prove a causal linkage between arts and academics (14).

Research may ask the wrong questions. According to Eisner (1998) arts education can focus on different kinds of outcomes. He described targeted outcomes to include arts-based, arts-related, or ancillary. Perhaps research should study arts-based and arts-related outcomes, with less emphasis on ancillary outcomes such as improved academic achievement (21a).

In *Art and Cognition* (2002), Efland differentiated between expected outcomes in terms of science versus arts. Academics are associated with science, which is highly valued in our society because science is associated with intelligence. In the same vein, the arts may not be considered a valuable part of education because its effects on academic achievement are not consistently proven. Efland proposed that arts education avoid the need to prove itself by focusing on higher order thinking and learning, rather than specific academic achievement (30).

Schools must prepare students for high-stakes testing. Goals 2000, the Educate America Act of 1994, supported the arts in education, particularly for diverse learners (4). But today at the Federal level there is less focus on diversity in learning. The No Child Left Behind (NCLB) Education Act of 2002 emphasizes test scores as the way to hold schools accountable for student learning (36). Although the arts are part of NCLB's recommended core curriculum, arts are not part of its required assessment of student progress (14).

With mandatory high-stakes testing in place, arts compete with academics for teaching time (14). Teachers may resist the use of arts-based teaching and learning when the curriculum is already packed with test preparation activities (12). In a study of arts-integration initiatives in 25 North Carolina schools, investigators found that high-stakes accountability systems created barriers to implementation. Teachers expressed concerns about curriculum constriction, teaching to the test, and low morale that prevented them from using arts-based teaching strategies (35).

2.7 Factors that Facilitate Arts-Based Teaching and Learning

Throughout this review, and summarized here, are factors that facilitate the implementation of arts-based teaching and learning. Such facilitators include resources, community relationships, and administrative support.

Resources are available to facilitate implementation. The literature search for this review uncovered a variety of materials and technical assistance available to help educators and community developers implement arts-based teaching and learning models. Many of these are technical assistance resources that promote collaboration among educators and artists. *Connexionarts*, for example, is a consulting firm that works with teachers and artists to develop and implement arts-based teaching and learning activities in the schools (19). State-level networks bring together art educators, artists, school administrators and teachers and help them assume roles in the advancement of arts education (7). Resource organizations may also help develop community relationships, as described here.

Community relationships facilitate implementation. Training and technical assistance are also available to help schools engage with the community to support arts education. Groups such as the Mississippi Art Commission provide training and technical assistance for school personnel, artists, and the community to implement whole-school arts-based reform models (8). The Center for the Study of Art and Community and the Community Arts Training (CAT) Institute offer training in the development of partnerships. As described earlier in this report, topical sessions include arts-based community development, program design, and fund-raising (3). After concluding that capacity building is necessary to sustain school-art partnerships among schools, professional artists and arts organizations, Project Zero developed a self-assessment tool for arts centers. The self-assessment process helps centers evaluate and track their educational effectiveness (1a).

Administrative support facilitates implementation. A co-taught interdisciplinary curriculum is an ideal manifestation of arts-based teaching and learning, according to the literature. To be successful and effective, however, teachers must set aside time to plan collaboratively with one another and with outside resources. Administrators must support that set-aside time for collaboration (11). As Seaman put it, arts education does not work as well in schools wherein teachers are isolated (7). Beyond their support of planning time, school administrators can be the ones who lead the integration of arts in

the academic curriculum. Some principals have converted their entire schools' curriculum from traditional to arts-based teaching and learning (9).

2.8 What We Know About Arts-Based Teaching and Learning

What we know about arts-based teaching and learning, versus what we think we know or may surmise, can be found in the evidence the literature provides about the effects of arts instruction. In sum, research has linked arts with academic or general learning. Researchers use test scores to measure these effects in individual studies or in cross-study analyses. The most conclusive research seems to link music instruction with spatial reasoning and, in association, with mathematics.

Authors use test score data to show effects. Improved test scores are one general way the literature links arts to academics. Authors credit whole-school reform models, for example, with increased test scores and improved levels of literacy (11, 8). Authors may also report teacher-reported test score gains associated with arts-based teaching and learning (27).

In 1997, the National Assessment of Educational Progress (NAEP) evaluated student knowledge and performance in the area of arts, along with academic areas of reading, math, science, writing, history, civics, and geography (38). Education support organizations such as the Annenberg Institute have used the NAEP scores as evidence of the positive relationship between high quality arts education and academic achievement. Reports from the Annenberg Institute noted, for example, that the arts education section of the NAEP exhibited the narrowest test score gap between students of varying race and ethnicity (9).

Rather than compare raw test scores, Ingram and others used "gain scores" as evidence of the effects or arts instruction in one school district. Gain scores were derived by comparing student achievement test scores from one year to the next. They found gain scores to be significantly higher for the district's third, fourth, and fifth graders who participated in academic-arts integrated classrooms. This analysis allowed authors to conduct various analyses, determining, for example, that the effect was particularly evident for students receiving free or reduced lunch and for students for whom English is a second language. They also explored the relationship between gain scores and classroom level of integration based on teacher self-ratings (not at all, very little, some, or a lot). The report concluded that the higher the level of integration students experienced, the more students gained in test scores (31).

