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The Idaho Standards Achievement Test

**Idaho Standards Achievement Test (ISAT) Effect Size Results,
English Language Arts and Mathematics,
All Students, Female Students and Male Students,
Grades 3-8 and 10, 2015 through 2022**

*Prepared by
K-12 Research Idaho
— a personal public service project —
for educators, students, parents, and patrons of
Idaho's Public Schools*

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This “descriptive study” used effect size statistics derived from scale scores to explore the progress of Idaho students (i.e., annual gains or losses) from the first administration of the SBAC version of the Idaho Standards Achievement Tests from 2015 to 2019, and then 2021 to 2022. ISAT was not administered in 2020 because Idaho’s schools were closed by state COVID-pandemic policy.

The Idaho State Department of Education (SDE) provided the ISAT statewide summary scores for grades 3-8 and 10 utilized for the study. Data were identified for three student groups: all students, female students, and male students. For each statewide student group, the SDE provided (1) the number of students who had valid ISAT scale scores, (2) the average or mean scale score, and (3) the standard deviation.

The effect size (i.e., the size or magnitude of the difference between two means) was calculated by dividing the difference between two means by their pooled standard deviation. This study used the Cohen d formula, which examines the mean, standard deviation, and number of students to estimate whether a subject-grade group experienced a gain ($d > 0$), maintained ($d = 0$), or had a loss ($d < 0$) in the English language arts and mathematics skills that the ISAT measures. Cohen’s d computational formula is:

The Cohen d is defined as the difference between two means divided by a standard deviation for the data, or

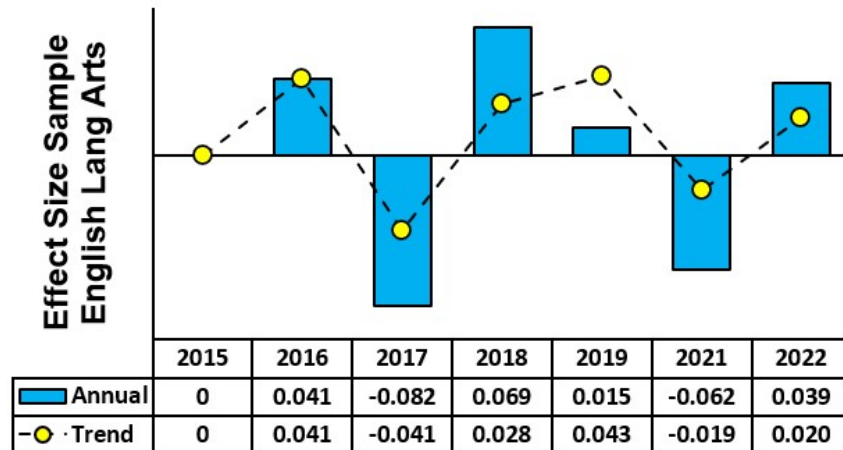
$$d = \frac{\bar{x}_2 - \bar{x}_1}{s}$$

Jacob Cohen defined s (the pooled standard deviation) as

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

By Cohen’s standards the effect size estimates for ISAT are small (Bradburn, 2019), but they were comparable to those encountered in similar analyses of other standardized tests.

Effect sizes were illustrated using bar-line graphs, where the bars represent the magnitude of the effect size for this year compared to last year. Lines illustrate the group’s cumulative effect size from 2015. The table at the bottom of the graph displays the Cohen *d* effect size value for each assessment (annual) and the cumulative effect size from 2015.



READING THE GRAPH! The bar for 2021 on the effect size graph illustrates the “impact of the pandemic” on the group’s overall performance since the spring of 2019, while the 2022 bar illustrates the one-year post pandemic performance be it continued decline, rebound, or somewhere in between. The effect size results from 2016 to 2019 provide the reader with a context for understanding the magnitude of the achievement gain or loss related to the pandemic.

CAUTION/WARNING: Forty-two effect-size graphs appear later in this paper. An equal-sized bar in any two graphs may or may not represent equal effect sizes. This would require that an identical scale be used for every graph. That is not the case here. The computer was asked to select a scale that would best fill the plot area, so each graph ended up with a unique scale. **HOWEVER,** the magnitudes of effect size change across subjects, grades, and/or groups may be compared by using the Cohen *d* values in the tables.

Effect Size Charts, 2015 through 2022

ISAT English Language Arts, Grades 3-8 and 10

All Students	Pages 5-11
Female Students.....	Pages 12-18
Male Students	Pages 19-25

ISAT Mathematics, Grades 3-8 and 10

All Students	Pages 26-32
Female Students.....	Pages 33-39
Male Students	Pages 40-46

NARRATIVES

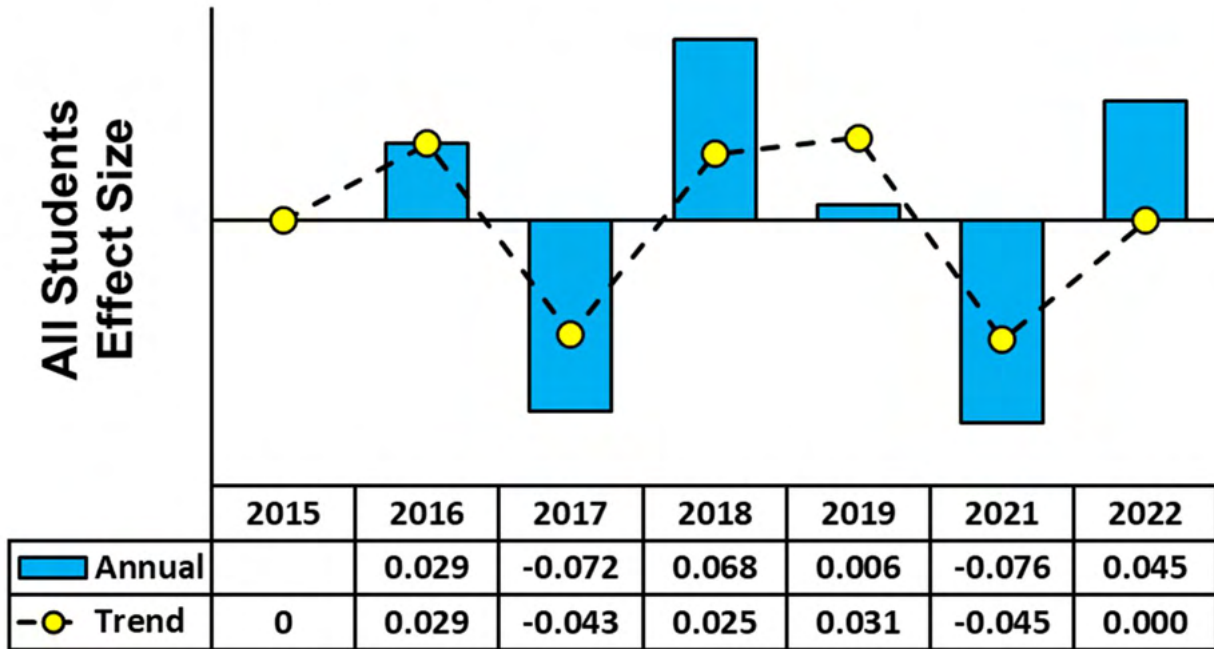
Typically, narratives are provided for each graph, but this time they are not offered. Instead, it is left to the reader to see what there is to see and to consider what might be done about it. If what you see is positive, write down what you see and how it might be celebrated. If what you see is disappointing, write down what you see and how it might be improved.

Consider

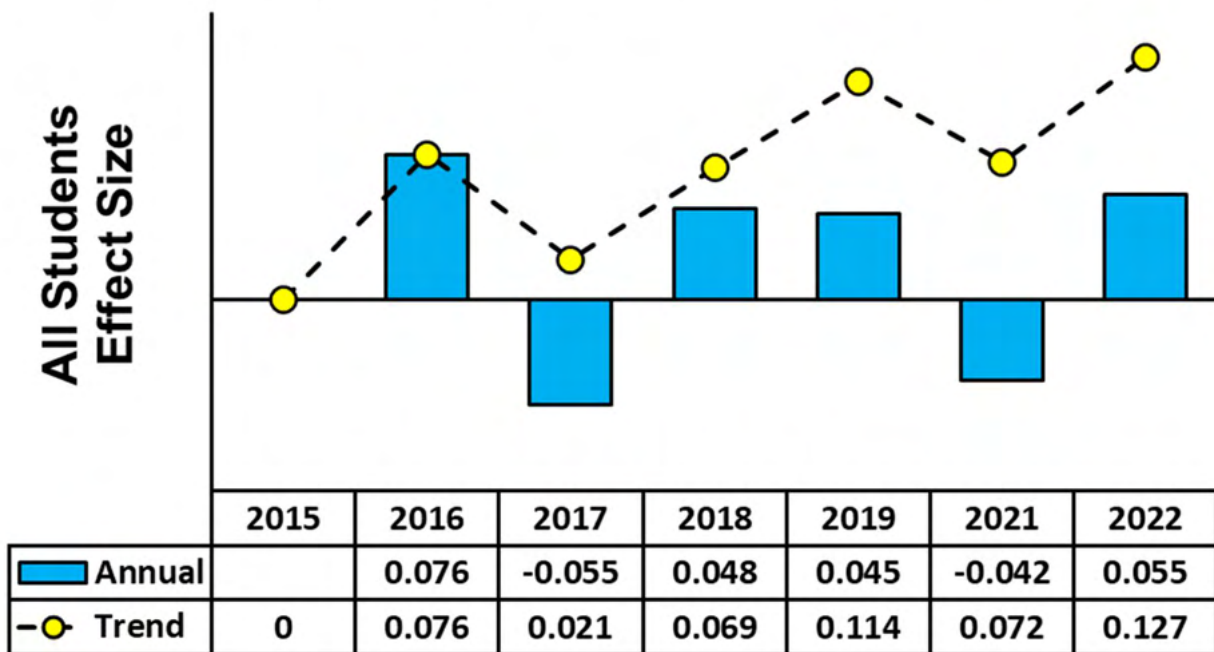
- ✓ The bar for 2021 illustrates the “impact of the pandemic” on the group’s overall performance since the spring of 2019 (i.e., loss or gain).
- ✓ The 2022 bar illustrates the one-year post pandemic performance be it continued decline, rebound, or somewhere in between.
- ✓ The effect size results from 2016 to 2019 provide the reader with a context for understanding the magnitude of the achievement gain or loss related to the pandemic.
- ✓ The line (yellow circle) for 2021 or 2022 illustrates how the student class of 2021 or 2022 compares to the student class of 2015.

