

Title: Constructivist Views of Teaching, Learning, and Supervising held by Public School Teachers and Their Influence on Student Achievement in Mathematics

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### **ABSTRACT**

As a result of school reform efforts, educators have begun to develop strategies to improve education based on the inherent content of schooling: authentic learning, critical thinking, constructing knowledge, new roles for teachers, and performance based assessments. These developments share a common emphasis on intellectual development and tend to be considered under the increasingly popular term, constructivism. This study examined four areas of interest: a) characteristics of teachers' perceptions of constructivist teaching, learning, and supervision; b) factors influencing teachers' perceptions of constructivist teaching, learning, and supervision; c) relationships of teachers' perceptions of constructivist teaching, learning, and supervisory practices; and d) the influence of constructivist practices on student math achievement.

The focus of this study examined relationships between the perceptions of constructivist practices contained in the National Education Longitudinal Study of 1988. As a large-scale study, NELS: 88 was developed by the U. S. Department of Education's National Center for Education Statistics (NCES) to investigate the institutional, social, and family background factors that influence students' educational development from eighth grade, through high school, and into post-secondary education. This information was used to conduct a correlation analysis of the dependent and independent variables to make sure they measured distinct concepts.

Variables selected were then used to build composite measures of the constructs of interest. Factor analysis was employed as an exploratory tool to examine how these variables related to one another. Hierarchical multiple linear regression analysis was then used to determine the relationships between the independent and dependent variables while controlling for other pertinent school and teacher characteristics.

The findings suggest that different dimensions of constructivist teaching, learning, and supervisory practices have differing effects on student achievement. The results confirm research supporting the positive effect of constructivist learning practices. Specifically, an emphasis on problem solving was positively related to student achievement in mathematics. The results of the study also suggest that school setting, mathematics certification, teaching experience, gender, and minority status are all factors related to the use of constructivist, teaching, learning, and supervisory practices.