

The Effect of Music Instruction on Preschool Students' Academic Skills:
A Comparative Study

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Abstract

The purpose of this study was to evaluate the effect of classroom music instruction on preschool aged (three to five year-old) students' cognitive, psychomotor, and social learning. The music program consisted of weekly lessons presented by a classical string quartet. These professional musicians worked closely with Head Start teachers to design the music instruction to articulate with the regular curriculum. The content of the music program did not include music literacy or performance skills. Instead, the musicians presented live performances coordinated with the students' regular classroom lessons.

On a weekly basis, for twenty weeks during the school year, the quartet presented a series of thirty-minute performances at two Head Start schools designated as Music schools. Students attending two other Head Start schools, designated as Comparison schools, participated as a control cohort in tests designed to measure the impact of the musical performances.

Two Head-Start Music schools were identified based in part on their potential for benefit from the Music project. They were also selected based on the willingness of the principals to endorse the project. Two similar Head-Start schools served as Comparison schools. These schools had similar racial diversity, percentage of students receiving a free lunch, and similar geographic settings. The Comparison schools did not receive the classroom music instruction. Both the Comparison and Music schools were accountable to the same measures of academic quality. All four Head-Start schools served a diverse racial mix of students, were located in the same region of the southeastern United States, and satisfied the federally mandated percentage of students receiving free or reduced-cost lunches.

A criterion-referenced test, the LAP-3, was used as both a pretest and a posttest to measure each student's growth in their abilities to listen, to reason abstractly, to solve problems, and to demonstrate social skills. Scores were tabulated in seven separate domains: Gross Motor, Fine Motor, Pre-Writing, Cognitive, Language, Self-Help, and Personal/Social. A standard among Head Start schools nationwide, this instrument uses computer-based scoring to avoid administrator error.

A sample of 46 students was randomly selected from each group for analysis ($n = 92$). Because significant differences were found by gender during a preliminary analysis of the

data in some LAP-3 domains, the sample for analysis was balanced by gender as well as by group. Twenty-three (23) girls and twenty-three (23) boys were randomly selected from both the Music and Comparison groups.

Using a multivariate analysis of variance (MANOVA), significant differences were found by group by test between the performance of students in the Music and Comparison groups, favoring the Music group, in four of the seven domains: Fine Motor, Language and Literacy, Self-Help, and Personal/Social. Similarly, although not statistically significant, the Music group demonstrated greater gains from pretest to posttest than did the Comparison group in the three other domains: Gross Motor, Pre-Writing, and Cognitive. It was therefore determined that group and test factors significantly interacted to effect students' LAP-3 scores such that students in the Music group demonstrated significantly greater gains than students in the Comparison group.

Furthermore, students demonstrated significant disordinal interactions with respect to four of the seven domains: Fine Motor, Language and Literacy, Self-Help, and Personal/Social. Similar disordinal interactions were observed in the Gross Motor and Pre-Writing domains; these interactions, however, were not statistically significant. Although not the focus of this study, main effect differences by test, by group, and by gender were also found in students' LAP-3 scores.

As a result, the music instruction was associated with positive effects on students' performance in all of the LAP-3 domains. Of those, the Music group demonstrated significantly greater gains from pretest to posttest in four domains than did students in the Comparison group. Continued investigation of the effects of live musical performances integrated with classroom lessons on students' LAP-3 scores is necessary to further validate this promising relationship. Similar results are expected during the next phase of this multi-year project. Additionally, the weaker effect of gender on students' LAP-3 scores could be explored in the future.