

Reading Effect Sizes for All Students, Female Students,
and Male Students in grades K-3 on the
Idaho Reading Indicator (IRI) from 2019 to 2022

by
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Abstract

In education research, statistical significance and effect size are 2 sides of 1 coin; they complement each other but they do not substitute for each other. This descriptive study, however, was limited to effect size only because years of experience with Idaho statewide student samples of up to 24,000 the rare outcomes has been t-tests with “not significant” results. The Idaho State Department of Education supplied the spring state-level student results from the Idaho Reading Indicator (IRI) for 2019, 2021, and 2022, including the number of students, mean scale score, and standard deviation for All Students, Female Students, and Male Students, in grades K-3. IRI data were not collected in 2020 because schools were in a statewide COVID lockdown. A Cohen d effect size coefficient was computed for each of the 12 student-grade groups. The IRI Cohen d effect sizes were considerably smaller than reported for studies in other research fields. However, the most informative interpretation occurred when the effect size was compared to other effects involving the same variables, the IRI. Recognizing the “magnifying glass” effect on enlarging objects while keeping their relative magnitudes, the Cohen d coefficients were multiplied by 1,000 enabling easier comparisons of their magnitude by dropping the zeros before and after the decimal point. Findings were reported by [1] effect size for 2019-21 (impact of lockdown followed by chaotic year) where every student-grade group lost ground; [2] effect size for 2021-22 (year of recovery) where every student-grade group except Female Students in Grade 1 had gains; and [3] effect size from 2019 (baseline) to the 2022 (end of first year of recovery) where all three student-groups in grades K, 2, and 3 finished above the baseline, and all three student-groups in Grade 1 finished below the baseline.

Three (4) tables, eighteen (18) figures, and five (5) references.

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Reading Effect Sizes for All Students, Female Students, and Male Students in grades K-3 on the Idaho Reading Indicator (IRI) from 2019 to 2022

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Statistical significance testing is the cornerstone of quantitative research, but studies that do not report measures of effect size are potentially missing a robust part of the analysis (Maher, Markey, and Ebert-May, 2013). In the chart below, they listed several different effect size measures including the Cohen *d*, which will be used for this study.

Effect size measure	Calculation
Odds ratio	Odds ratio = $\frac{p}{1-p}$, where p = probability of outcome in treatment group and q = probability of outcome in control group
Cohen's <i>d</i>	Cohen's $d = \frac{\bar{X}_1 - \bar{X}_2}{SD_{pooled}}$, where $SD_{pooled} = \sqrt{\frac{\sum (X_A - \bar{X}_A)^2 + \sum (X_B - \bar{X}_B)^2}{n_A + n_B - 2}}$
Hedges' <i>g</i>	As in Cohen's <i>d</i> , except where $SD_{pooled}^* = \sqrt{\frac{(n_A - 1)SD_A^2 + (n_B - 1)SD_B^2}{n_A + n_B - 2}}$
Glass's Δ	Glass's $\Delta = \frac{\bar{X}_1 - \bar{X}_2}{SD_{control}}$
Cohen's <i>f</i>	$f = \frac{\sigma_m}{\sigma}$ $\sigma_m = \sqrt{\frac{\sum (m_i - \bar{m})^2}{k}}$, where k = number of sample groups, m_i = mean of group i , \bar{m} = mean of k sample means, and σ = pooled SD of k sample groups
Eta-squared	$\eta^2 = \frac{SS_{between}}{SS_{total}}$, where SS = sum of squares
Partial eta-squared	$\eta_p^2 = \frac{SS_{between}}{SS_{between} + SS_{error}}$, where SS = sum of squares
Pearson's <i>r</i>	$r = \frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{SD_X SD_Y}$
Point-biserial correlation coefficient (r_{pb})	$r_{pb} = \frac{\bar{X}_1 - \bar{X}_0}{SD_n} \sqrt{\frac{n_1 n_0}{n}}$, where \bar{X}_1 = mean of nondichotomous variable grouped into set receiving the value of "1," \bar{X}_0 = mean on nondichotomous variable grouped into set receiving the value of "0," SD_n = the SD of the nondichotomous variable, n_1 = number of "1" values, n_0 = number of "0" values, and n = total number of dichotomous values $n_1 + n_0$

Fan (2001) suggested that in education research, statistical significance and effect size are 2 sides of 1 coin; they complement each other but they do not substitute for each other. Kraft (2019) noted that while researchers have often evaluated the importance of quantitative findings based on significance tests and their associated p-values, these statistics are a function of sample size and say nothing about the magnitude or practical relevance of a result. Moreover, the author's experience with the *t* test has found that with Idaho statewide student samples of 10,000 to 24,000 or higher, it was rare that the *t* test statistic was not statistically significant. This study will focus only on the Cohen *d* effect size, defined as the difference between two means divided by the pooled standard deviation.