✓

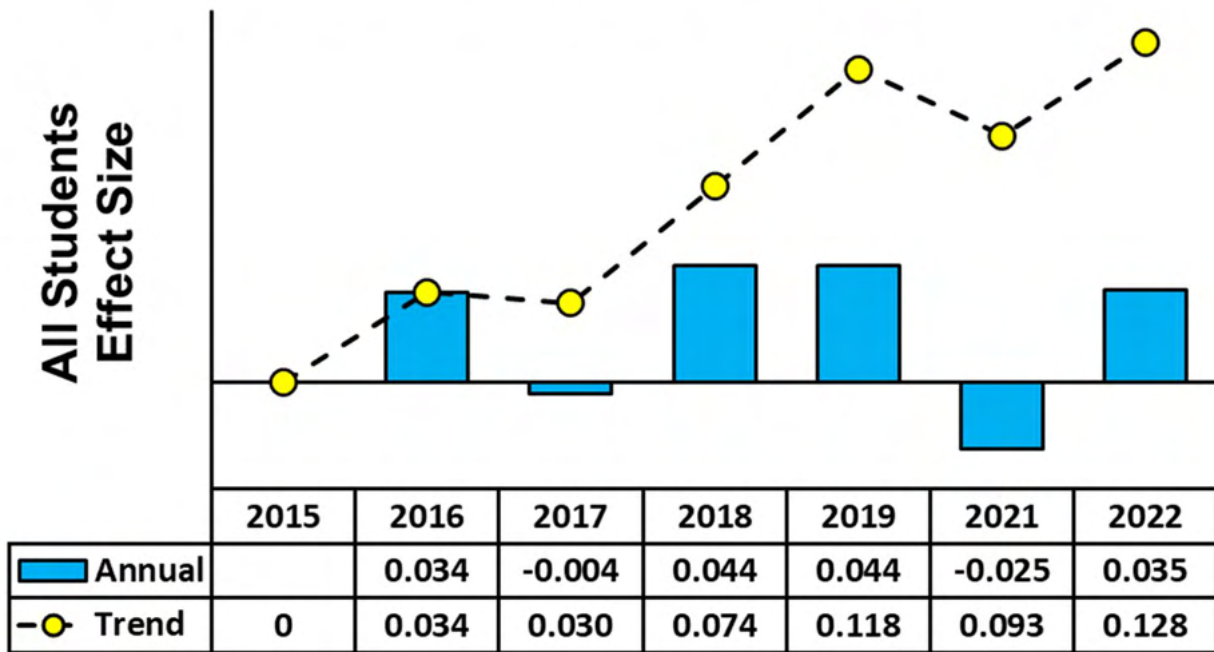
ISAT English Language Arts, Grade 3



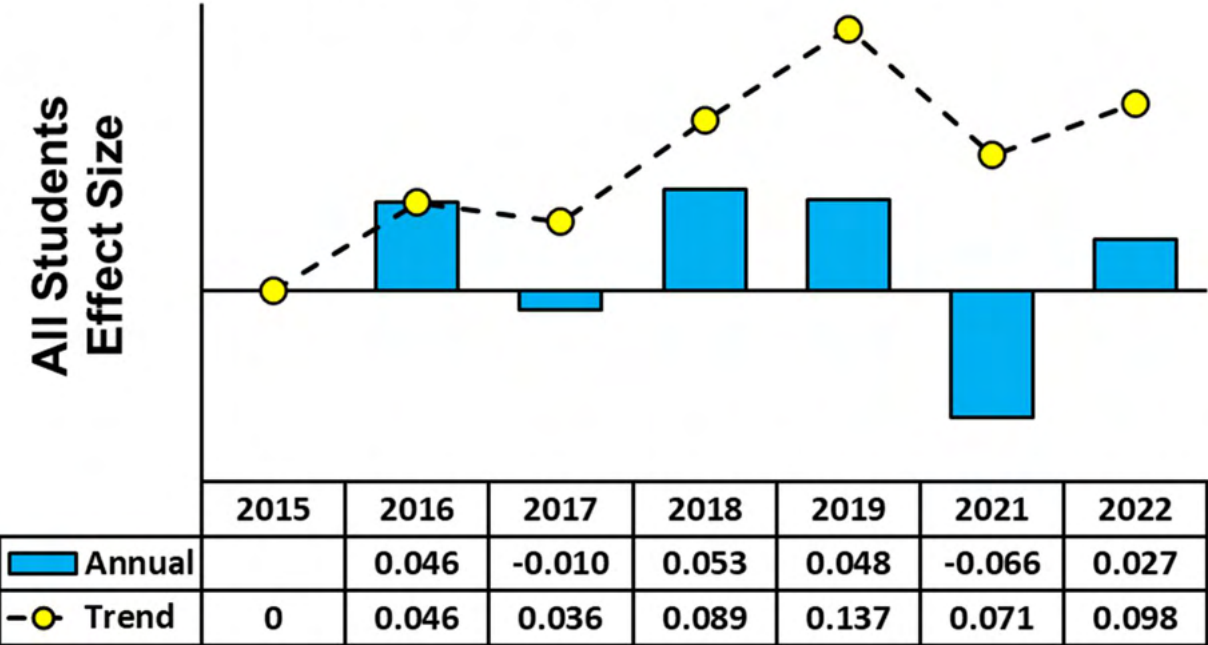
ISAT English Language Arts, Grade 4



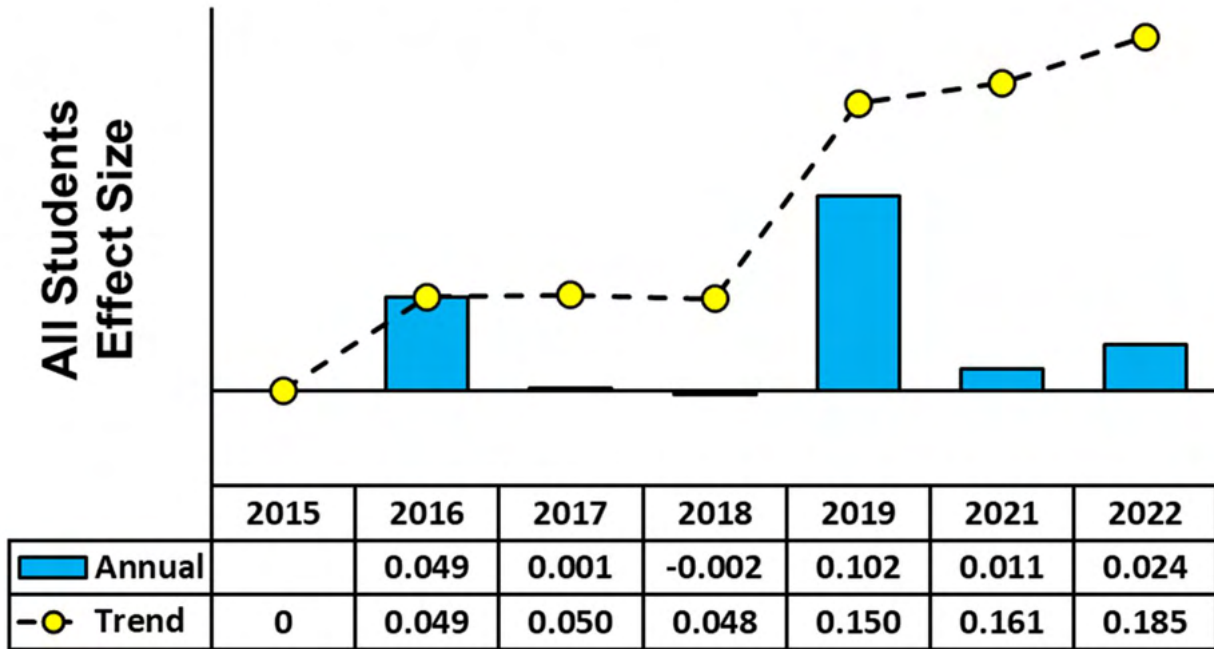
ISAT English Language Arts, Grade 5



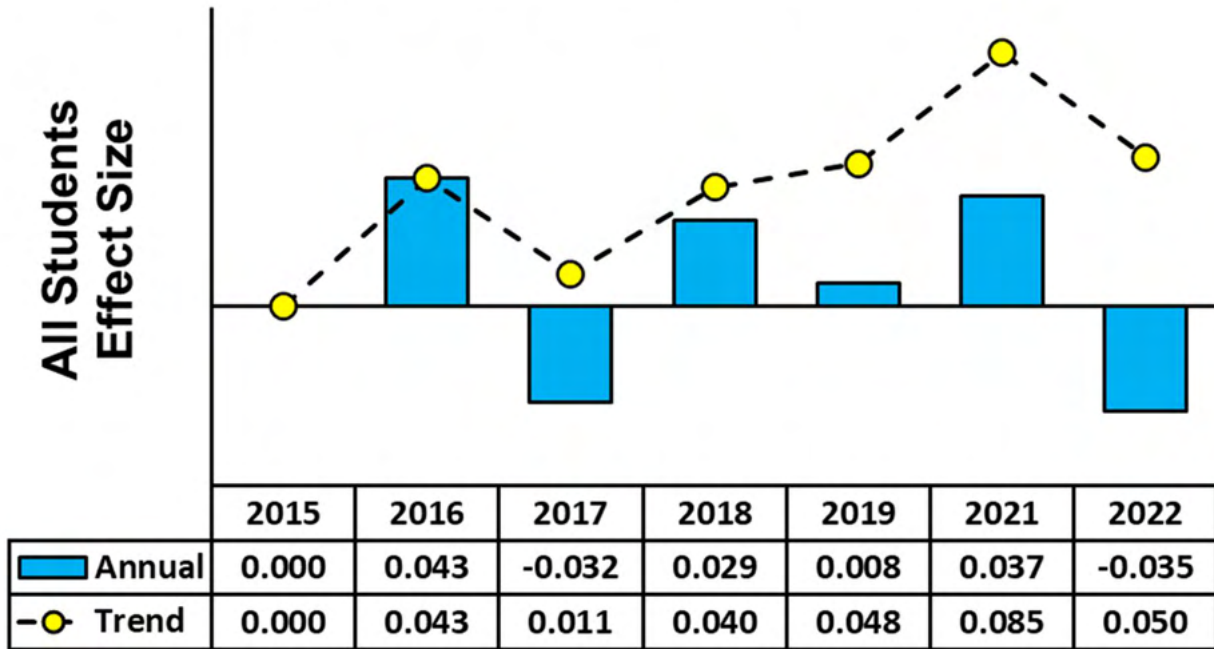
ISAT English Language Arts, Grade 6



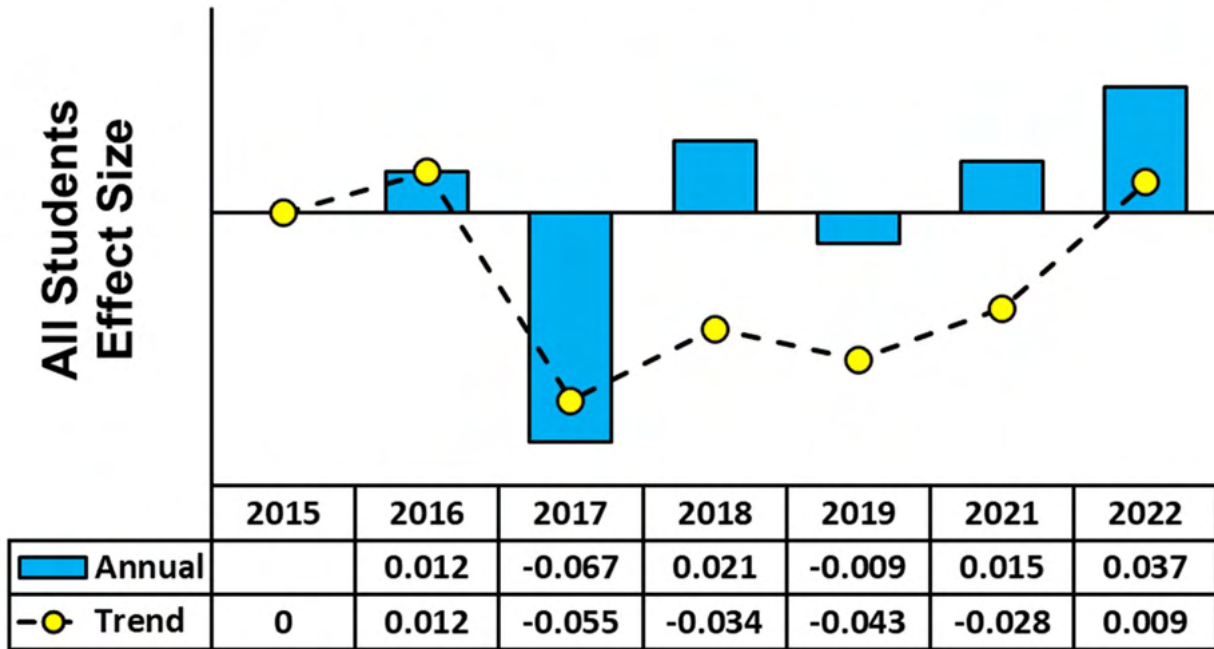
ISAT English Language Arts, Grade 7



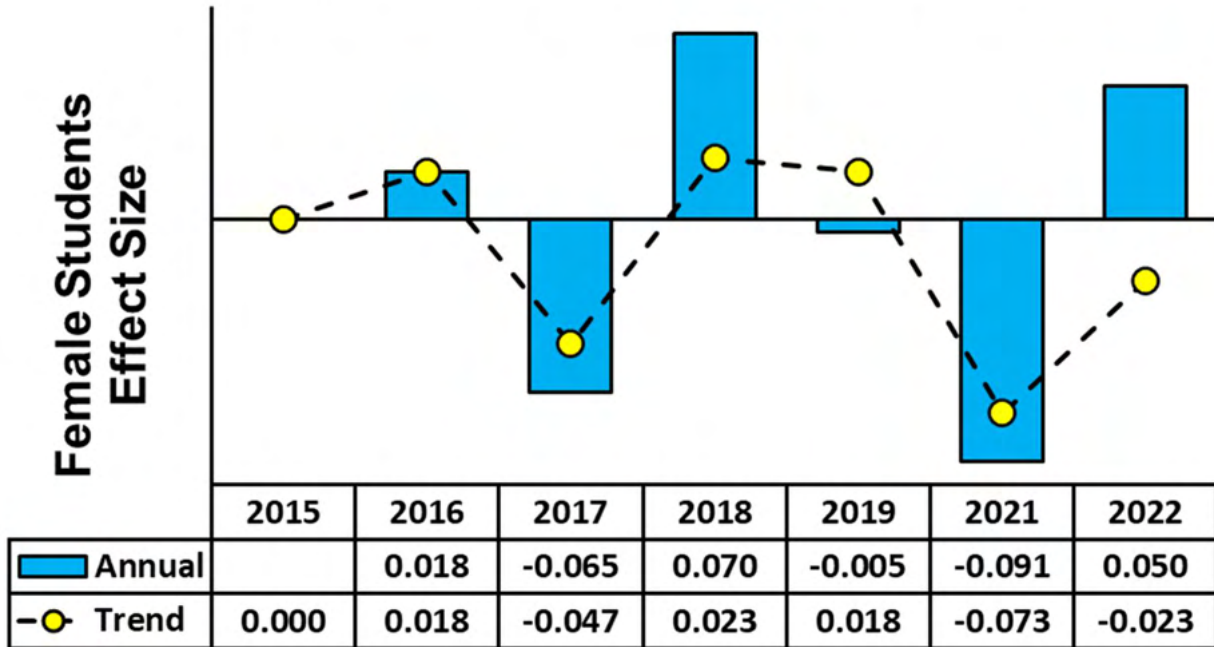
ISAT English Language Arts, Grade 8



