



# CRITICAL EVIDENCE

How the **ARTS** Benefit Student Achievement





# ARTS IN THE SPOTLIGHT

**Positive signs of support for the arts in education are visible everywhere. Consider these recent developments:**

- In the federal No Child Left Behind Act, also known as NCLB, the arts share equal billing with reading, math, science, and other disciplines as “core academic subjects,” which can contribute to improved student learning outcomes.<sup>1</sup>
- Forty-nine states have established content and/or performance standards that outline what students should know and be able to do in one or more art forms; 43 states require schools or districts to provide arts instruction.<sup>2</sup>
- Schools integrating the arts into the curriculum as part of a comprehensive education reform strategy are documenting positive changes in the school environment and improved student performance.<sup>3</sup>
- The American public, by an overwhelming margin, believes the arts are vital to a well-rounded education; more than half rate the importance of arts education a “ten” on a scale of one to ten.<sup>4</sup>

As a nation, we are close to reaching a collective understanding that **all** students benefit from the opportunity to learn about and experience the arts. Study of the arts in its many forms—whether as a stand-alone subject or integrated into the school curriculum—is increasingly accepted as an essential part of achieving success in school, work and life.

Yet, at the same time we celebrate the arts for the value they add to learning and to life, study of the arts is quietly disappearing from our schools. In schools across the country, opportunities for students to participate in high-quality arts instruction and activities are diminishing, the result of shifting priorities and budget cuts. Poor, inner-city and rural schools bear a disproportionate share of the losses. Studies show children from low-income families are less likely to be consistently involved in arts activities or instruction than children from high-income families.<sup>5</sup>

Put simply, our rhetoric is out of sync with the reality. Why is it so important to keep the arts strong in our schools? How does study of the arts contribute to student achievement and success?

## About this PUBLICATION

*Why is it so important to keep the arts strong in our schools? How does study of the arts contribute to student achievement and success?*

*Critical Evidence: How the Arts Benefit Student Achievement* is designed to answer these and other questions. It describes in nontechnical terms what the research says about how study of the arts contributes to academic achievement and student success. It offers impartial, to-the-point reporting of the multiple benefits associated with students' learning experiences in the arts. In short, it "makes the case for the arts" based on sound educational research.

A primary source for most of the studies cited here is *Critical Links: Learning in the Arts and Student Academic and Social Development*.<sup>6</sup> The Arts Education Partnership (AEP), with financial support from the U.S. Department of Education and the National Endowment for the Arts, commissioned and published *Critical Links* in 2002 to capture the best work being done at the time on the academic and social effects of arts learning experiences. The 62 peer-reviewed studies included in the compendium were identified as strong arts education research that would "make a contribution to the national debate" about effective strategies to improve student achievement and school environments.

The National Assembly of State Arts Agencies (NASAA) and the AEP commissioned *Critical Evidence: How the Arts Benefit Student Achievement* in response to the needs of arts professionals and nonprofessionals alike for accurate and concise information that reflects the current state of knowledge about arts learning and student achievement. This new publication serves as an update to *Eloquent Evidence: Arts at the Core of Learning*, which was published by NASAA, in collaboration with the AEP, the National Endowment for the Arts and the President's Committee on the Arts and the Humanities in October 1995.<sup>7</sup> Ten years after its release, the evidence is even more eloquent, and the need to demonstrate the link between the arts and student achievement has grown more critical.

