Mc Graw Hill ALEKS®

In this study, student outcomes on the AzMERIT End-of-Course assessments are compared for schools using ***ALEKS*** and those that do not.

KEY FINDINGS

- ~~Student~~nts in Algebra I at schools who used***ALEKS***® did signi cantly better than those who did not with a 5.1% reduction in Level 1 (Minimally Pro cient) scores and a 4.2% gain in Level 4 (pusbBT /52a better-better than those

ALEKS users who were also in speci c subgroups:

- Free and Reduced Lunch: 4.9% fewer in Level 1
- Hispanic: 4.4% fewer in Level 1
- English Language Learners: 7.2% fewer in Level 1
- Students with a disability: 12.3% fewer in Level 1

Future research should examine impacts for additional grade levels and should also include analyzing the correlation between student-level usage and assessment outcomes.

The methodology and positive ndings help this report to qualify as Tier III Promising Evidence under the criteria established by the Every Student Succeeds Act. Results for Geometry and Algebra II warrant further study given the smaller sample size.

ALEKS Impact on AZ Schools

February 26, 2021

This study of ALEKS implementation in AZ schools during the 2018-2019 school year finds evidence of a positive effect of ALEKS on AzMERIT End of Course Algebra I and Algebra II assessments. This report identifies the school-level effects of active ALEKS usage on achievement compared to similar AZ schools not using ALEKS.

IMPACT OF ALEKS

Active use of ALEKS results in improved student outcomes on AzMERIT End-of-Course (EOC) assessments in Algebra I and Algebra II compared to a matched sample of

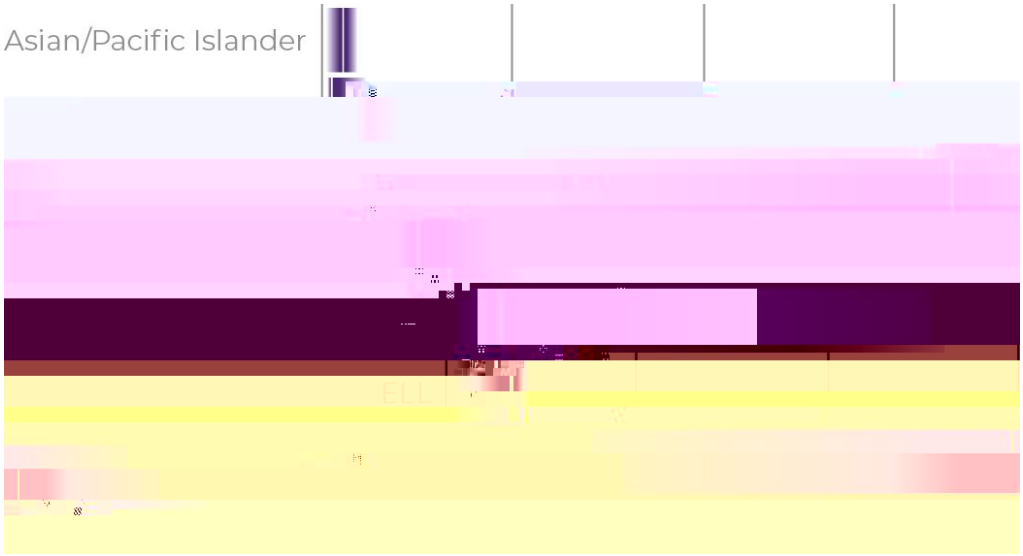
DIFFERENTIAL IMPACT

We also tested the impact of ALEKS on

COMPOSITION OF THE SAMPLE

During the 2018–2019 school year, more than 100 schools in AZ used ALEKS. For the main analysis of this study, we limited the pool of ALEKS schools to those where at least 50% of students who were tested in a particular course took at least one ALEKS assessment during the year. This limited the sample of ALEKS schools to 31 schools. Alternate approaches to selecting the treatment group, which increase the sample size but may include less active users of the ALEKS program, are shown in the Technical Details.