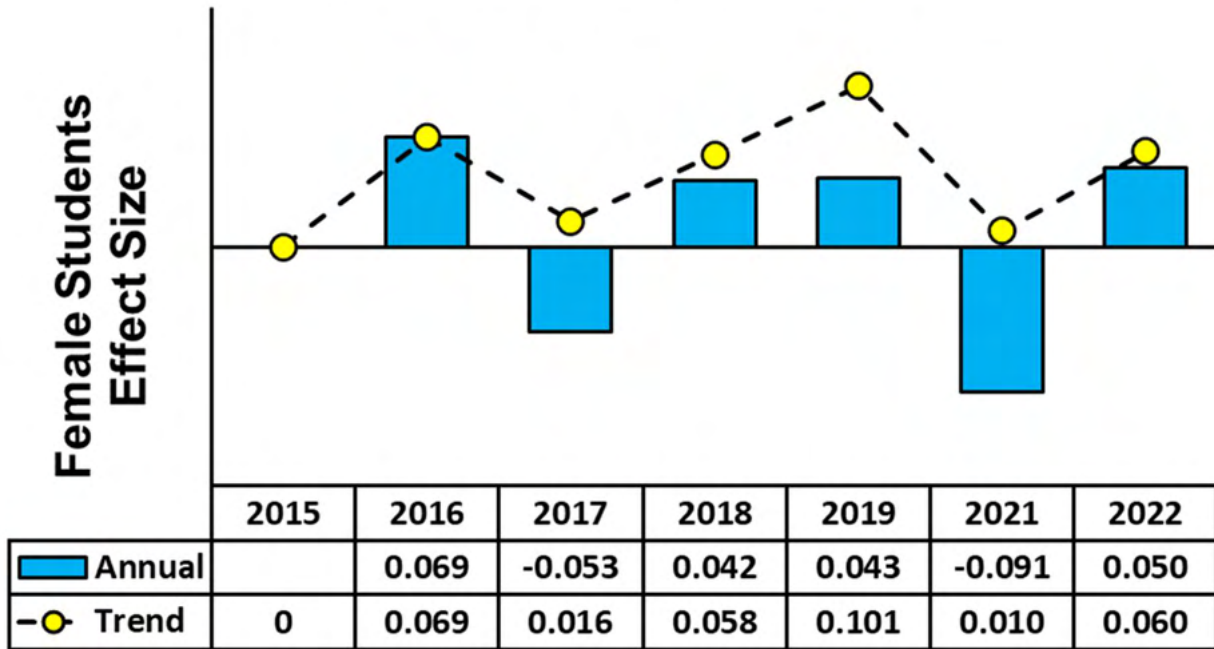
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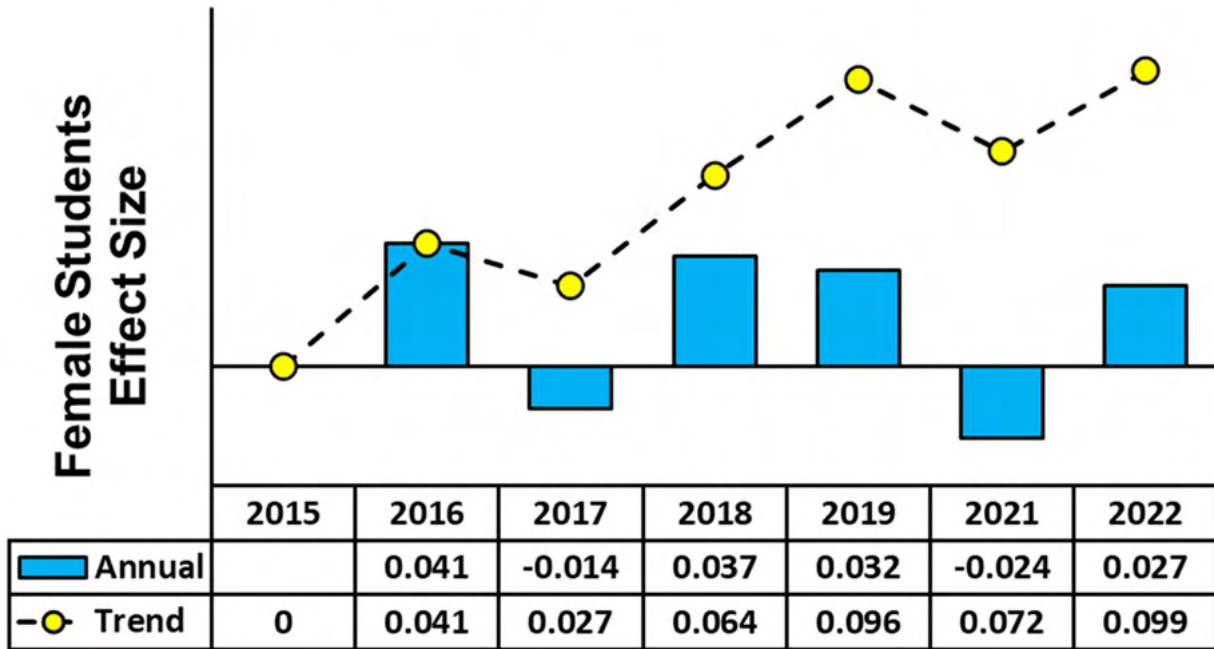
ISAT English Language Arts, Grade 3



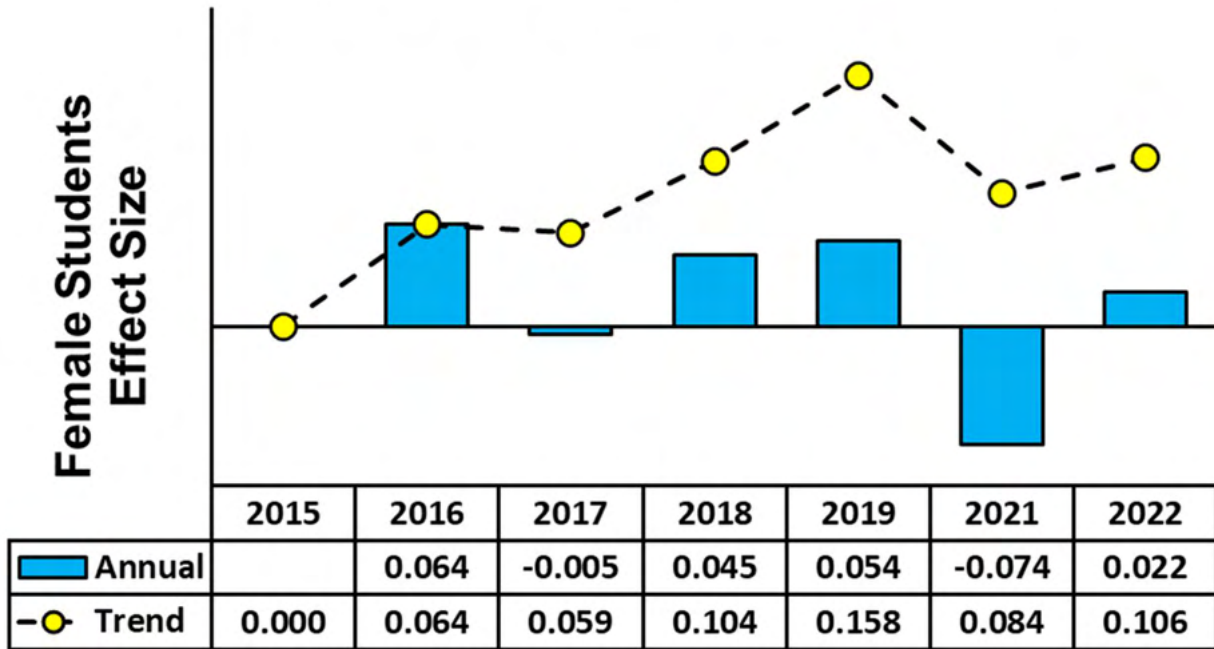
ISAT English Language Arts, Grade 4



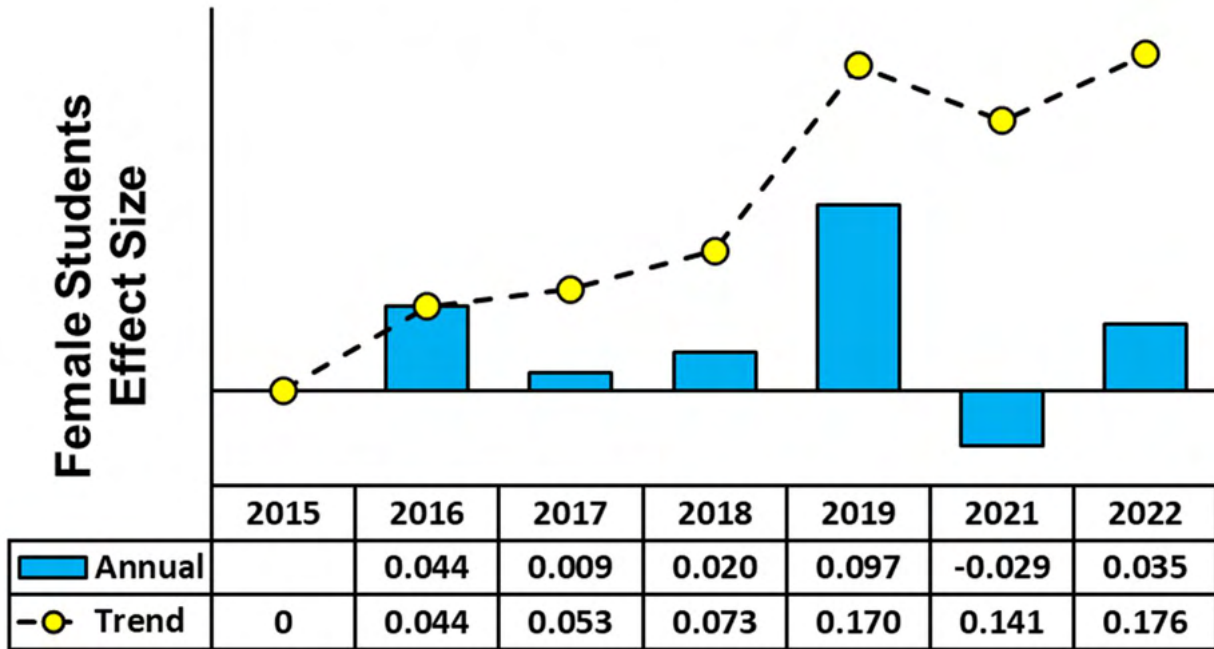
ISAT English Language Arts, Grade 5



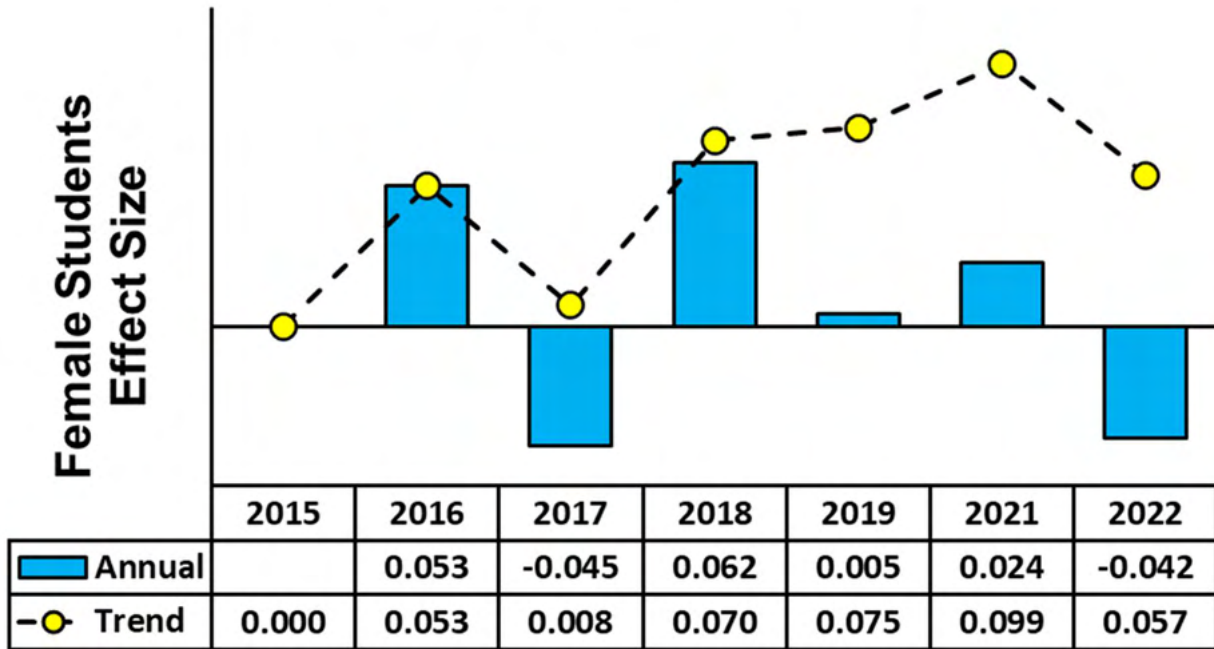
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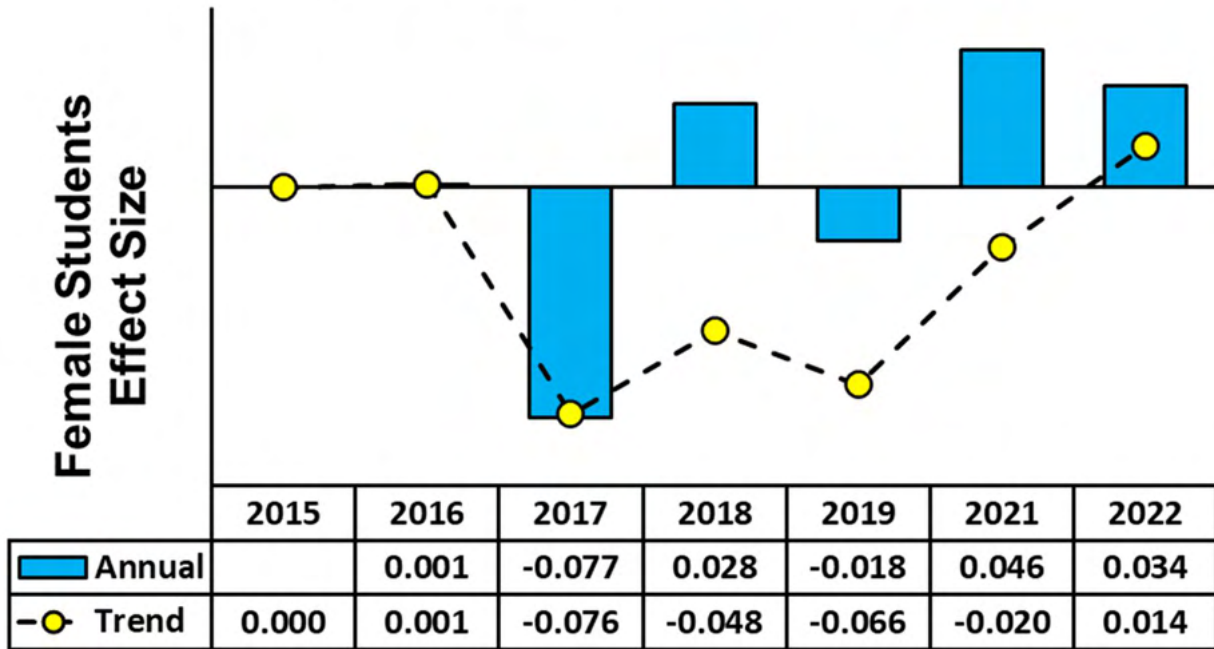
ISAT English Language Arts, Grade 7