# 1

## ARTS EDUCATION in the BIG PICTURE

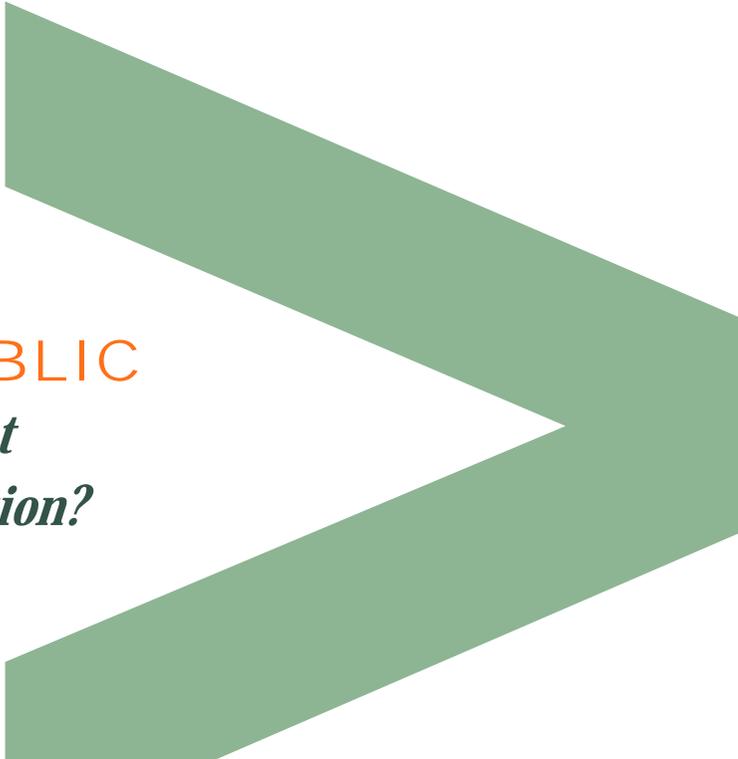
To a large extent, changes in the national education policy environment over the last decade have shaped the landscape for arts learning in the schools today. When *Eloquent Evidence* was published in 1995, *Arts at the Core of Learning* provided an exceptionally apt subtitle. A year earlier, Congress had enacted the Goals 2000: Educate America Act, which identified the arts for the first time in federal policy as a part of the core curriculum. This public acknowledgement of the arts as “core” to education was a meaningful step. In one sense, it came to symbolize what *Eloquent Evidence* later described as “a growing consensus among policy makers and parents that the arts should be an integral part of education.”

The federal government through the U.S. Department of Education and the National Endowment for the Arts has maintained a consistent connection with arts education in the public schools over the last 10 years.<sup>8</sup> This has occurred in part through targeted funding for programs—often involving partnerships between schools and community organizations; professional development for teachers and teaching artists; and research and evaluation. The two agencies have cooperated as well in the data collection efforts of the National Center for Education Statistics, which provide important insights into the status and condition of arts education in the country.

The No Child Left Behind Act of 2001 (NCLB) is arguably the most significant federal action to affect arts education, and education generally, in the last decade—if not the last 40 years. This legislation, as with the Goals 2000 law, is an update of the basic federal education law originally enacted in 1965. No Child Left Behind was signed into law in January 2002. It expanded the federal role in education in order “to close the achievement gap between disadvantaged and minority students and their peers.”<sup>9</sup>



To comply with the law, states have developed plans to increase student achievement and have set performance goals, which all students are expected to meet by 2013-14 in reading and mathematics. In almost every section of the law, NCLB stresses that decisions about the allocation of federal resources for education should be grounded in “scientifically-based research.” The intent, as interpreted by the Department of Education, is to “transform education into an evidence-based field.”<sup>10</sup>



*What Does*  
**THE PUBLIC**  
*Think about*  
*Arts Education?*

**SOURCE:** “New Harris Poll Reveals That 93% of Americans Believe That the Arts Are Vital to Providing a Well-Rounded Education,” [www.artsusa.org](http://www.artsusa.org).

A May 2005 Harris Poll on the attitudes of Americans toward arts education, commissioned by Americans for the Arts, revealed strong public support. Among the findings:

**93%** agree the arts are vital to providing a well-rounded education for children, a 2% increase over 2001.

**86%** agree an arts education encourages and assists in the improvement of a child's attitudes toward school.

**83%** believe that arts education helps teach children to communicate effectively with adults and peers.

**79%** agree incorporating the arts into education is the first step in adding back what's missing in public education today.

**54%** rated the importance of arts education a "ten" on a scale of one to ten.

**79%** believe that it's important enough for them to get personally involved in increasing the amount and quality of arts education.



# NCLB and THE ARTS

No Child Left Behind reaffirms the arts as a “core academic subject” that all schools should teach. It puts the arts on equal footing with the other designated core subjects: English, reading or language arts, mathematics, science, foreign languages, civics and government, economics, history and geography. And it paves the way for the arts to be recognized both as a serious subject in its own right and as a part of a proven strategy to improve student performance in the other core subjects.