The State Department of Education supplied Idaho's statewide spring IRI data (i.e., *n*'s, means, and standard deviations) for 2019 to 2022 for all students, female students, and male students in grades K-3. However, there were no IRI data from 2020 because Idaho schools were under the state COVID "emergency lockdown."

IRI Spring 2019: Idaho Statewide				IRI Spring 2021: Idaho Statewide				IRI Spring 2022: Idaho Statewide			
All	n	x-bar	s	All	n	x-bar	s	All	n	x-bar	s
Grade K	21,339	204.9748	14.6246	Grade K	21,042	204.7846	15.9460	Grade K	21,880	206.6322	16.3033
Grade 1	22,179	224.3637	16.5658	Grade 1	21,940	222.2679	17.7868	Grade 1	22,756	223.7485	17.9553
Grade 2	22,485	241.7331	18.9448	Grade 2	22,296	240.0316	20.7972	Grade 2	22,920	242.1613	21.8349
Grade 3	22,758	254.2768	21.1080	Grade 3	22,252	253.8807	22.6886	Grade 3	23,126	255.2986	24.3263
Female	n	x-bar	s	Female	n	x-bar	s	Female	n	x-bar	s
Grade K	10,454	205.6797	14.0477	Grade K	10,295	205.3198	15.3576	Grade K	10,689	207.3038	15.4688
Grade 1	10,809	224.6786	15.7942	Grade 1	10,697	222.5278	17.0230	Grade 1	11,168	223.8498	17.1179
Grade 2	11,062	242.5015	18.4654	Grade 2	10,999	240.8505	20.0919	Grade 2	11,146	242.8413	20.8747
Grade 3	11,162	255.3510	20.2820	Grade 3	10,887	254.6319	21.6891	Grade 3	11,394	256.3382	23.6725
Male	n	x-bar	s	Male	n	x-bar	s	Male	n	x-bar	s
Grade K	10,885	204.2979	15.1278	Grade K	10,747	204.2720	16.4744	Grade K	11,191	205.9907	17.0383
Grade 1	11,370	224.0644	17.2628	Grade 1	11,243	222.0206	18.4816	Grade 1	11,588	223.6508	18.7271
Grade 2	11,423	240.9890	19.3694	Grade 2	11,297	239.2343	21.4324	Grade 2	11,774	241.5176	22.6887
Grade 3	11,596	253.2427	21.8247	Grade 3	11,365	253.1610	23.5850	Grade 3	11,732	254.2889	24.9043

$$d = \frac{\bar{x}_2 - \bar{x}_1}{\sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}}$$

All Students				Female Students				Male Students			
Grade K	2019	2021	2022	Grade K	2019	2021	2022	Grade K	2019	2021	2022
Effect	0	-0.0124	0.1146	Effect	0	-0.0245	0.1287	Effect	0	-0.0016	0.1025
Trend	0	-0.0124	0.1022	Trend	0	-0.0245	0.1042	Trend	0	-0.0016	0.1009
Grade 1	2019	2021	2022	Grade 1	2019	2021	2022	Grade 1	2019	2021	2022
Effect	0	-0.1220	0.0828	Effect	0	-0.1311	-0.0537	Effect	0	-0.1144	0.0876
Trend	0	-0.1220	-0.0392	Trend	0	-0.1311	-0.1848	Trend	0	-0.1144	-0.0268
Grade 2	2019	2021	2022	Grade 2	2019	2021	2022	Grade 2	2019	2021	2022
Effect	0	-0.0856	0.0999	Effect	0	-0.0856	0.0972	Effect	0	-0.0860	0.1034
Trend	0	-0.0856	0.0143	Trend	0	-0.0856	0.0116	Trend	0	-0.0860	0.0174
Grade 3	2019	2021	2022	Grade 3	2019	2021	2022	Grade 3	2019	2021	2022
Effect	0	-0.0181	0.0603	Effect	0	-0.0343	0.0752	Effect	0	-0.0036	0.0465
Trend	0	-0.0181	0.0422	Trend	0	-0.0343	0.0409	Trend	0	-0.0036	0.0429

Researchers who have had experience using Cohen *d* effect sizes know that the effect sizes computed for this IRI study are considerably smaller than reported for studies in some other research fields.