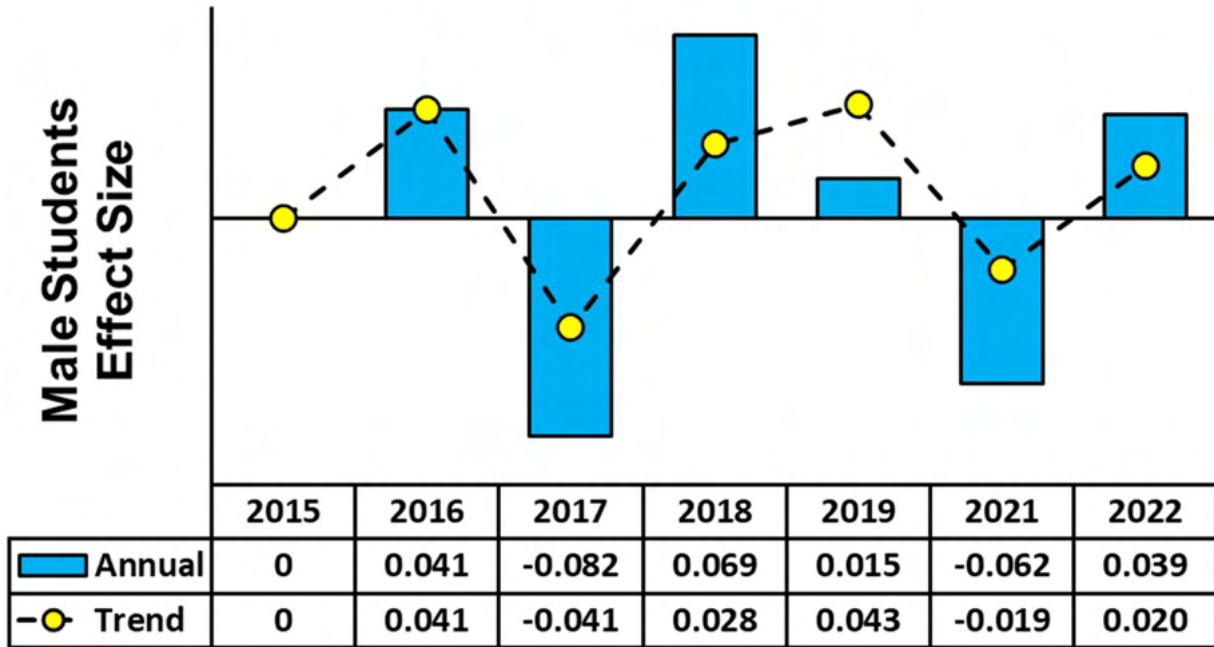
ISAT English Language Arts, Grade 8



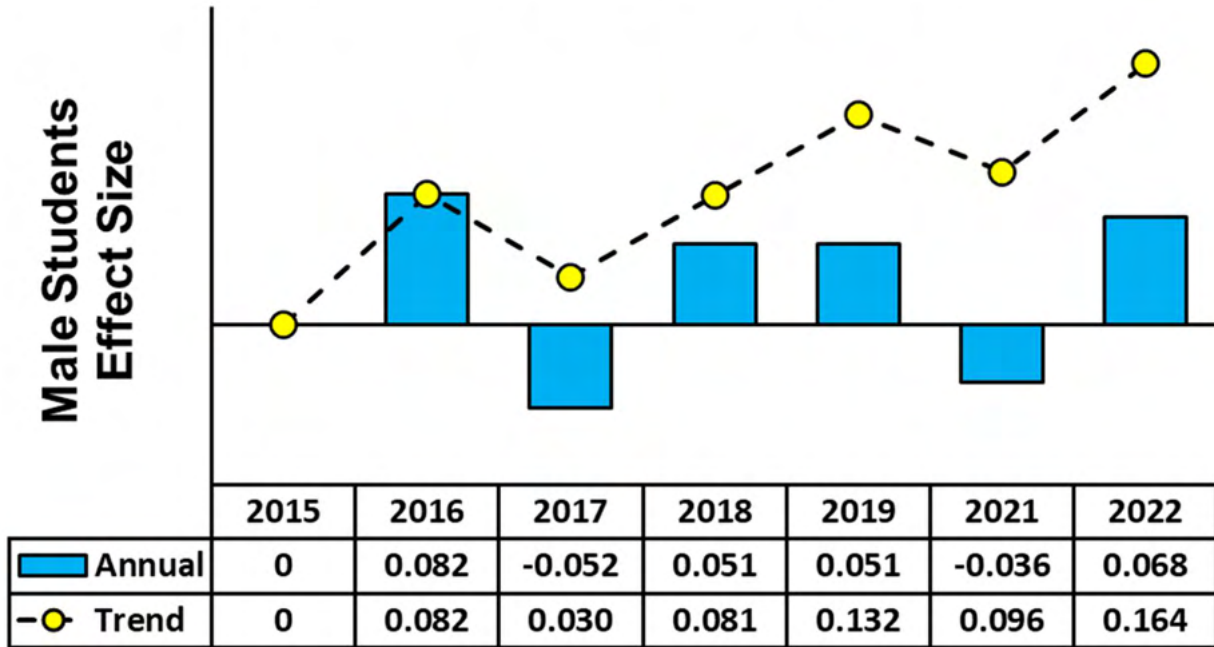
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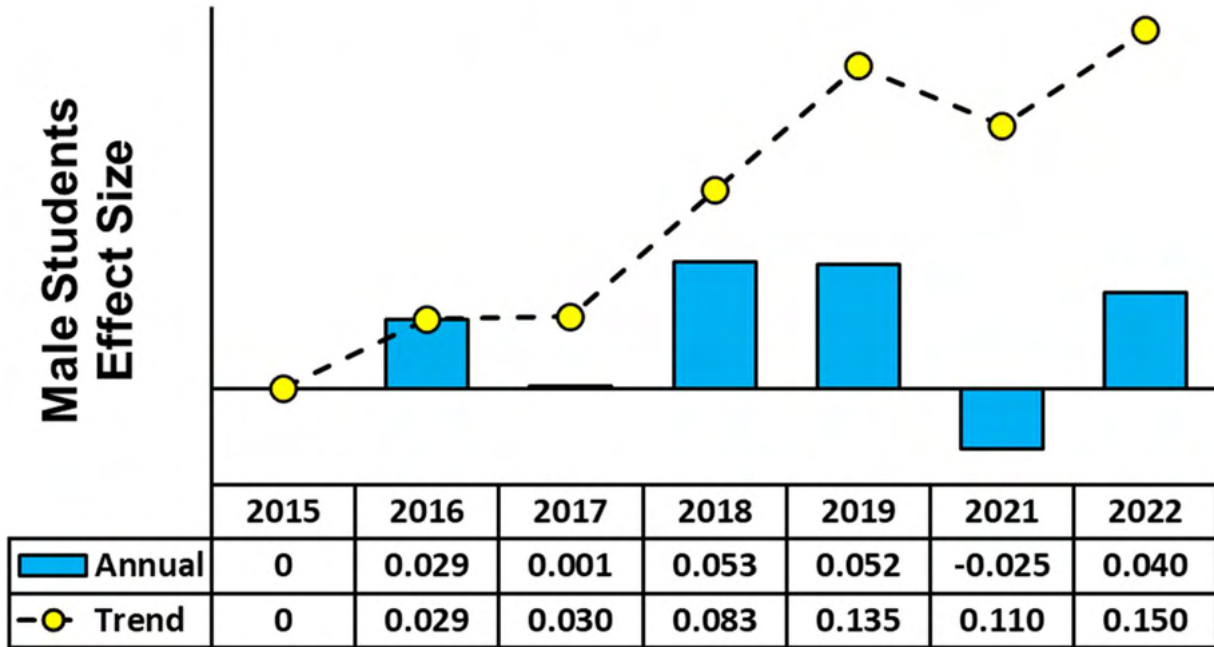
ISAT English Language Arts, Grade 3



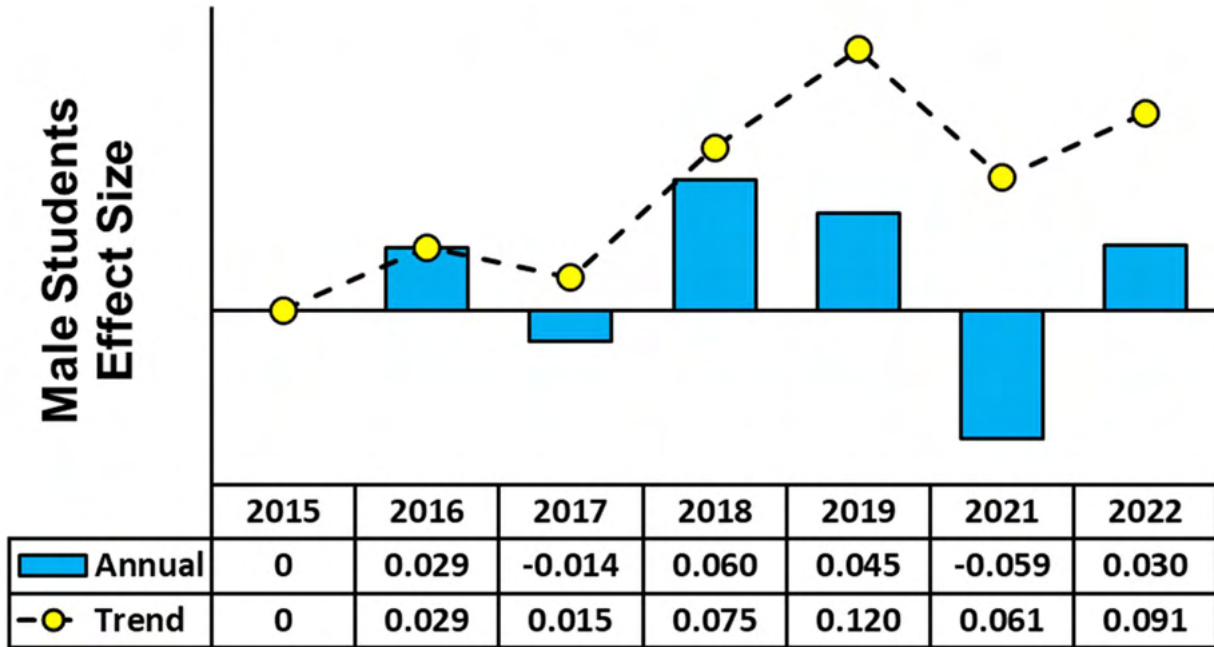
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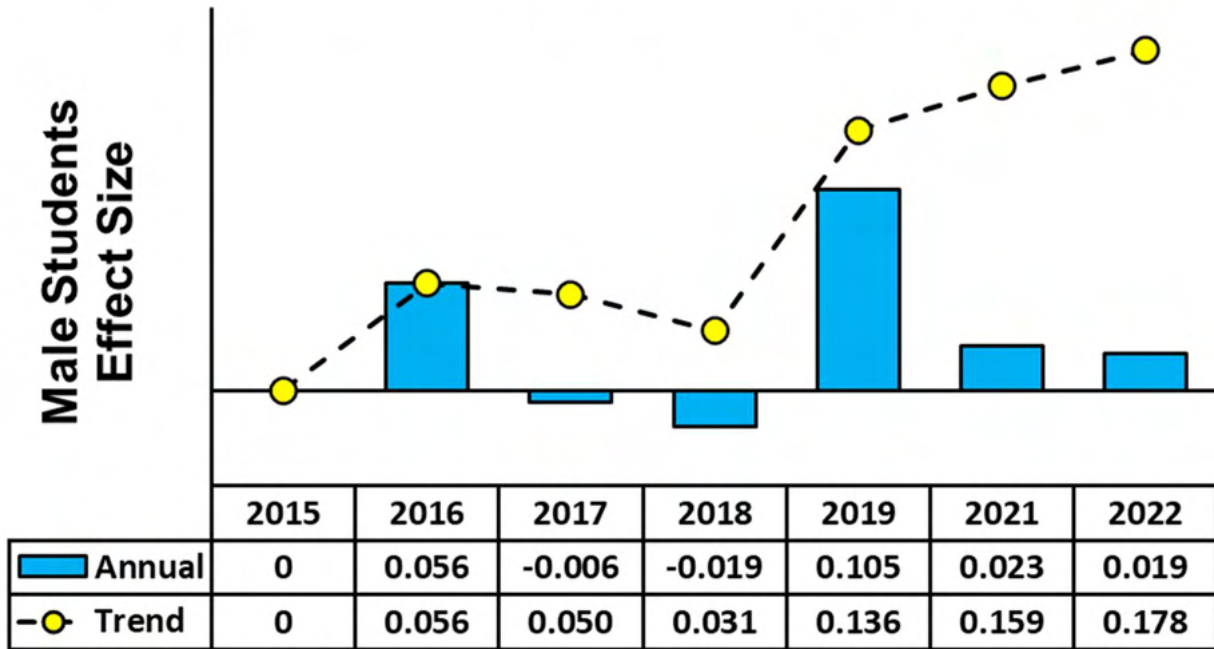
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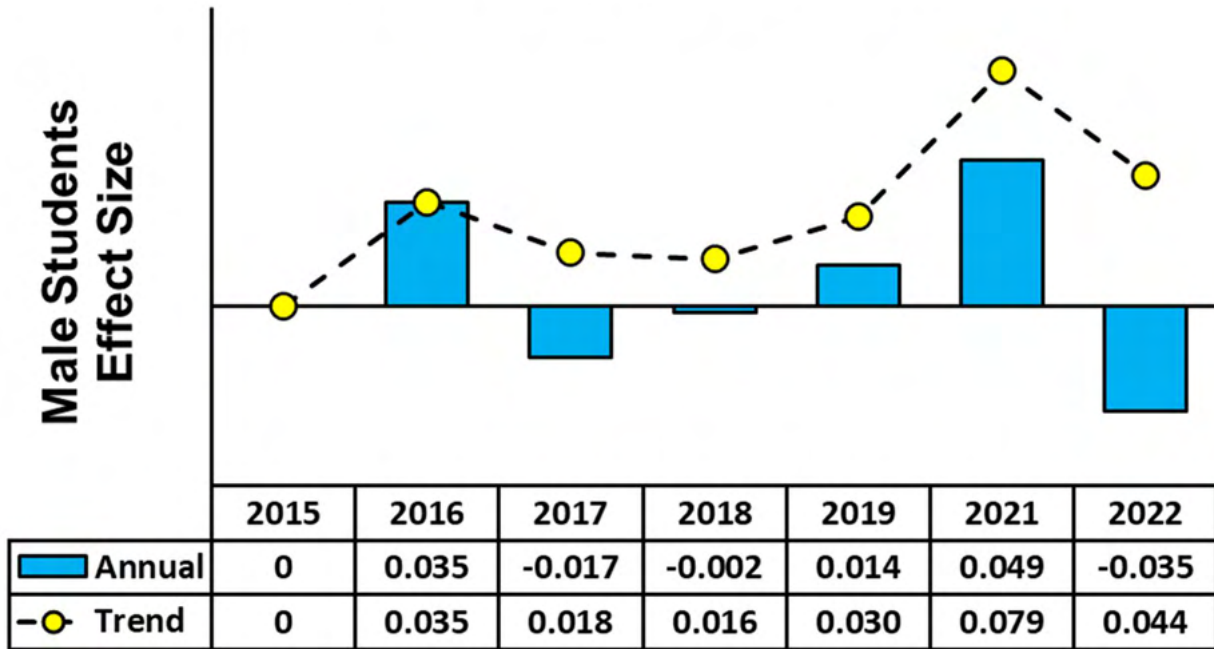
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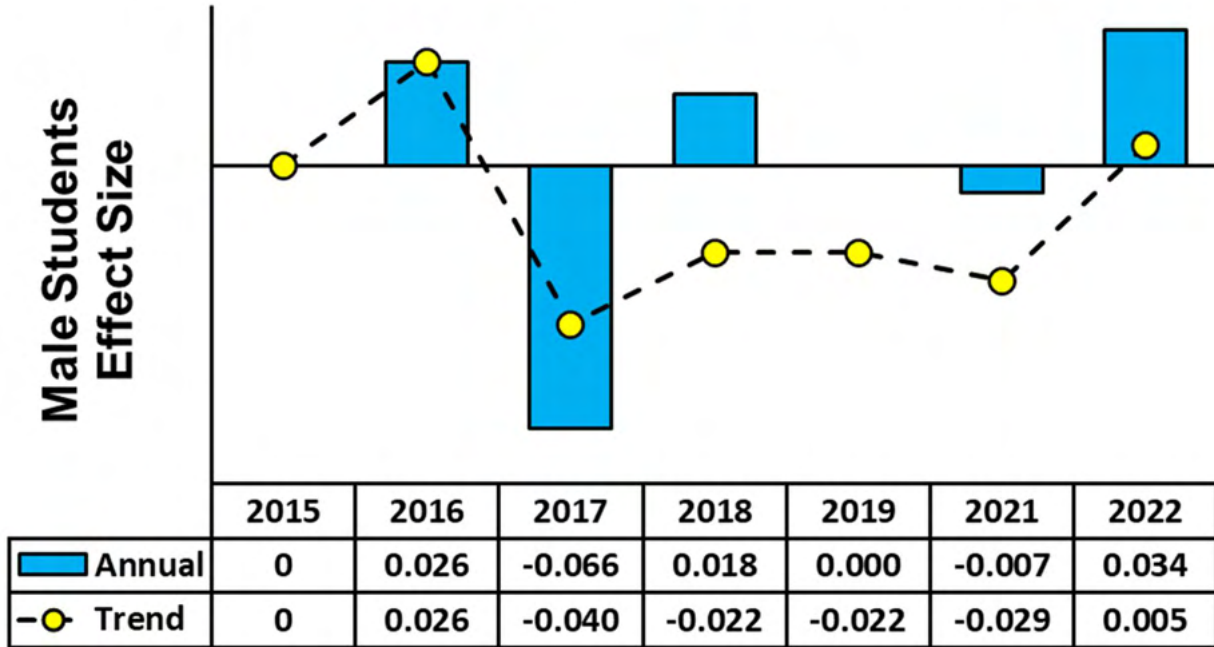
ISAT English Language Arts, Grade 7