With its many challenges and opportunities, NCLB dominates the state and local education landscape today. What the long-term effects of NCLB will be on funding and support for arts education in the schools remain unclear. So far, the results have been mixed. Schools in some states report the amount of instructional time devoted to reading, writing, math and science has increased, while for the arts it has declined.<sup>11</sup> In other states, NCLB has served as a catalyst for strengthening efforts to raise student achievement and improve school environments through integration of the arts.

# *What Is the* NO CHILD LEFT BEHIND ACT?

The No Child Left Behind Act of 2001, as described by the U.S. Department of Education, is “the most sweeping reform of the Elementary and Secondary Education Act since it was enacted in 1965.” With strong bipartisan support from Congress, President George W. Bush signed NCLB into law on January 8, 2002.

At over 1,000 pages of legislation, it is no surprise most Americans are still in the dark about the specifics of NCLB. In 2004, more than two years after it became law, two-thirds of Americans surveyed reported they knew “very little” or “nothing at all” about NCLB, according to a Phi Delta Kappa/Gallup Poll. On average, parents of public school children were slightly better informed and, as a whole, had substantially increased their level of knowledge about the law from the previous year. In 2004, 62% of parents said they knew “very little” or “nothing at all” about NCLB, compared to 78% in 2003.

As outlined by the U.S. Department of Education, NCLB is based on four guiding principles or “pillars”:

- Stronger Accountability for Results
- More Freedom for States and Communities
- Encouraging Proven Education Methods
- More Choices for Parents

A primary objective of NCLB is to close achievement gaps between students by bringing all students, regardless of race, ethnicity, gender or income to the “proficient” level on state standardized tests by the 2013–14 school year.

**SOURCES:** [www.nochildleftbehind.gov](http://www.nochildleftbehind.gov); Rose, Lowell C. and Alec M. Gallup, *The 36th Annual Phi Delta Kappa/Gallup Poll of the Public's Attitudes Toward the Public Schools*, 2004.



# How Study of **THE ARTS** Contributes to STUDENT **ACHIEVEMENT** & **SUCCESS**

A growing body of studies, including those in the research compendium *Critical Links*, presents compelling evidence connecting student learning in the arts to a wide spectrum of academic and social benefits. These studies document the habits of mind, social competencies and personal dispositions inherent to arts learning. Additionally, research has shown that what students learn in the arts may help them to master other subjects, such as reading, math or social studies.

Students who participate in arts learning experiences often improve their achievement in other realms of learning and life. In a well-documented national study using a federal database of over 25,000 middle and high school students, researchers from the University of California at Los Angeles found students with high arts involvement performed better on standardized achievement tests than students with low arts involvement. Moreover, the high arts-involved students also watched fewer hours of TV, participated in more community service and reported less boredom in school.<sup>12</sup>

The concept of *transfer*, in which “learning in one context assists learning in a different context,” has intrigued cognitive scientists and education researchers for more than a century.<sup>13</sup> A commonly held view is that all learning experiences involve some degree of transfer both in life and learning outside the school as well as learning within the school. However, the nature and extent of these transfers remain a topic of great research interest. Recent studies suggest the effects of transfer may in fact accrue over time and reveal themselves in multiple ways.

Researchers continue to explore the complex processes involved in learning and the acquisition of knowledge and skills. One promising line of inquiry focuses on how to measure the full range of benefits associated with arts learning. These include efforts to develop a reliable means to assess some of the subtler effects of arts learning that standardized tests fail to capture, such as the motivation to achieve or the ability to think critically.

# The SAT and Arts Learning

The relationship between arts learning and the SAT is of considerable interest to anyone concerned with college readiness and admissions issues. The SAT Reasoning Test (formerly known as the SAT I) is the most widely used test offered by the College Board as part of its SAT Program. It assesses students' verbal and math skills and knowledge and is described as a "standardized measure of college readiness."

Many public colleges and universities use SAT scores in admissions. Nearly half of the nation's three million high school graduates in 2005 took the SAT.

Multiple independent studies have shown increased years of enrollment in arts courses are positively correlated with higher SAT verbal and math scores. High school students who take arts classes have higher math and verbal SAT scores than students who take no arts classes.