Figure 3 shows the distribution of demographic variables in ALEKS schools in AZ. Each bar represents the range of a variable (10th through 90th percentile) with a white line representing the median.



Schools that used ALEKS were more likely to have higher proportions of historically disadvantaged student populations

CONCLUSION

In this comparison study, schools that were active users of ALEKS performed better on Algebra I and Algebra II EOC math assessments than schools that were not ALEKS users. These results were even stronger across disadvantaged student subgroups in the impact on the percentage of students performing at the lowest proficiency level.

The positive average impact on the Algebra I EOC assessment for schools with active ALEKS users compared to non-users, in conjunction with the positive

TECHNICAL DETAILS

Data & Methodology

This report examines the effect of ALEKS usage on math performance in AZ middle and high schools during the 2018–19 school year, as measured by the EOC math assessments in Algebra I, Geometry, and Algebra II. The data available for this study were the proportion of students in each proficiency level for each EOC assessment by school. AZ reports the following four proficiency levels: Minimally Proficient, Partially Proficient, Proficient, or Highly

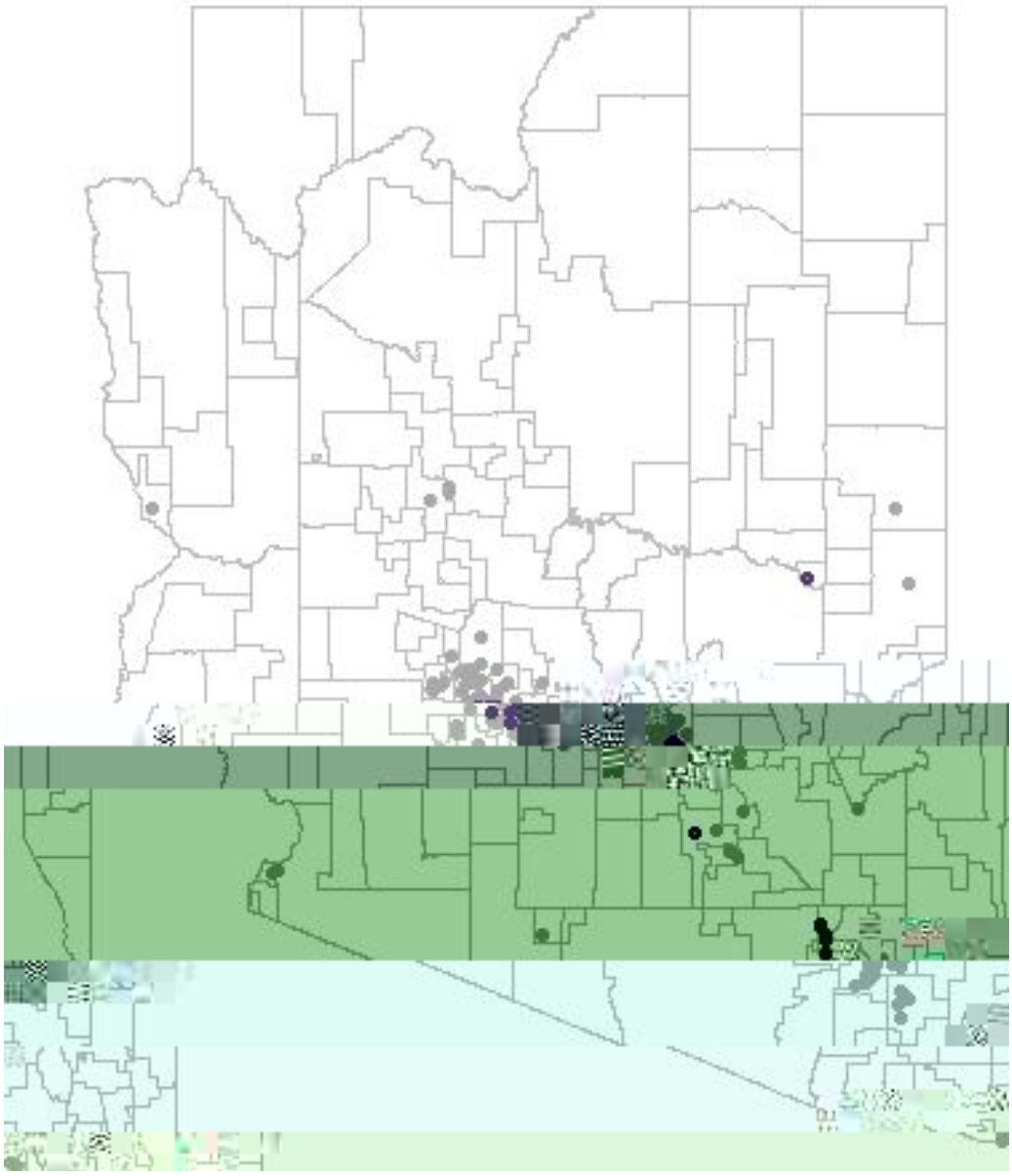


FIGURE 4. SCHOOLS IN THE ANALYTIC SAMPLE

Analysis

This study uses a quasi-experimental comparison group design to estimate the impact of ALEKŕn J ! R2™™ŸĐ lˆ

TABLE 3. BASELINE EQUIVALENCE OF THE ALEKS AND COMPARISON SAMPLES, SAMPLE FOR DESIGN APPROACH 2

Characteristic	ALEKS	Comparison	Pooled standard deviation	Difference as proportion of standard deviation
Average school size	1366	881	701	.69
Percent charter schools	23	40	47	.37