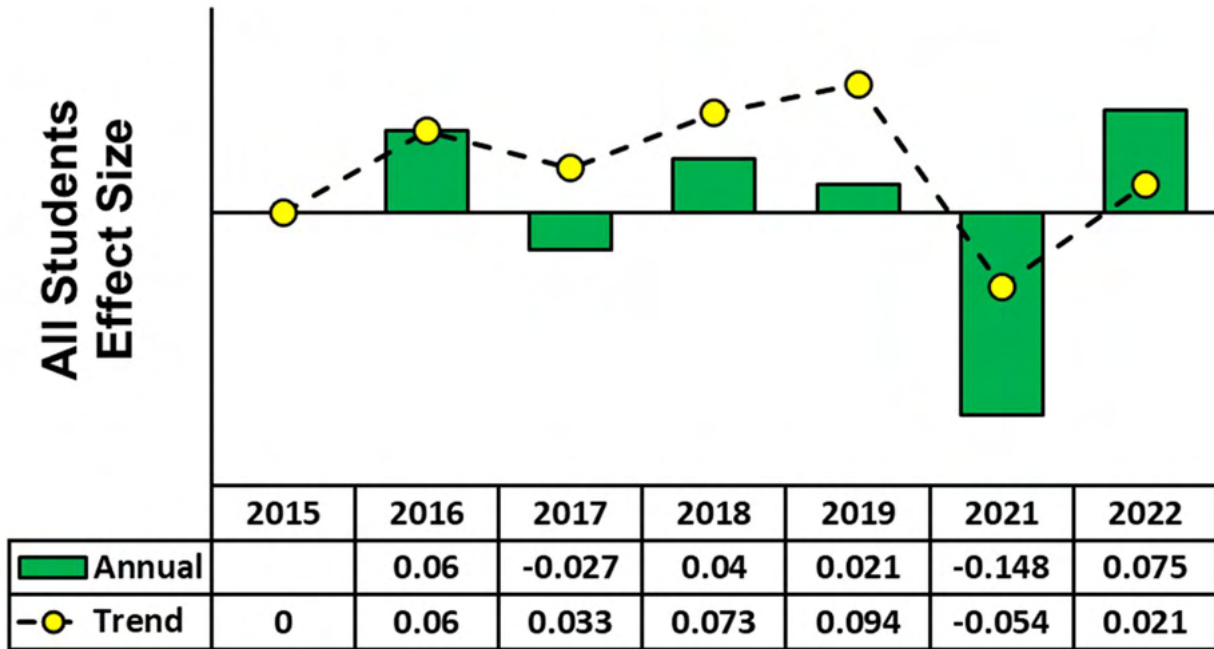
ISAT English Language Arts, Grade 8



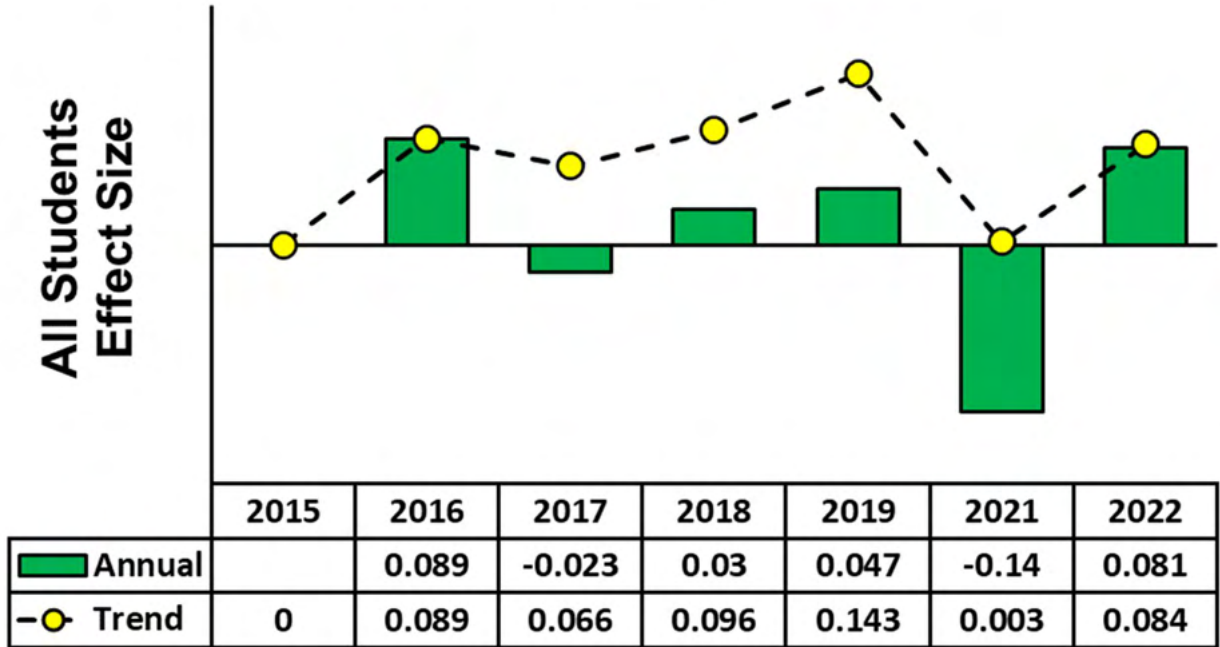
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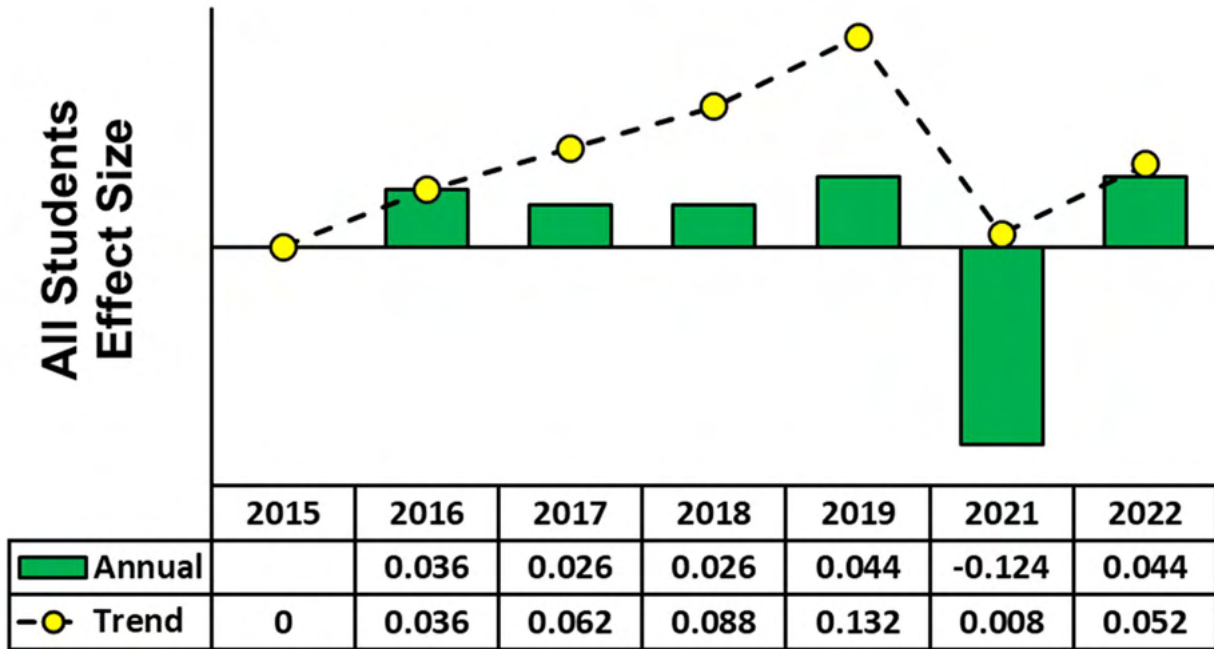
ISAT Mathematics, Grade 3