Arts participation and SAT scores co-vary—that is, they tend to increase linearly: the more arts classes, the higher the scores. This relationship is illustrated in the 2005 results shown below. Notably, students who took four years of arts coursework outperformed their peers who had one half-year or less of arts coursework by 58 points on the verbal portion and 38 points on the math portion of the SAT.

## Arts Course-taking Patterns and SAT Scores, 2005

	VERBAL	MATH
4+ years arts	534	540
4 years	543	541
3 years	514	516
2 years	508	517
1 year	501	515
1/2 year or less	485	502
Average for All SAT Test Takers	508	520

Source: 2005 *College-Bound Seniors: Total Group Profile Report*, The College Board, 2005, Table 3-3: *SAT Scores of Students Who Study the Arts: What We Can and Cannot Conclude about the Association*, Kathryn Vaughn and Ellen Winner (Fall 2000).

# 4

## The ABCs of ARTS LEARNING

The research compendium *Critical Links* contains a diverse collection of studies that examine how arts learning experiences affect the academic achievement and social development of children and youth. It includes summaries of studies conducted in five major art form areas: dance, drama, visual arts, music and multi-arts. As the title implies, the research provides critical evidence linking study of the arts with student achievement and success.

More than 65 distinct relationships between the arts and academic and social outcomes are documented. They include such associations as: visual arts instruction and reading readiness; dramatic enactment and conflict resolution skills; traditional dance and nonverbal reasoning; and learning piano and mathematics proficiency.

Based on these findings, the compendium has identified six major types of benefits associated with study of the arts and student achievement:<sup>14</sup>

- 
1. READING AND LANGUAGE SKILLS
  2. MATHEMATICS SKILLS
  3. THINKING SKILLS
  4. SOCIAL SKILLS
  5. MOTIVATION TO LEARN
  6. POSITIVE SCHOOL ENVIRONMENT

One convenient way to sum up how study of the arts benefits student achievement is the recognition that learning in the arts is academic, basic and comprehensive. It is as simple as A-B-C.

# The ABCs of Arts Learning

The benefits of student learning experiences in the arts are:

## I. Academic

- Reading and Language Skills
- Mathematics Skills

## II. Basic

- Thinking Skills
- Social Skills
- Motivation to Learn

## III. Comprehensive

- Positive School Environment

## I. Learning in the Arts Is Academic

Learning experiences in the arts contribute to the development of *academic* skills, including the areas of reading and language development, and mathematics. One method for assessing these outcomes is standardized exams, sometimes referred to as “paper and pencil” tests. While not always deemed the best measure, standardized test results provide arts education researchers with an important data source for conducting studies related to student achievement. Studies in *Critical Links* use various measures of achievement, including the impact shown on such tests.

### READING AND LANGUAGE SKILLS

Certain forms of arts instruction enhance and complement basic reading skills, language development and writing skills. For example, dance has been employed to develop reading readiness in very young children, and the study of music has provided a context for teaching language skills.

*Literacy* is a term that refers to the ability to read and write. A constellation of processes is involved in the development of literacy skills. Children learning to read and write must be able to associate letters, words and phrases with sounds, sentences and meanings.



The relationship between drama and the development of literacy skills among young children is well documented. The following examples illustrate how the use of dramatic enactment can make a measurable difference in helping students reach such important curricular goals as story understanding, reading comprehension and topical writing skills:

- One of the most common approaches to teaching reading is to have a teacher read a story to students. The use of drama in the classroom can provide a beneficial supplemental approach. A recent study found that the development of literacy skills among pre-kindergarteners was fostered when the children were allowed to act out their favorite stories. Dramatic play also helped motivate them to learn.<sup>15</sup>
- When students had an opportunity to engage in a dramatic enactment of a story, their overall understanding of the story improved. Researchers in this study found that story comprehension effects were greatest for first graders who were reading below grade level.<sup>16</sup>
- Drama can also be an effective method to develop and improve the quality of children's narrative writing. As a "warm-up" writing exercise, second and third grade students used poetry, games, movement and improvisation to act out their story ideas, which contributed to their improved performance.<sup>17</sup>

## MATHEMATICS SKILLS

Certain types of music instruction help develop the capacity for spatial-temporal reasoning, which is integral to the acquisition of important mathematics skills. *Spatial temporal reasoning* refers to the ability to understand the relationship of ideas and objects in space and time.

