

Abstract of the Dissertation

All Alone: A Study of Isolated Chemistry Teachers in New York State

by

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This study explored the characteristics of the more than 2300 public school chemistry teachers in New York State during the 2011-2012 academic year. The findings indicated that New York had a robust, well-qualified, and experienced chemistry teaching population, especially in its suburban school districts, though unexpectedly a greater proportion of chemistry teachers in urban schools were found to have earned their first teaching certification in chemistry when compared to chemistry teachers in non-urban schools. Information about the teachers' qualifications and experience along with the characteristics of the schools in which they taught were collected from several independent, publicly available data sources and were compiled into a large database. After the data were organized, tabulated, and analyzed, trends and patterns in characteristics of chemistry teachers and the schools in which they taught were examined. Teacher characteristics included: area(s) and type of teaching certification(s), professional age, and subjects taught. Information about the schools where these teachers taught included: locale, socioeconomic status (SES), and size of the student population. In addition, information was gathered regarding the number of students who took, passed, and/or achieved mastery on the state's standardized Regents Examination in Chemistry. This census of chemistry teachers revealed the unexpected finding that more than half of the secondary schools in New York State had chemistry teachers who were isolated, i.e., they were the only people who taught the subject in their schools. Isolated teachers were found in schools in every locale, SES category, and even in schools with large student populations, though chemistry teacher isolation was rare in suburban schools. When examining student performance on the Regents Examination in light of chemistry teacher isolation, it was found that students of non-isolated teachers outperformed students of isolated teachers on almost every performance measure. These findings address some of the omissions in the science education research literature, especially concerning education in suburban schools. They also have implications for state and local level education policy makers and suggest that policies regarding teacher preparation programs be re-examined to inform the field and address the potential impact of teacher isolation on student performance.