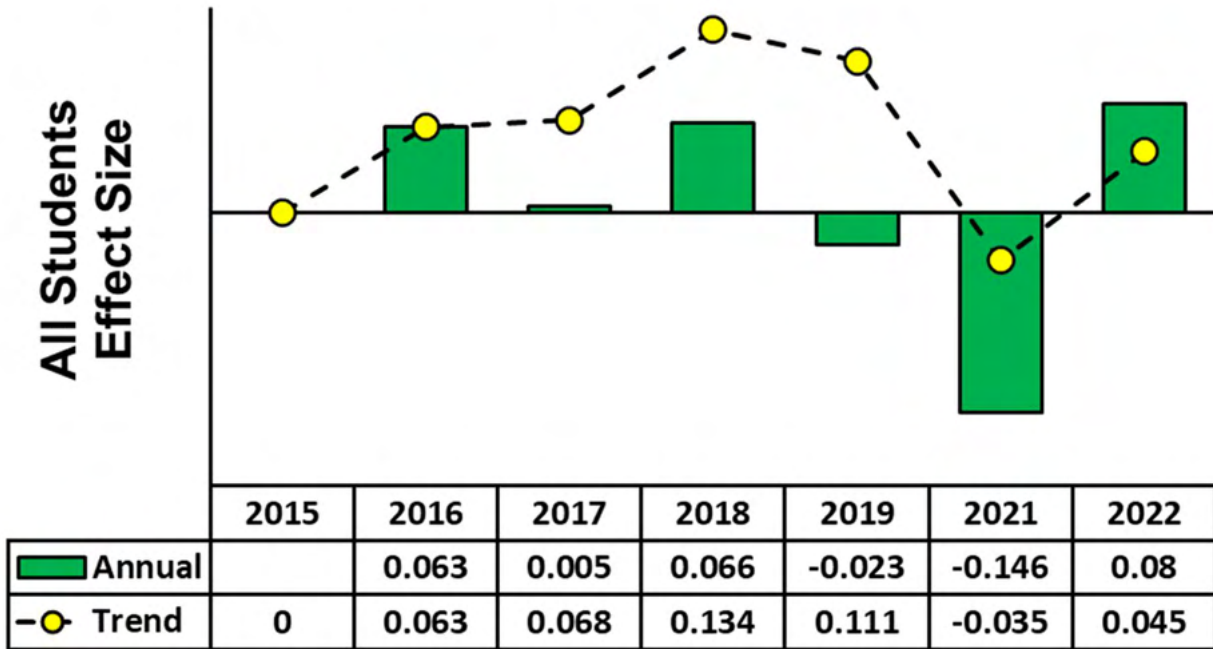
ISAT Mathematics, Grade 4



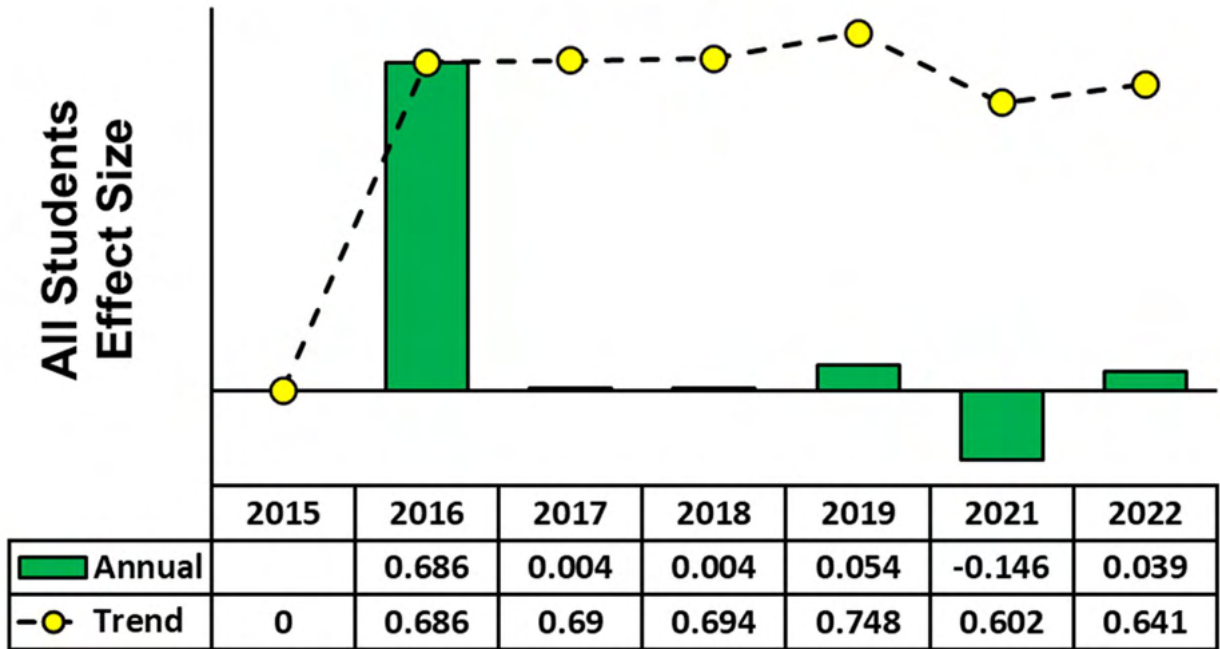
ISAT Mathematics, Grade 5



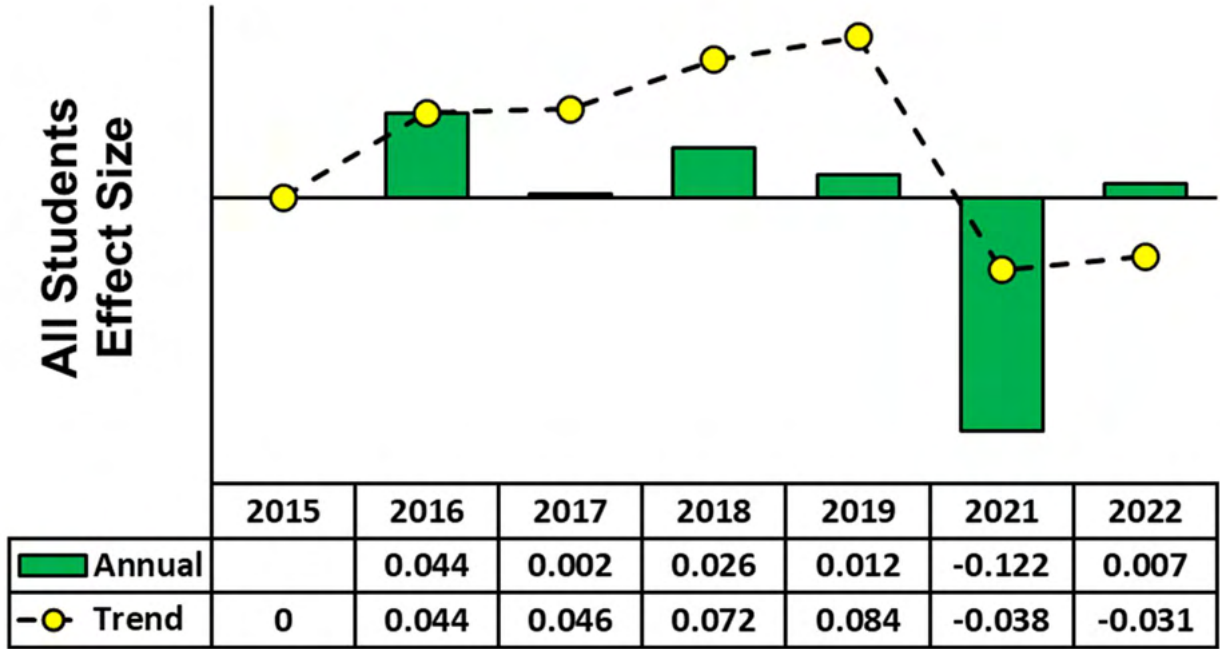
ISAT Mathematics, Grade 6



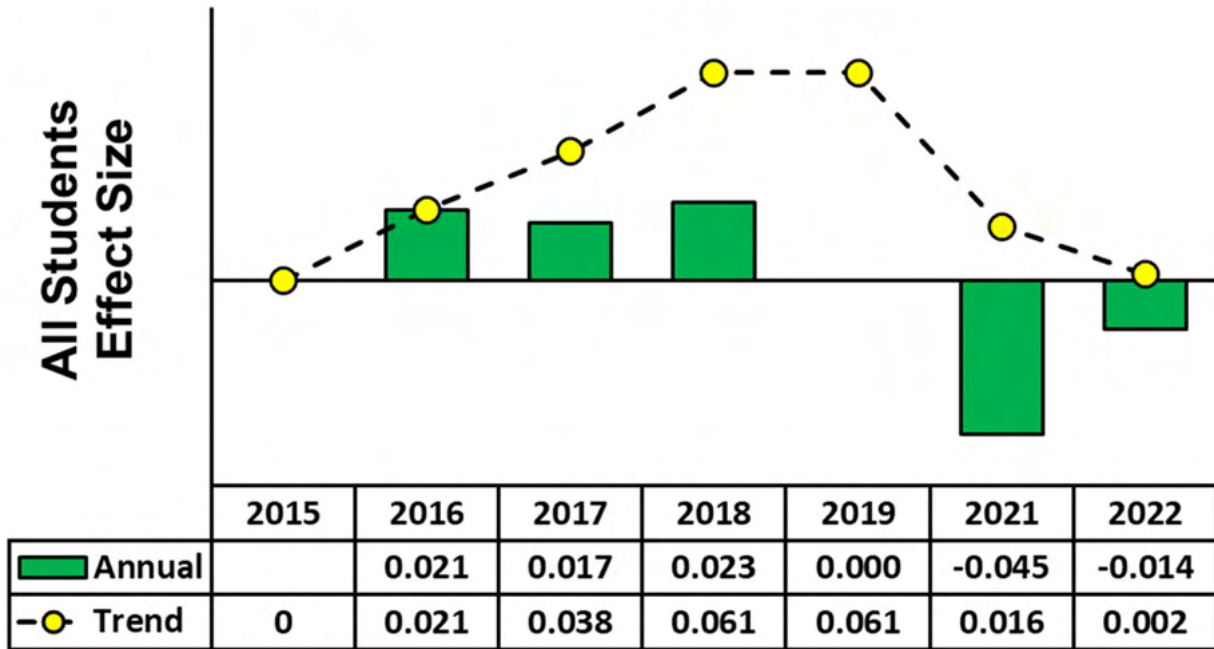
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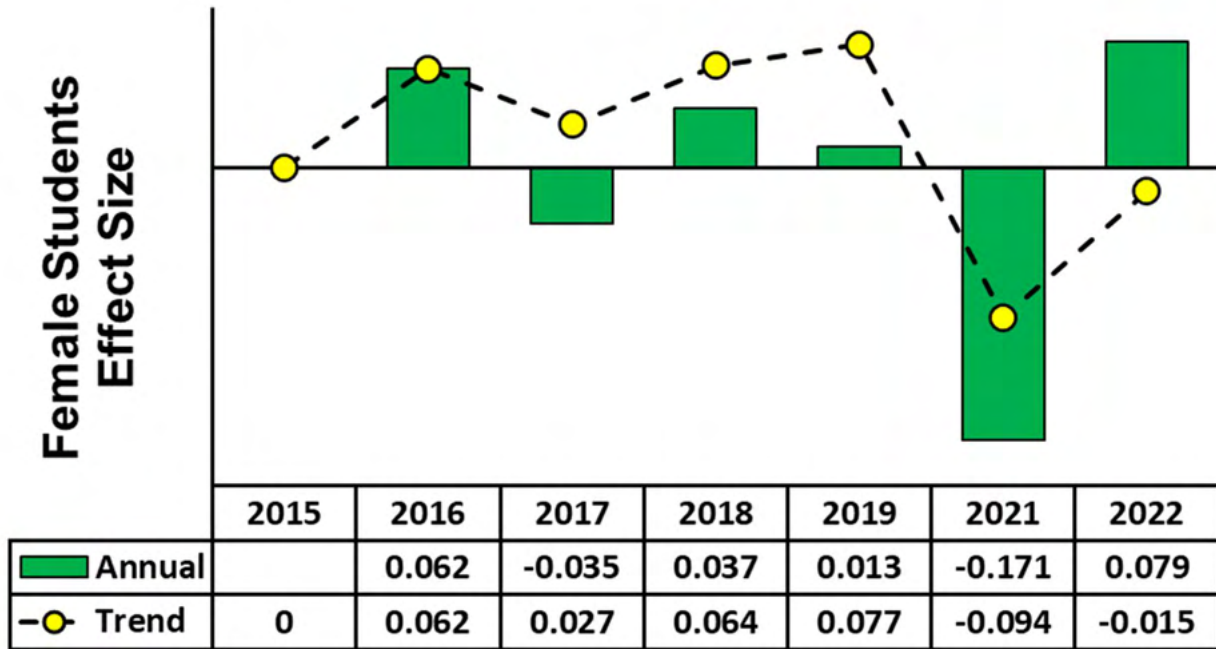
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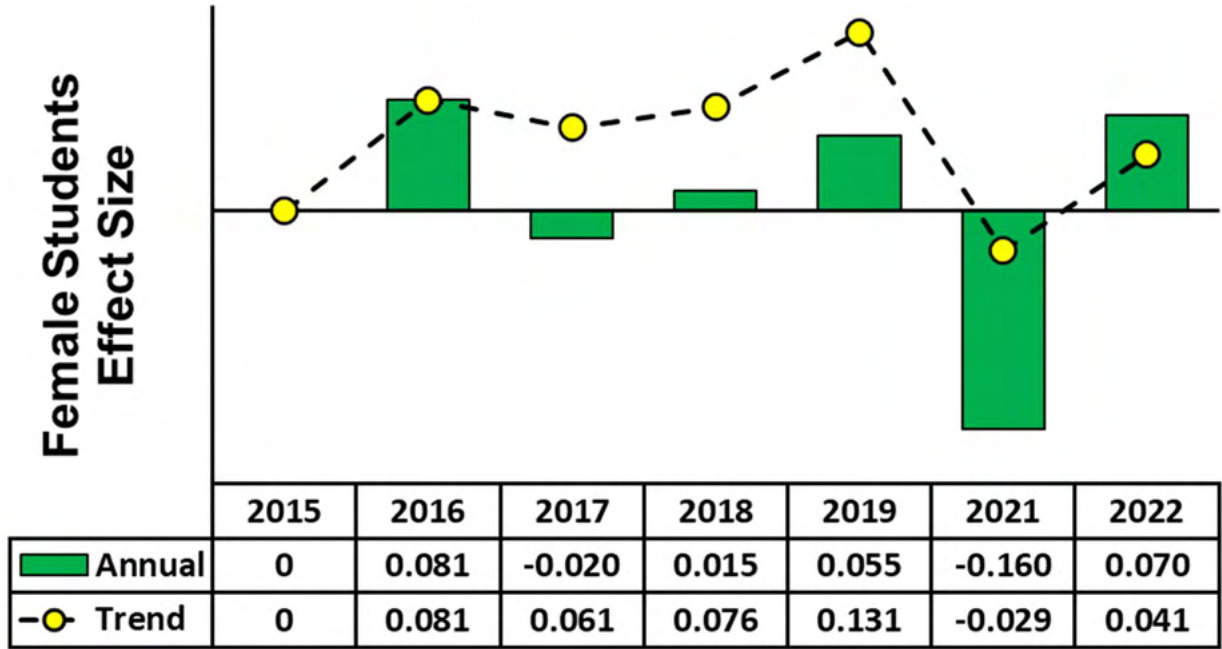
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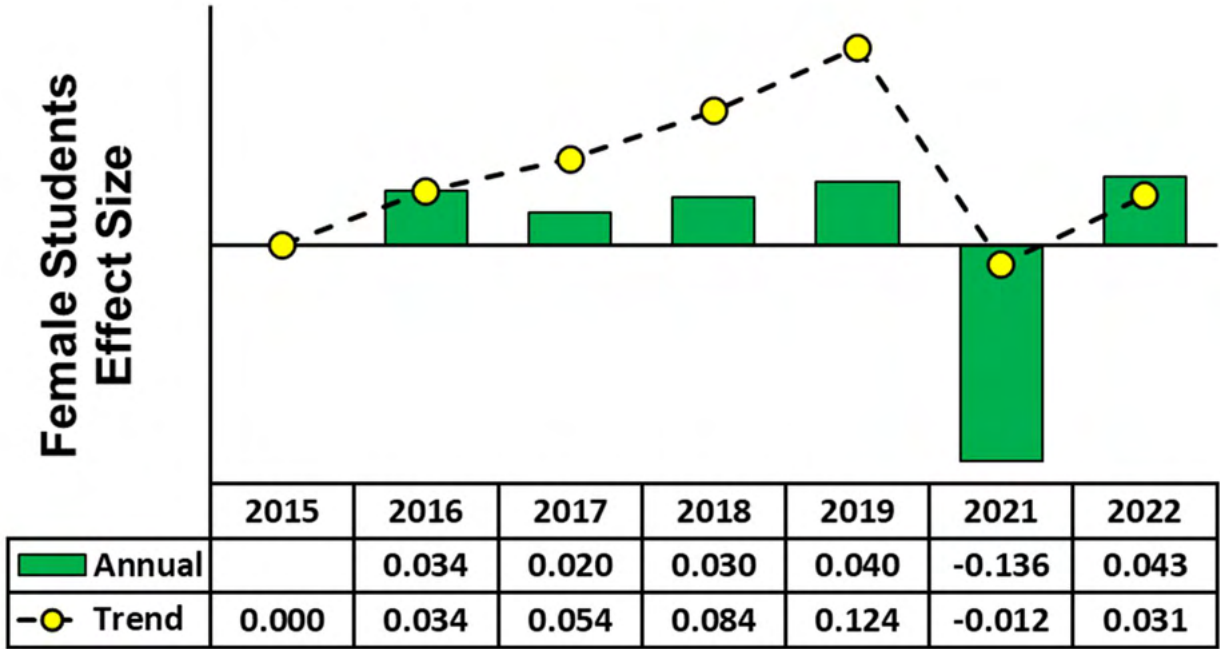
ISAT Mathematics, Grade 3