Percent economically disadvantaged	56	49	28	.22
Percent White	30	41	26	.40
Percent Hispanic s	s 53	44	27	.32
Percent Native American	6	5	18	.08

Note. Differences in the treatment and outcome groups were greater than .25 standard deviations. Based on WWC evidence standards, baseline equivalence was not achieved, as ALEKS schools tended to serve schools with a higher proportion of disadvantaged students.

TABLE 4. BASELINE EQUIVALENCE OF THE ALEKS AND COMPARISON SAMPLES, SAMPLE FOR DESIGN APPROACH 3

Characteristic	ALEKS	Comparison	Pooled standard deviation	Difference as proportion of

Note. Differences in the treatment and outcome groups were greater than .25 standard deviations. Based on WWC evidence standards, baseline equivalence was not achieved, as ALEKS schools tended to serve schools with a higher proportion of disadvantaged students.

Results

Results for the three approaches described above are reported in Tables 5 through 7, respectively. The estimates of the average impact are in the same direction for all three approaches, although the estimates and statistical significance varies due to the user population sample sizes.

TABLE 5. EFFECT OF ALEKS ON THE PROPORTION OF STUDENTS PERFORMING AT VARIOUS PERFORMANCE LEVELS; DESIGN APPROACH 1, MAIN ANALYSIS

	Passing		Level 1 - Minimally Proficient		Level 4 - Highly Proficient	
Course	Estimate		Estimate		Estimate	
Algebra I	2.5	.25	-5.1	.05	4.2	.002
Geometry	-1.5	.21	1.7	.03	-0.8	.01
Algebra II	0.7	.39	-0.6	.08	0.04	.03

TABLE 6. EFFECT OF ALEKS ON THE PROPORTION OF STUDENTS PERFORMING AT VARIOUS PERFORMANCE LEVELS; DESIGN APPROACH 2

	Passing		Level 1 - Minimally Proficient		Level 4 - Highly Proficient	
Course	Estimate		Estimate		Estimate	
Algebra I	0.5	.80	-3.2	.07	1.0	.40
Geometry	0.3	.85	2.1	.06	-0.3	.40
Algebra II	3.0	.32	-1.5	.40	0.75	.88