Recent research is clarifying the mental processes involved in experiencing and making works of art and the significance of these processes in the intellectual, personal and social development of young people. The accumulating evidence is of great importance to education policymakers and planners. It indicates that arts learning benefits all students and, importantly, can be particularly beneficial for students from economically disadvantaged circumstances and those falling behind in academic performance.

by Richard J. Deasy
Research on the Effects of Arts Learning

Critical Links: Learning in the Arts and Student Academic and Social Development, published by the national Arts Education Partnership (AEP), brings together for the first time 62 of the strongest of these arts education studies and interprets their significance for educators. The studies and essays in this work point to strong relationships between learning in the arts and fundamental cognitive skills and capacities used in mastering other school subjects and skills, including reading, writing, and mathematics.

For instance, “spatial reasoning,” which is deployed in all of the art forms, is clearly shown to be an outcome of certain forms of music instruction. (Spatial reasoning is the ability to organize and sequence ideas, concepts and images.) “In the vast literature on spatial reasoning,” writes Dr. James S. Catterall of the Imagination Group at the University of California at Los Angeles, who took one of the lead roles in compiling Critical Links, “it is clear that mathematical skills as well as language facility [reading, verbal competence, and writing ability] benefit directly from spatial reasoning skills.”

Other reasoning skills cited in the studies include “conditional thinking” (the ability to generate and test theories) and the components of “creative thinking”: originality, elaboration, fluency, and flexibility. The latter skills are used when we imagine and act on new ideas and possibilities, skills important to solving problems. Similarly, the arts engender “persistence” and “resilience” in learners, the abilities to bring focused concentration to bear on tasks and to overcome the frustrations associated with mastering difficult material.

Students in the arts also develop what psychologists call “achievement motivations” that are fundamental to success in education and in life. For instance, improved “self concept,” “self efficacy” and “ownership of learning” can lead to increased engagement in school activities and higher educational aspirations. Fostering these motivations is particularly important for those students who have not been successful in school or other settings and who doubt their own ability to learn and succeed.

Skills important to social interaction—including empathy, collaboration, and tolerance for others—are nurtured by the arts, the studies report. Participation in drama and theater activities also can help students grasp and respond to the complexities of moral dilemmas.

This research on the links between arts education and students’ academic and social development comes as school leaders are being challenged by new federal and state laws to implement standards and accountability systems to help all students reach levels of achievement deemed essential for success as students, workers, and citizens in the 21st century.

Linking the Arts and Overall Student Achievement

Responding to these challenges, education policymakers and school administrators are often tempted to reduce or eliminate arts programs to concentrate classroom time on reading, writing and mathematics instruction. In doing so, much of the research suggests that they may be eliminating “critical links” to academic success for many of their students and denying all students the opportunity to develop crucial cognitive skills and motivations they need to achieve at high levels.

Of great importance to schools struggling to close achievement gaps are the indications that for certain populations—including students from economically disadvantaged circumstances and students needing remedial instruction—learning in the arts may be uniquely able to boost learning and achievement. For instance, studies reviewed in Critical Links show that students who are encouraged to dramatize reading material significantly improve their comprehension of the texts and their ability to read new and unfamiliar material. These improvements are most pronounced for young children, for those in need of remedial instruction, and for students of lower socio-economic status.

In addition to dramatic enactments, certain forms of music and dance instruction have been shown to enhance and complement basic reading instruction aimed at helping children “break the phonetic code” that unlocks written language. Other studies show relationships between learning in the arts and more advanced literacy skills, including interpreting challenging texts, writing, and oral expression.

Critical Links stresses that not all of the studies demonstrate that instruction in the arts directly causes learning in another subject, but rather that the cognitive skills and achievement motivations used and developed in the arts appear to be fundamental in other learning situations as well. The compendium further suggests that the arts can have an impact on the whole school by creating a learning environment conducive to more effective teaching. For instance, studies look at the positive effects on “teacher innovation,” “teacher awareness of student abilities,” and the “professional culture” of the school. As Rob Horowitz of the Center for Arts
Education Research at Teachers College at Columbia University and Jaci Webb-Dempsey of the Advanced Education Studies program at West Virginia University write, “Desirable processes and teaching characteristics are inherent to dynamic, multiple arts teaching environments.”

The authors add that, “Administrators and policymakers can be secure in supporting arts programs based on the evidence” presented in the research studies they reviewed; and they urge educators to explore their “implications for curriculum, professional development, partnership, and learning.”

Future Directions

Several other points from Critical Links should also be noted. The first is related to the kinds of assessments generally used by states and districts today. A number of the essayists argue strongly for the development and acceptance of assessments that respect and reveal the complexity inherent in learning in the arts. They repeatedly make the point that knowing the full range of effects of arts learning requires assessment instruments that can validly and reliably identify and measure the outcomes of arts instruction, something that requires instruments other than the currently available tests of reading and math achievement. The argument is not just that these tests are not sensitive to the effects of arts learning, but that they also are not adequate to assess the complexity of language and mathematical learning themselves, which are interwoven with the cognitive and affective processes of other domains, including the arts.

