

High Fidelity Use of STEMscopes Results in Higher Standardized Test Scores Analysis of the Level of Usage of STEMscopes & Students' 5th Grade STAAR Scores

In one large, urban school district in Texas, we investigated how the extent of STEMscopes use among 35 schools in this district was associated with student science achievement. Specifically, we analyzed if the amount that the school used STEMscopes (based on the user analytics data that we collect through the website) was associated with 5th grade students' STAAR scores.

“The more exposure students have to inquiry-based science through STEMscopes, the better they perform on their state science achievement test.”

School District

The district partner for this study was a very large, urban district located in Southeast Texas. This public school district includes 153 elementary schools. Thirty-five of these schools used STEMscopes specifically for 5th grade science in the 2014-2015 school year.

School Information	Student Information
<p>85% Title I 49% Magnet 3% Charter</p>	<p>% African American 33%</p> <p>% Hispanic or Latino 53%</p> <p>% Economically Disadvantaged 76%</p> <p>% LEP 37%</p> <p>% Special Education 10%</p> <p>% Gifted/Talented 24%</p>

Analysis

The user analytics data served as a measure of dosage or intensity of implementation at each STEMscopes school. The 35 schools in this district that accessed the STEMscopes website and teacher dashboard during the 2014-2015 school year were included in analyses. Usage of STEMscopes was measured by the total number of visits to the STEMscopes 5th grade online curriculum between August 2014 and May 2015. Total number of visits average 210 hits per year and ranged from 1 to 980 hits. Using multilevel regression analysis, STEMscopes usage was entered as a school-level predictor of students' science achievement, controlling for the school- and student-level covariates described in the School District information above.

Results & Conclusion

STEMscopes usage was a significant predictor of students' science achievement, $b = 0.25$, $t(3230) = 5.75$, $p < .001$. Students in schools that used STEMscopes more frequently had higher science achievement scores, even after controlling for important school- and student-level differences. These results support previous research showing that inquiry-based science instruction has a cumulative effect on student science achievement (Geier et al., 2008). In other words, the more exposure students have to inquiry-based science through STEMscopes, the better they perform on their state science achievement test.