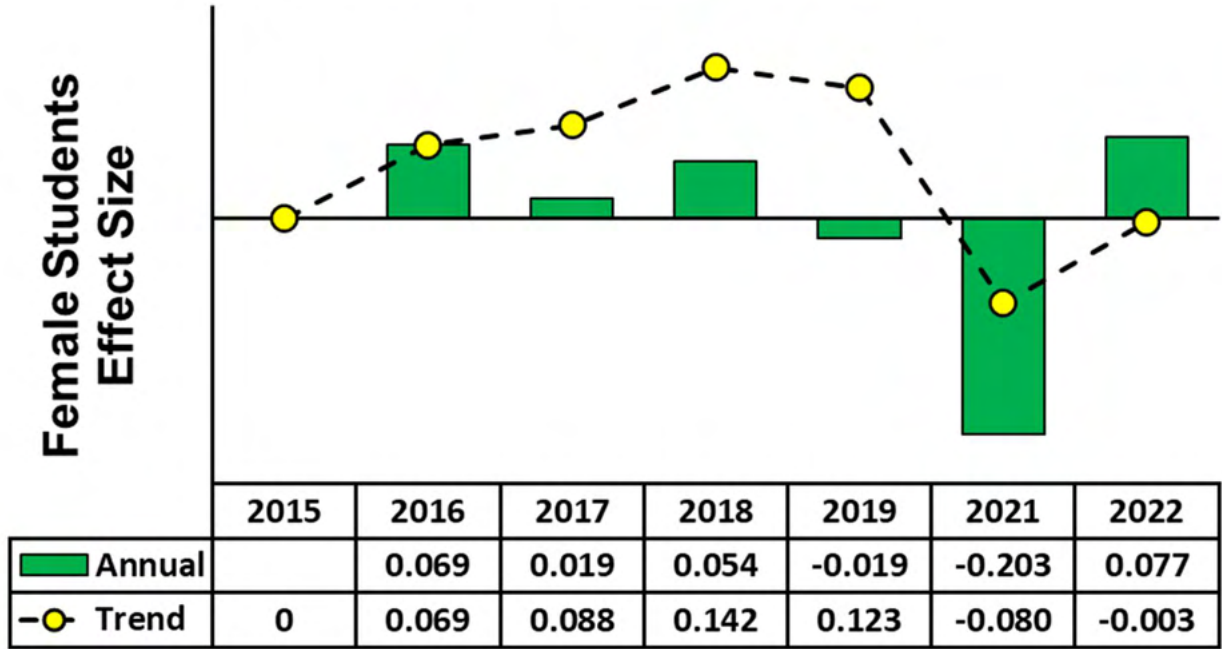
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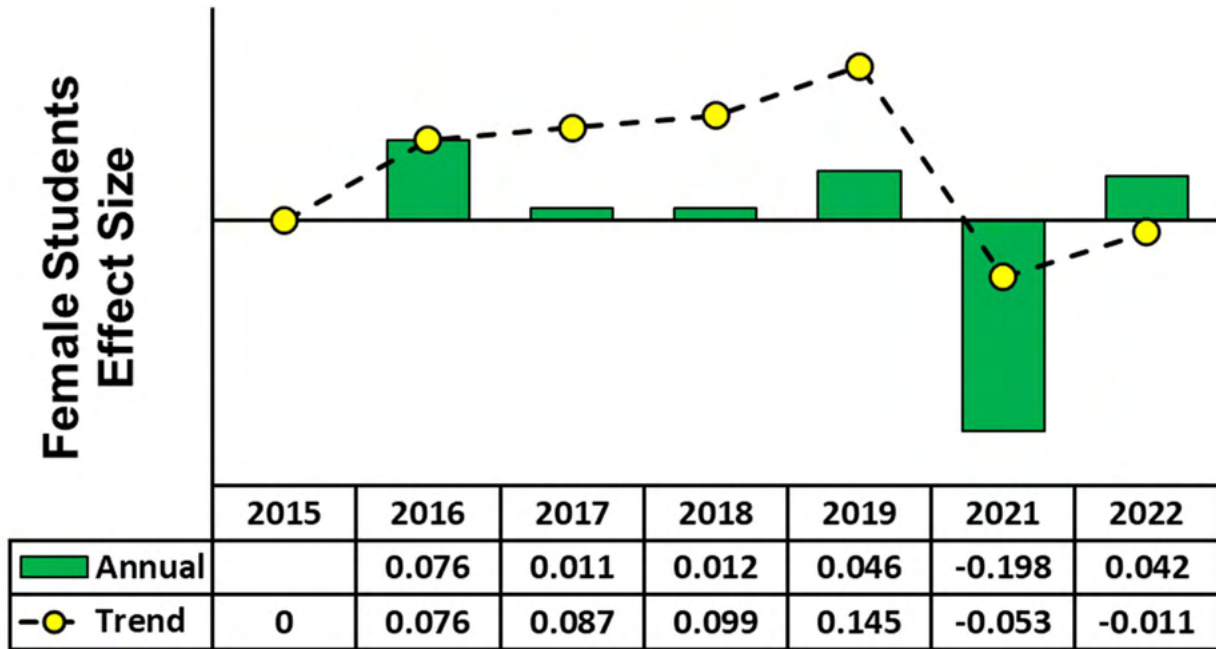
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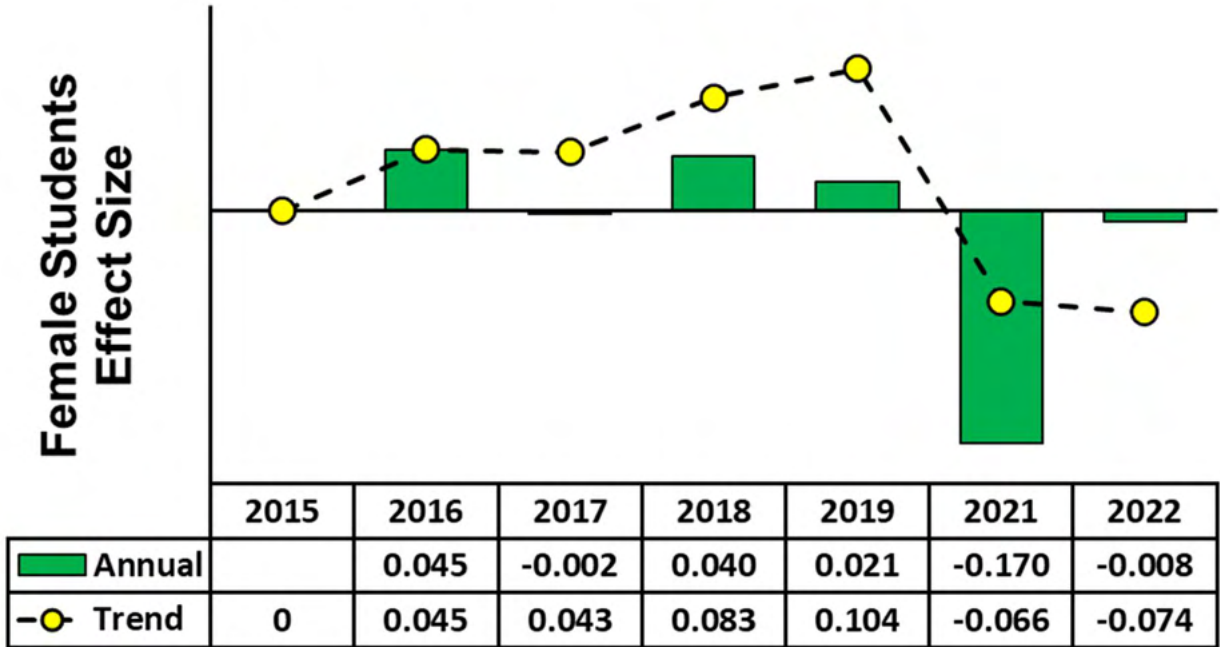
ISAT Mathematics, Grade 6