The second point relates to what is needed in arts education in the future. The Compendium essayists urge education researchers to build on the studies collected in Critical Links to provide even deeper insight into the nature and effects of learning in the arts. “Education researchers will find these studies a useful step on the long journey to developing more, better, and more useful research,” writes Karen Bradley of the Graduate Studies Department of Dance at the University of Maryland.

In response, AEP has joined with the American Educational Research Association (AERA) to convene a group of scholars to propose an agenda for future arts education research. The recommendations will be released at AERA’s annual convention in April, 2004. AEP itself, with support from the U.S. Department of Education, the GE Foundation and the Ford Foundation, is conducting a nationwide study of high-performing, high-poverty schools that have employed the arts to improve academic achievement and school performance. The goal is to provide policymakers and school leaders with guidance on the specific strategies that will yield the effects of the arts indicated in current research. Reports from this study are also due in 2004.

Overall, as I note in my introduction to Critical Links, the essayists in the Compendium show that the arts are firmly within current discussions and debates about the education policies and practices that will bring about school improvement and high achievement for students. Indeed, they make a strong case for the importance of arts learning itself.

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Critical Links: Learning in the Arts and Student Academic and Social Development

Transfer refers to learning in one situation and context that produces capabilities and dispositions or inclinations producing effective performance in a different situation and context. Transfer is a central question explored across [Critical Links]... Does learning in art engender skills or dispositions, which in turn enhance academic or social development?

...Four of our studies show some evidence of transfer from drama activities. DuPont found that comprehension of text promoted in drama contributes to comprehension of text generally. Fink found that using imaginative play in facilitated experimental conditions associated with generally higher imaginative play subsequently. Horn finds that the writing involved in a drama experiment with struggling high schoolers cultivated general habits of mind during the year... The disposition cultivated in this case was the general habit of seeking additional resources in order to write more effectively (specifically, using school and public libraries; turning to peers). This habit of mind is in short supply across student populations from grade 1 through graduate school, by all known assessments.

— James S. Catterall

Nowhere in the spectrum of arts learning effects on cognitive functioning are impacts more clear than in the rich archive of studies, many very recent, that show connections between music learning or musical experiences and fundamental cognitive capability called special reasoning. Music listening, learning to play piano and keyboards, and learning piano and voice all contribute to spatial reasoning... In the vast literature on spatial reasoning (about 3,000 studies in some bibliographies), it is clear that mathematical skills as well as language facility benefit directly from spatial reasoning.

— James S. Catterall

The authors demonstrate that children from high socio-economic status (SES) families are much more likely than low SES children to be consistently involved in arts activities or instruction. Economically disadvantaged students often do not have the same opportunities to become engaged in the arts. But, as this study shows, those low-SES children who do participate in the arts also perform better, academically and socially. Therefore, from a policy perspective, it may be beside the point whether arts instruction is the fundamental cause of increased performance, or instead is one of the conditions of superior schools. Either way, economically disadvantaged youngsters should have the same opportunities as others to partake in the benefits that the arts can bring, through either improved academic performance or improved schools.

— Robert Horowitz

[T]he trends of the results are clear: measures of reading skill and music education share a strong positive association. This finding should encourage music and language educators alike to pursue the integration of these subjects into one another in ways that may serve as entry points for more public school students to discover underlying connections between their academic and arts pursuits.

— Larry Scripp

There is no doubt in the author’s mind as to the causal effect of music instruction on spatial reasoning. In addition, there is little doubt that these findings support the view that pre-wired connections to spatial thinking in the brain are triggered by active engagement with traditional music instruction, regardless of the intent of the music teacher.

— Larry Scripp

Research now offers a theoretical basis for, and growing evidence of, the significant effects of learning shared between music and other measures of academic achievement. As a result, music and classroom educators now can embrace learning transfer as a desirable product of interactions between learning in music and academic subjects. From this perspective, fundamental concepts indigenous both to music and math classrooms can become the cornerstone of the music-infused interdisciplinary curriculum.

— Larry Scripp

Researchers who have studied art teaching searching for those elements that distinguish good arts teaching from good teaching in general, specify that arts teachers focus on those elements of the context that derive from the highly situational personal characteristics of their students, their feelings, thoughts, and life situations outside the classroom. Good arts teachers, say [several researchers], build their teaching on an understanding and knowledge of their students and their lives to a greater extent than do teachers in other subject areas.

— Terry L. Baker

Critical Links was published by the Arts Education Partnership (AEP), a coalition of more than 100 national education, arts, business, and philanthropic organizations. AEP is administered by the Council of Chief State School Officers (CCSSO) 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.

Copies of Critical Links can be ordered for $25 per copy by calling CCSSO at (202) 336-7016. A PDF version and related materials are available on the AEP web site at www.aep-arts.org.