THE IOWA ALLIANCE FOR ARTS EDUCATION
@issue:

Piano Lessons Improve Kids' Math Skills

New findings offer a potentially powerful teaching tool, capable of stimulating second-grade children to master critical sixth-grade reasoning concepts.

Chicago Tribune, V. Dion Haynes; reprinted with permission.

Pupils at 95th Street School in Los Angeles are demonstrating the strong link between music and math, boosting their numbers-crunching skills by taking piano lessons. @ A study in the March 1999 issue of *Neurological Research* shows that after learning eighth, quarter, half and whole notes, the second- and third-graders scored 100 percent higher than their peers who were taught fractions using traditional methods. @ University of California-Irvine researchers, who conducted the study, devised their own test to assess an experimental curriculum they developed that incorporates piano lessons with a computer math game. Though the curriculum has yet to be tested widely using national assessments, the study apparently is the first to test long-standing theories about the music-math link in a classroom. @ Researchers think the math game, which requires the user to match irregular holes with shapes, helps students visualize abstract math concepts, and the piano lessons help students hear and feel them. @ The 95th Street pupils are learning "spatial temporal reasoning," the ability to maintain and manipulate an image in your head without having it in front of you. Also, the games and piano lessons teach them "proportional reasoning," which is the ability to compute such problems as whether three-eighths is more than one-half without using paper. @ Spatial temporal reasoning and proportional reasoning are crucial for understanding calculus and geometry, as well as for chemistry, physics, medicine and other sciences. Recent studies have shown that American students are sorely lacking in such skills; American eighth-graders ranked 28th in a 1996 global study of students' ability to comprehend higher-level math. @ The UC-Irvine researchers selected 136 second- and third-graders at 95th Street School because the overwhelming majority of them come from low-income families. On a recent standardized test, the second-graders ranked in the 27 percentile in math. @ The music-math program supplements existing instruction; students take the piano lessons and play the computer games twice a week. @ Some students participated in the math-game portion only. The pupils who learned the piano and played the math games scored 27 percent higher on fractions than those who only worked on the computer games. Students who did everything scored 100 percent higher on fractions than students who were taught only via traditional methods.

Studies indicate that music training generates the neural connections used for understanding mathematical concepts.

Results Reinforce Causal Link Between Music and Intelligence

Findings published in the February 1997 issue of *Neurological Research* found children who received piano/keyboard training performed 34% higher on tests measuring spatial-temporal ability than children who did not receive the training. These findings indicate that music uniquely enhances higher brain function required for mathematics, chess, science and engineering. @ Music training—specifically piano instruction—is far superior to computer instruction in dramatically enhancing children's abstract reasoning skills necessary for learning math and science. The implications of this and future studies can change the way educators view the core school curricula, particularly since music-making nurtures the intellect and produces long-term improvements.

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