The association between music and mathematics achievement is an area of great research interest. A recent literature review turned up over 4,000 published and unpublished references on this topic alone. Among the strong body of evidence linking student involvement in music to high school math proficiency are these two large-scale studies:

- An analysis conducted of multiple studies confirms the finding that students who take music classes in high school are more likely to score higher on standardized mathematics tests such as the SAT. One explanation is musical training in rhythm emphasizes proportion, patterns and ratios expressed as mathematical relations.<sup>18</sup>

- Students consistently involved in orchestra or band during their middle and high school years performed better in math at grade 12. The results were even more pronounced when comparing students from low-income families. Those who were involved in orchestra or band were more than twice as likely to perform at the highest levels in math as their peers who were not involved in music.<sup>19</sup>

## II. Learning in the Arts Is Basic

Arts learning experiences contribute to the development of certain thinking, social and motivational skills that are considered *basic* for success in school, work and life. These fundamental skills encompass a wide range of more subtle, general capacities of the mind, self-perceptions and social relationships.

### THINKING SKILLS

Thinking skills (sometimes referred to as cognitive skills) is a broad term that refers to the operation of various thought processes. Reasoning ability, intuition, perception, imagination, inventiveness, creativity, problem-solving skills and expression are among the thought processes associated with study of the arts.

The relationship between music and spatial-temporal reasoning as it pertains to mathematics skills was discussed earlier. Participation in other arts forms, such as dance or visual arts, also lends itself to the development of thinking skills, as evidenced in these examples, which also ask the question whether such skills transfer to other subjects:

- In an experimental research study of high school age students, those who studied dance scored higher than nondancers on measures of creative thinking, especially in the categories of fluency, originality and abstract thought. Whether dancers can use their original abstract thinking skills in other disciplines is an important area of exploration.<sup>20</sup>
- A group of 162 children, ages 9 and 10, were trained to look closely at works of art and reason about what they saw. The results showed that children's ability to draw inferences about artwork transferred to their reasoning about images in science. In both cases, the critical skill is that of looking closely and reasoning about what is seen.<sup>21</sup>



## SOCIAL SKILLS

Certain arts activities promote growth in positive social skills, including self-confidence, self-control, conflict resolution, collaboration, empathy and social tolerance. Research evidence demonstrates these benefits apply to all students, not just the gifted and talented. As the studies described below demonstrate, however, the arts can play a key role in developing social competencies among educationally or economically disadvantaged youth, who are at greatest risk of not successfully completing their education:

- A group of boys, ages 8 to 19, living in residential homes and juvenile detention centers for at-risk youth, discovered that learning to play guitar and performing for their peers boosted their confidence and self-esteem. The research suggests the opportunity to perform may be a powerful tool to help youth overcome fears and see that they can succeed.<sup>22</sup>
- Dance also can affect the way juvenile offenders and other disenfranchised youth feel about themselves. One study demonstrated that when a group of 60 such adolescents, ages 13 to 17, participated in jazz and hip hop dance classes twice weekly for 10 weeks, they reported significant gains in confidence, tolerance and persistence related to the dance experience.<sup>23</sup>

## MOTIVATION TO LEARN

The arts nurture a motivation to learn by emphasizing active engagement, disciplined and sustained attention, persistence and risk taking, among other competencies. Participation in the arts also is an important strategy for engaging and motivating students at risk of dropping out of high school and for those with special needs, as these studies show:

- Students at risk of not successfully completing their high school educations cite their participation in the arts as reasons for staying in school. Factors related to the arts that positively affected the motivation of these students included a supportive environment that promotes constructive acceptance of criticism and one where it is safe to take risks.<sup>24</sup>
- An ethnographic study of seventh grade boys in special education revealed use of the visual arts helped them become more sophisticated, less reluctant readers. Described as learning disabled, the boys were encouraged to use visual forms of expression to convey their understanding of reading assignments. After a nine-week course of "visualization training," they also took a more active role in reading and began to interpret text rather than passively reading it.<sup>25</sup>

### III. Learning in the Arts Is Comprehensive

Learning in the arts is *comprehensive* in the true sense of the word: All three common definitions are applicable. Integration of the arts as a critical component of the school curriculum affords students a *complete* and well-rounded education. The benefits associated with study of the arts are *inclusive* of all students, although they can be greatest for those who are educationally or economically disadvantaged. And, an arts-rich learning environment can have *far-reaching* effects that extend to the entire school and surrounding community.

