Although teacher quality is positively correlated with student achievement, easily quantified measures of teacher quality are not accurate measures of quality; teacher pedagogical content knowledge and skills are better predictors, but difficult to measure. Professional development may be a cost-effective vehicle for developing new skills in in-service teachers, but there is conflicting research on whether professional development measurably raises student achievement on high stakes standardized tests. The purpose of this causal-comparative study was to examine Andrew, an in-service, high school teacher participant in a master’s program in mathematics. State mathematics assessment and student demographic data were collected from school districts for 4 academic years spanning from pre-program through program completion. One-way ANOVA analysis on student scale scores factoring by year showed a significant decrease in student mathematics scale scores potentially attributable to differences in population. Independent-samples t tests on the final two years showed a statistically insignificant increase in student growth percentiles. Further statistical analyses on 17 more teachers are being conducted presently. (Received September 17, 2013)