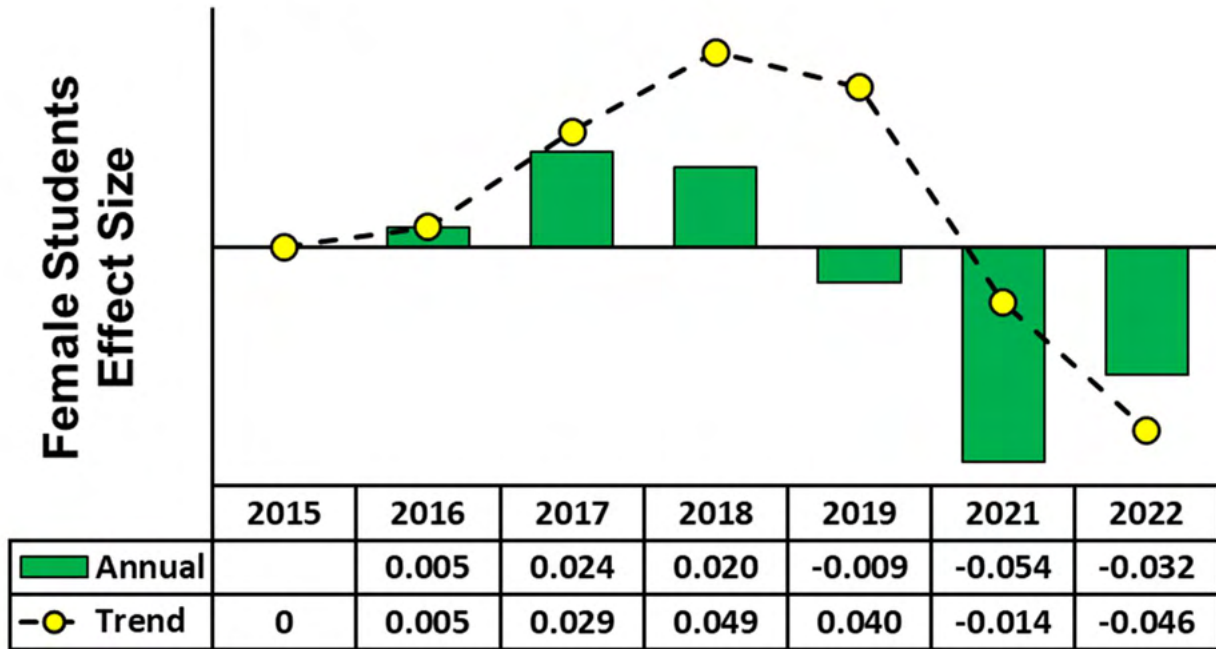
ISAT Mathematics, Grade 7



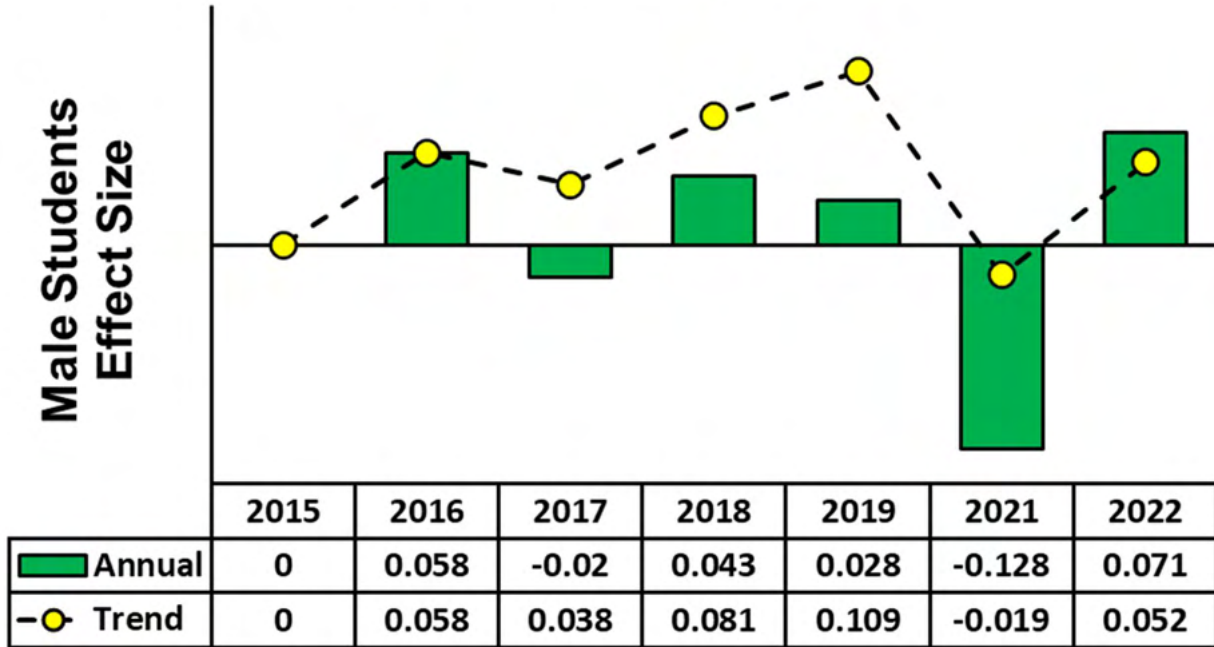
ISAT Mathematics, Grade 8



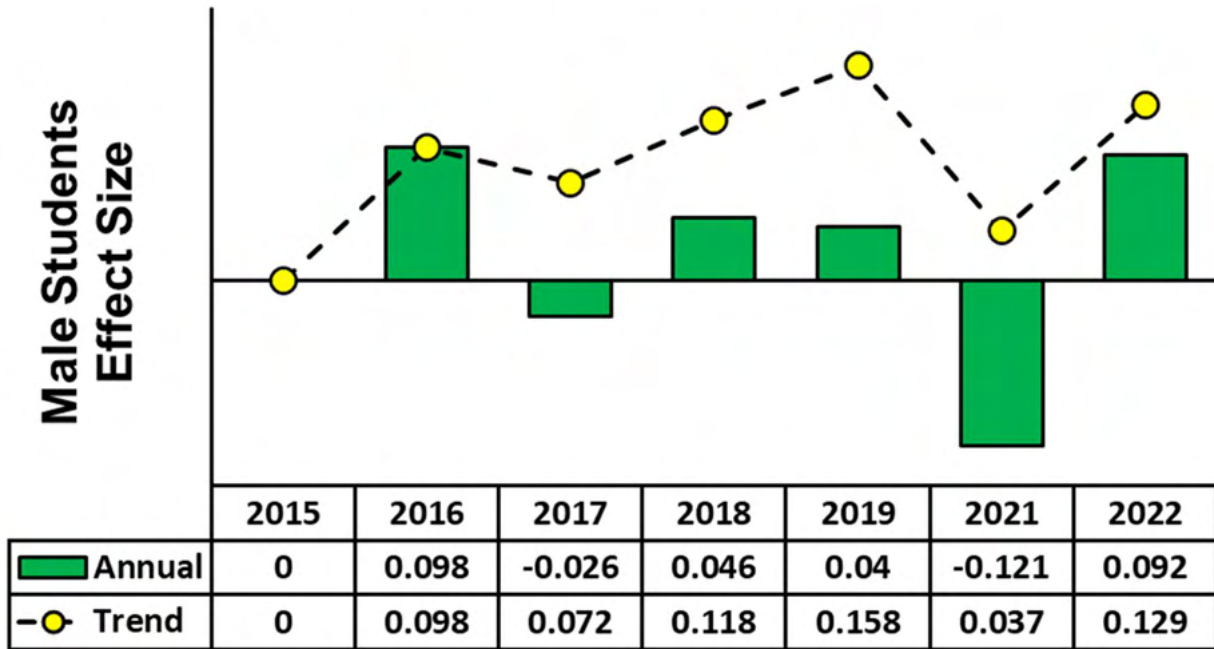
ISAT Mathematics, Grade 10



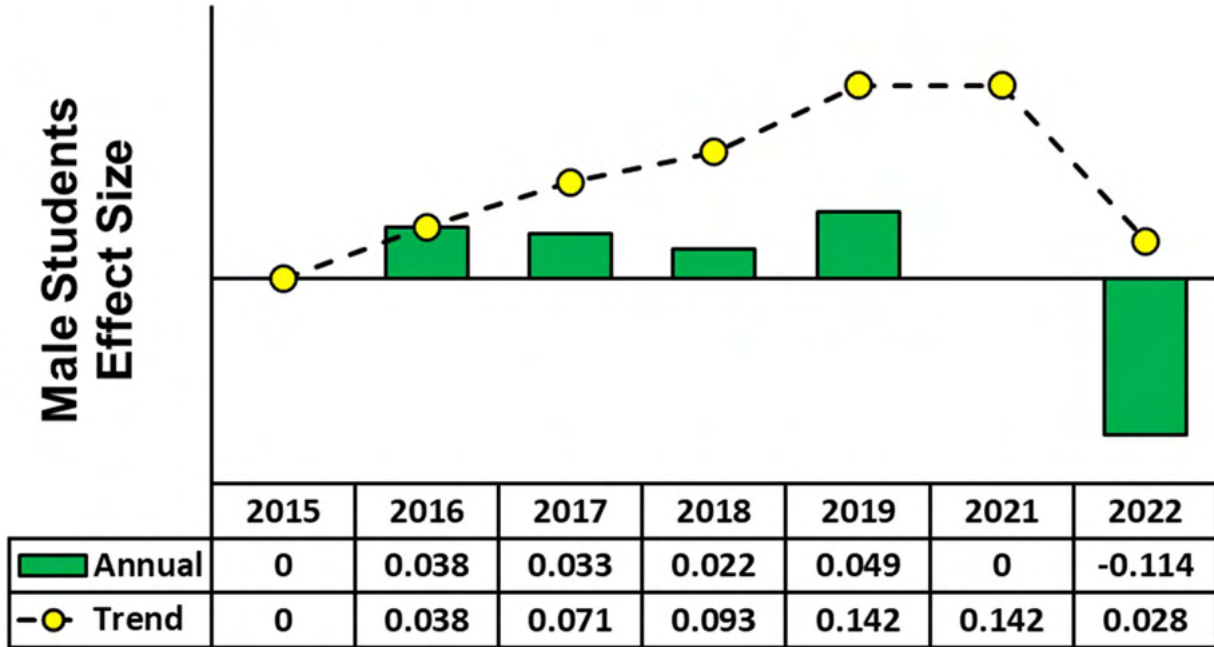
ISAT Mathematics, Grade 3



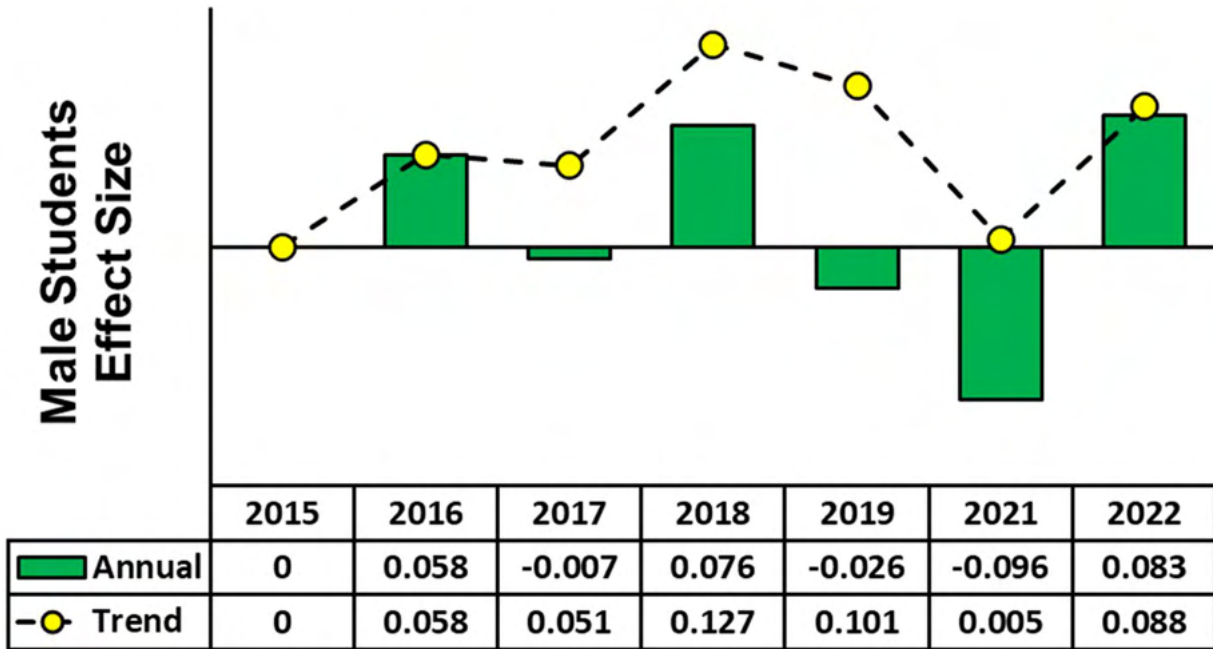
ISAT Mathematics, Grade 4



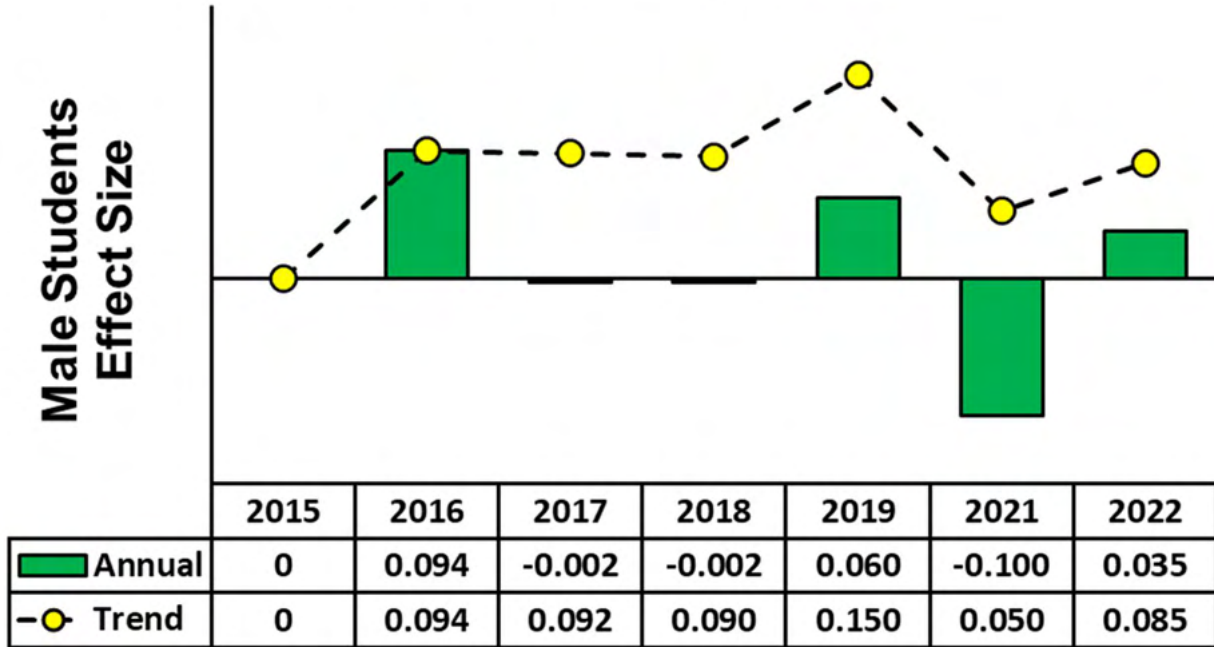
ISAT Mathematics, Grade 5



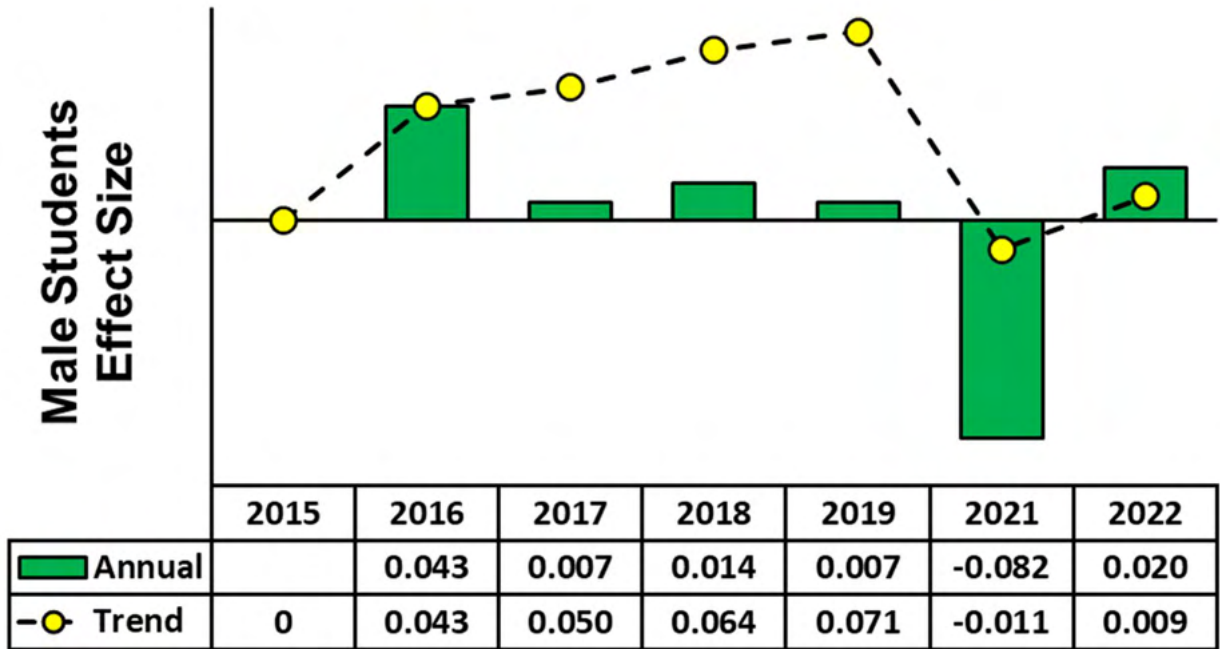
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