#### POSITIVE SCHOOL ENVIRONMENT

The arts help create the kind of learning environment conducive to teacher and student success by fostering teacher innovation, a positive professional culture, community engagement, increased student attendance, effective instructional practice and school identity. A glimpse of the benefits is provided below, which is based on extensive evaluations of two well-established and highly regarded programs:

- The Chicago Arts Partnerships in Education (CAPE) public schools brought local artists and teachers into partnerships so that they could develop curricular units in which an art form was integrated with an academic subject. In a comparative study with other Chicago public elementary schools, students from the CAPE schools performed better on standardized tests than the students who attended schools that did not integrate the arts with academics.<sup>26</sup>
- The A+ Schools Program in North Carolina is a comprehensive education reform initiative that integrates the arts. An analysis of its many beneficial effects goes beyond assessment of student outcomes to focus also on teaching and learning processes. The program ranks high on measures of increased teacher collaboration and enhanced partnerships with parents and the community.<sup>27</sup>





MOVING

# FORWARD

The evidence is clear: study of the arts contributes to student achievement and success. Its multiple benefits are academic, basic and comprehensive. What is less clear is how to ensure that all students have the opportunity to learn about and experience the arts in school. Despite convincing research and strong public support, the arts remain on the margins of education, often the last to be added and the first to be dropped in times of strained budgets and shifting priorities.

Action is needed to place the arts front and center on education agendas in both the statehouse and the schoolhouse. And in the current education policy climate, evidence-based action and advocacy are needed to make a compelling case for why the arts matter for all students at all levels of education.

The use of evidence-based research to communicate the benefits of arts education is part of a powerful strategy to keep the arts strong in our nation's schools. Research doesn't hold all the answers to why the arts are important, but it does confirm what most people already know to be true in their hearts and minds: The arts make a significant contribution to helping all students achieve success in school, work and life.

# ENDNOTES

- 1 U.S. Department of Education, No Child Left Behind Web site, <http://www.nochildleftbehind.gov>.
- 2 Education Commission of the States (2005), *State Policies Regarding Arts in Education*. Denver, CO: ECS.
- 3 Deasy, Richard J. (editor) (2002), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 4 Americans for the Arts (2005), "New Harris Poll Reveals That 93% of Americans Believe That the Arts Are Vital to Providing a Well-Rounded Education," News Release, <http://www.artsusa.org>.
- 5 See Catterall, James S., Richard Chapleau, and John Iwanaga (2002), "Involvement in the Arts and Human Development: Extending an Analysis of General Associations and Introducing the Special Cases of Intensive Involvement in Music and Theatre Arts." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP. Vaughn, Kathryn and Ellen Winner (2002), "SAT Scores of Students Who Study the Arts: What We Can and Cannot Conclude about the Association." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 6 Deasy, Richard J. (editor) (2002), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 7 Murfee, Elizabeth (1995), *Eloquent Evidence: Arts at the Core of Learning*, Washington DC: National Assembly of State Arts Agencies.
- 8 Herbert, Douglas (2004), "Finding the Will and the Way To Make the Arts a Core Subject: Thirty Years of Mixed Progress," *The State Education Standard*, Vol. 4, Number 4, Washington, DC: National Association of State Boards of Education.
- 9 U.S. Department of Education, No Child Left Behind Web site, <http://www.nochildleftbehind.gov>.
- 10 Arts Education Partnership (2005), *No Subject Left Behind: A Guide to Arts Education Opportunities in the 2001 NCLB Act*. Washington, DC: AEP.
- 11 von Zastrow, Claus with Helen Janc (2004), *Academic Atrophy: The Condition of the Liberal Arts in America's Schools*, Washington, DC: Council for Basic Education.
- 12 Catterall, James S. (2002), "Involvement in the Arts and Success in Secondary School." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 13 Catterall, James S. (2002), "The Arts and the Transfer of Learning." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 14 Deasy, Richard J., "Don't Axe the Arts!." National Association of Elementary School Principals, Volume 82, Number 3 (January/February 2003).
- 15 Goodman, Jennifer Ross (2002), "A Naturalistic Study of the Relationship between Literacy Development and Dramatic Play in Five-Year-Old Children." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.

