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## Middle School Music Lessons Enhance Algebra Skills

*A look at Maryland students' achievement levels finds a correlation between music instruction in grades six to eight and success at algebra.*

By Tom Jacobs

Algebra, according to the Great Schools website, “is frequently called the gatekeeper subject.” It provides a solid foundation for later learning by teaching abstract reasoning skills. What’s more, its lessons apply to an increasing number of jobs in our technologically sophisticated society.

So how can you increase the chances your son or daughter will excel at algebra? A new study provides a surprising answer: Have them learn a musical instrument.

Researcher Barbara Helmrich of Baltimore’s College of Notre Dame examined a sample of 6,026 ninth-graders enrolled in six Maryland school districts. All had completed an introductory algebra course in either eighth or ninth grade and taken the HSA, a test that assesses how well they learned the subject.

Helmrich divided the students into three groups: Those who had received formal instruction on a musical instrument during the sixth, seventh and eighth grades; those who received choral instruction during those same years; and those who received no formal musical training.

She found the students who studied music significantly outperformed their peers. “Formal instrumental instruction impacted algebra scores the most,” she reports. “Choral instruction also affected scores, but to a lesser extent.”

This achievement gap was particularly pronounced among black students.

“For African Americans, the means of all three groups represented failing scores on the fifth-grade MSA,” she said, referring to a standard assessment of math knowledge and ability. “However, after the middle-school years, the means of both the instrumental and vocal groups represented passing HSA scores, whereas the mean of the group receiving neither instruction did not.”

While Helmrich notes the link between music instruction and algebra achievement “most likely lies in a combination of factors,” she argues the primary effect is a matter of enhanced brain development. Middle-school music instruction “takes place during a time (age 10-12) in which a proliferation of new synapses occurs in the developing brain,” she writes.

“This study corroborates the opinion that these new synapses are formed and strengthened, at least in part, by activities — music in this case — that are undertaken during early adolescence,” she adds.

The particularly robust results for African-American students suggests “offering music education in middle school might present an alternative strategy for narrowing the achievement gap” between students of different races, Helmrich writes in the *Journal of Adolescent Research*.

These findings emerge at a time when many budget-strapped school districts continue to cut arts education programs. California students must complete one year-long course in the arts or a foreign language to graduate, but in early June, the state assembly voted to allow students to substitute a “career technical education” course for that requirement.

If those technical courses involve any higher-level math, the legislation may be sadly ironic. This study strongly suggests that understanding constants and variables is enhanced by the study of congas and violins.



*A new study says that if you want your children to excel in algebra, you should have them learn a musical instrument.*  
*(Ricardo Vasquez)*