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ECOLOGICAL AND PERSONAL PREDICTORS OF SCIENCE ACHIEVEMENT IN
AN URBAN CENTER (175 pp.)

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This study sought to examine selected personal and environmental factors that predict urban students' achievement test scores on the science subject area of the Ohio standardized test. Variables examined were in the general categories of teacher/classroom, student, and parent/home. It assumed that these clusters might add independent variance to a best predictor model, and that discovering relative strength of different predictors might lead to better selection of intervention strategies to improve student performance.

This study was conducted in an urban school district and was comprised of teachers and students enrolled in ninth grade science in three of this district's high schools. Consenting teachers (9), students (196), and parents (196) received written surveys with questions designed to examine the predictive power of each variable cluster. Regression analyses were used to determine which factors best correlate with student scores and classroom science grades. Selected factors were then compiled into a best predictive model, predicting success on standardized science tests.

Students t tests of gender and racial subgroups confirmed that there were racial differences in OPT scores, and both gender and racial differences in science grades. Additional examinations were therefore conducted for all 12 variables to determine whether gender and race had an impact on the strength of individual variable predictions and on the final best predictor model. Of the 15 original OPT and cluster variable hypotheses, eight showed significant positive relationships that occurred in the expected direction. However, when more broadly based end-of-the-year science class grade was used as a criterion, 13 of the 15 hypotheses showed significant relationships in the expected direction. With both criteria, significant gender and racial differences were observed in the strength of individual predictors and in the composition of best predictor models.