



**ALEKS®**

## **Executive Summary of *ALEKS* use in K-12**

*ALEKS* is a web-based intelligent tutoring system for mathematics that uses artificial intelligence to guide students through their learning. The effectiveness of *ALEKS* has been demonstrated in several studies. The summaries below highlight the findings of two studies performed by a group of researchers with middle school students in Tennessee. These studies were randomized controlled trials, which allow us to draw causal conclusions about the impact of *ALEKS* on math performance.

### ***Key Findings***

- Students who used *ALEKS* outperformed their peers who received only teacher-led instruction on a state math test.
- *ALEKS* use in an after-school program was associated with students needing less help from their teachers.

Craig and colleagues examined the effectiveness of *ALEKS* for 6<sup>th</sup> grade students struggling with math. The studies took place in an after-school setting, with participants randomly assigned either to a teacher-led classroom or to use *ALEKS* with a teacher present and aiding as needed. After one year, students who used *ALEKS* with high levels of engagement had significantly higher scores on the state math exam than their peers in the teacher-led condition,  $p = 0.08$ ,  $d = .47$ . The study experienced a high attrition rate, with most students not using *ALEKS* at the recommended levels, and therefore the students with high engagement were only a small subset of the overall sample. It is important that the study be replicated with a larger sample. A second study by the same group of researchers also revealed that students in the *ALEKS* group required significantly less assistance from their teachers in performing their math assignments,  $p < .001$ ,  $d = 2.91$ .

### References

Craig, S. D., Anderson, C., Bargagliotti, A., Graesser, A. C., Okwumabua, T., Sterbinsky, A., & Hu, X. (2011). \*Learning with *ALEKS*: The impact of students' attendance in a mathematics after-school program [Paper presentation]. Artificial Intelligence in Education. 15th International Conference, AIED 2011, Berlin, Germany. [https://doi.org/10.1007/978-3-642-21869-9\\_61](https://doi.org/10.1007/978-3-642-21869-9_61)

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