Burton and others used test scores from measures of creativity, fluency, originality, elaboration, and resistance to closure to compare middle school students in high-arts, versus low-arts, learning environments. Because students experiencing "high arts" scored better than their peers in "low arts" settings, researchers concluded that arts-based learning contributes to expression, imagination, risk taking, cooperation, and curiosity (22).

Cross-study analyses of individual studies draw some relationships between arts-based teaching and academic learning. Evaluation activities of individual programs support the effects of arts-based instruction. The literature warns, however, that findings from size-restricted individual studies cannot generalize to the larger population of students. One such study, for example, compared reading test scores in 700 first graders, half of whom participated in a dance-based reading curriculum, and half of whom did not. After 20 sessions, reading tests revealed that first graders who participated in the dance-reading curriculum scored higher in the area of phonetic knowledge and skills than those who had not received the dance-based instructional strategies (39). A sample of 700 students is not large enough, however, for the study to conclude that all first graders will benefit from the dance curriculum.

To address these limitations, authors have compiled the results of individual studies to draw conclusions about arts-based teaching and learning. The New American Schools (NAS), for example, compiled findings from various studies to make a case for the effects of arts-based reform models. NAS cited research that correlated:

- The study of music and higher SAT scores;
- The study of music and improvement on the Stanford 9 math subtest;
- Music instruction and improved spatial reasoning; and
- Participation in drama and higher verbal and reading skills (9).

Critical Links, sponsored by the Arts Education Partnership in 2002, produced a comprehensive review of data showing the effects of arts learning on academic and social development. A compilation of research reviews and essays, *Critical Links* featured studies that address transfer of learning from arts to academics and socialization. Many of the authors in the compendium commented on whether arts-based teaching and learning should be used to enhance cognitive skills or to motivate

students. In his conclusions, Catterall noted that the most compelling research pointed to a relationship between music learning and spatial reasoning, associated with math skills and language facility (23).

Researchers may also compile results from individual studies and analyze the aggregate data to draw conclusions about the effects of arts-based teaching and learning. Such methods include meta-analysis, a statistical tool for comparing results across multiple independent studies that address related research questions (42) Project Zero researchers conducted a meta-analysis of data from 188 studies of arts learning and academic improvement. The research team found "reliable causal links" between:

- Listening to music and spatial-temporal reasoning;
- Learning to play music and spatial reasoning; and
- Classroom drama and verbal skills.

The meta-analysis did not find reliable causal links between arts-rich education and reading, mathematics, or creative thinking (1b).

2.9 What We Believe about Arts-Based Teaching and Learning

We also found assertions in the literature based on beliefs without the benefit of hard data. Experience and analytic thinking have led some authors to tout positive effects of arts-based teaching and learning, especially for diverse learners.

In *Arts as Education,* Goldberg and Phillips (2000) characterize arts education as a powerful instructional strategy that engages all students in learning, regardless of language, culture, and life experiences. Supporters of arts instruction for diverse learners believe that the arts make education more equitable because they "transcend" limitations and boundaries associated with diversity. Proponents assert that the arts provide a rich array of contexts in which learners can successfully derive and express meaning. Offering a variety of contexts, proponents believe, increases the likelihood that everyone can participate fully in education, including those who have struggled in the more traditional modes of teaching and learning. Goldberg and others concluded that the arts lay the groundwork for "socially inclusive learning environments that build on commonalities, while respecting differences" (40).

2.10 What We Still Need to Learn About Arts-Based Teaching and Learning

Some of the materials we reviewed for this report recommended further research to strengthen findings, support assertions, and guide successful implementation of arts-based teaching and learning models. Others referred to the difficulties in conducting research and wished for new ways to evaluate the effects of arts-based teaching and learning.

Catterall called for further research in his summary of findings at the conclusion of the *Critical Links* compendium. He observed that while studies of music and drama have been conducted, they are particularly lacking in the areas of visual arts and dance. The question of transfer also merits further study, according to Catterall, in order to hone in on the role of transfer in cognitive development. At the same time, he suggested that transfer is associated with "sustained and deep learning" that takes time to manifest and is therefore difficult to study (23).

Having found few causal relationships between learning in the arts and improved academic achievement, Winner and Hetland cautioned educators not to get caught up in the need to show test scores. Claims that arts education raises test scores are difficult to prove at best. At worst, inability to make good on the promise of improved test scores could result in the dropping of arts from recommended curricula. Although based on belief, rather than hard data, authors encouraged educators to value "the essence of the arts' enterprise," which allows students to express deep feelings and thoughts, often in nonverbal form (34b).

Eisner's observances on this topic underscore the need to develop new ways to evaluate arts-based teaching and learning (2002). Typical evaluation, he said, examines the extent to which results conform to a predicted outcome. Conformity, however, is not the goal for the individualist endeavors of arts and education. Evaluation in the arts should be formative, based on observation, and providing feedback along the way. This approach views the learner not as a test score, but as a work in progress, with needs that can be met along the way. As arts-based instruction fosters different ways of learning, the evaluation of such instruction must capture the different aspects of what has been taught and what has been learned (21a).

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