- 16 Page, Anita (2002), "Children's Story Comprehension As a Result of Storytelling and Story Dramatization: A Study of the Child As Spectator and Participant." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 17 Moore, Blaine H. and Helen Caldwell (2002), "Drama and Drawing for Narrative Writing in Primary Grades." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 18 Vaughn, Kathryn (2002), "Music and Mathematics: Modest Support for the Oft-Claimed Relationship." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 19 Catterall, James S., Richard Chapleau, and John Iwanaga (2002), "Involvement in the Arts and Human Development: Extending an Analysis of General Associations and Introducing the Special Cases of Intensive Involvement in Music and Theatre Arts." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 20 Minton, Sandra (2002), "Assessment of High School Students' Creative Thinking Skills: A Comparison of the Effects of Dance and Non-dance Classes." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 21 Tishman, Shari, Dorothy MacGillivray, and Patricia Palmer (2002), "Investigating the Educational Impact and Potential of the Museum of Modern Art's Visual Thinking Curriculum: Final Report." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 22 Kennedy, John Roy (2002), "The Effects of Musical Performance, Rational Emotive Therapy and Vicarious Experience on the Self-Efficacy and Self-Esteem of Juvenile Delinquents and Disadvantaged Children." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 23 Ross, Janice (2002), "Art and Community: Creating Knowledge through Service in Dance." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 24 Barry, N., J. Taylor, and K. Walls (2002), "The Role of the Fine and Performing Arts in High School Dropout Prevention." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 25 Wilhelm, Jeffrey D. (2002), "Reading Is Seeing: Using Visual Response To Improve the Literacy Reading of Reluctant Readers." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 26 Catterall, James S. and Lynn Waldorf (2002), "Chicago Arts Partnership in Education (CAPE): Evaluation Summary." In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.
- 27 Nelson, C.A. (2002), "The Arts and Education Reform: Lessons from a Four-Year Evaluation of the A+ Schools Program, 1995-1999." Executive Summary. In R. Deasy (Ed.), *Critical Links: Learning in the Arts and Student Achievement and Social Development*, Washington, DC: AEP.

# Where to **LEARN MORE**

The **NATIONAL ASSEMBLY OF STATE ARTS AGENCIES (NASAA)** is the membership organization that unites, represents and serves the nation's state and jurisdictional arts agencies. NASAA's mission is to advance and promote a meaningful role for the arts in the lives of individuals, families and communities throughout the United States.

**1029 Vermont Avenue, NW, 2nd Floor**  
**Washington, DC 20005**  
**Tel: 202-347-6352**  
**Fax: 202-737-0526**  
**E-mail: [nasaa@nasaa-arts.org](mailto:nasaa@nasaa-arts.org)**  
**URL: [www.nasaa-arts.org](http://www.nasaa-arts.org)**

The **ARTS EDUCATION PARTNERSHIP (AEP)**, established in 1994, is a national coalition of over 100 arts, education, business, philanthropic and government organizations that support the essential role of the arts in student learning and school improvement. AEP is administered by the Council of Chief State School Officers and the National Assembly of State Arts Agencies, through a cooperative agreement with the National Endowment for the Arts and the U.S. Department of Education.

**One Massachusetts Avenue, NW, Suite 700**  
**Washington, DC 20001-1431**  
**Tel: 202-326-8693 (Information Line)**  
**Fax 202-408-8081**  
**E-mail: [aep@ccsso.org](mailto:aep@ccsso.org)**  
**URL: [www.aep-arts.org](http://www.aep-arts.org)**







Published by the National Assembly of State Arts Agencies  
in collaboration with the Arts Education Partnership



Additional support provided by

**MetLife Foundation**

The work of the National Assembly of State Arts Agencies and the Arts Education Partnership is supported and strengthened in many ways through funding and programming partnerships with the National Endowment for the Arts.



# CRITICAL EVIDENCE

How the **ARTS** Benefit  
Student Achievement

Written by Sandra S. Ruppert

© 2006 by the National Assembly  
of State Arts Agencies. All rights reserved.

ISBN 0-9777050-0-5