Valentine and Cooper (2003) advised that some areas, like education, are likely to have smaller effect sizes than others, so using Cohen’s original labels may be misleading. Since Cohen's labels give only the broadest interpretive yardstick for effect size; they should be used with proper caution. Comparing a specific effect size to effect sizes found in other disciplines or a discipline in general may be interesting but, in most instances, it is not very informative. Valentine and Cooper recommended that the most informative interpretation occurred when the effect sizes were compared to other effects involving the same or similar variables.

One difficulty in working with small effect sizes, especially like the IRI effect sizes generated by this study is that some readers may have some difficulty understanding or comparing numbers with zeros on both sides of the decimal point. To address this difficulty, the author reverted to a non-statistical childhood practice of using a magnifying glass to see small things better. If two small pieces of paper, one twice the magnitude (i.e., size) of the other, are viewed through 10x magnifying glass one will still be twice the size of the other: the difference in magnitude is preserved. Since the effect size is an expression of magnitude, the calculated effect sizes were multiplied by 1,000 without changing the understanding of their relative magnitudes.

All Students				Female Students				Male Students			
Grade K	2019	2021	2022	Grade K	2019	2021	2022	Grade K	2019	2021	2022
Effect	0	-12.4	114.6	Effect	0	-24.5	128.7	Effect	0	-1.6	102.5
Trend	0	-12.4	102.2	Trend	0	-24.5	104.2	Trend	0	-1.6	100.9
Grade 1	2019	2021	2022	Grade 1	2019	2021	2022	Grade 1	2019	2021	2022
Effect	0	-122.0	82.8	Effect	0	-131.1	-53.7	Effect	0	-114.4	87.6
Trend	0	-122.0	-39.2	Trend	0	-131.1	-184.8	Trend	0	-114.4	-26.8
Grade 2	2019	2021	2022	Grade 2	2019	2021	2022	Grade 2	2019	2021	2022
Effect	0	-85.6	99.9	Effect	0	-85.6	97.2	Effect	0	-86.0	103.4
Trend	0	-85.6	14.3	Trend	0	-85.6	11.6	Trend	0	-86.0	17.4
Grade 3	2019	2021	2022	Grade 3	2019	2021	2022	Grade 3	2019	2021	2022
Effect	0	-18.1	60.3	Effect	0	-34.3	75.2	Effect	0	-3.6	46.5
Trend	0	-18.1	42.2	Trend	0	-34.3	40.9	Trend	0	-3.6	42.9

Effect Size Findings: Part I

Effect sizes findings are presented in three segments, each with a separate spring to spring timeframe.

2019	2020	2021	2022
IRI Baseline: Initial IRI spring testing	Statewide School lockdown: NO IRI spring testing	Chaotic start with online vs classroom & mask vs no mask: IRI spring testing	Recovery - Year 1: IRI spring testing

Segment 1: 2019-2021. Examines effect sizes of reading achievement in grades K-3 associated with Idaho's mandated response to the COVID pandemic for public schools.

Segment 2: 2021-2022. Examines the effect on reading achievement during the first year after Idaho's COVID response to pandemic.

Segment 3: 2019-2022. Examines the effect size changes on K-3 reading achievement in Idaho from the IRI baseline assessment through a school lockdown and start-up difficulties during the year after the lockdown, followed by one year of instruction to improve reading skills.

The Spring to Spring - Part I segments follow on the next six pages . . .

Each segment has two sets on narratives describing the effect sizes:

- describes effect sizes for three student groups (all, female, and male students) under each grade level, and
- describes effect size results with all four grades under each student group.

Each segment also has two graphs sharing a common scale to facilitate comparisons:

- displays effect sizes with three student groups (all, female, and male students) under each grade level, and
- displays effect size results with all four grades under each student group.

Segment 1: 2019-2021 (effect size of Idaho pandemic response)

Narratives for Figure 1

From 2019 to 2021, students in **Grade K** from the baseline to the spring after the lockdown had losses in all three student groups: female students (-24.5), all students (-12.4), and male students (-1.6).

From 2019 to 2021, students in **Grade 1** from the baseline to the spring after the lockdown had losses in all three of the student groups: female students (-131.1), all students (-122.0), and male students (-114.4).

From 2019 to 2021, students in **Grade 2** from the baseline to the spring after the lockdown had losses in all three student groups: male students (-86.0), female students (-85.6), and all students (-85.6).

From 2019 to 2021, students in **Grade 3** from the baseline to the spring after the lockdown had losses in all three student groups: female students (-34.3), all students (-18.1), and male students (-3.6).

Narratives for Figure 2

From 2019 to 2021, the “**all students**” group had losses from the baseline to the spring after the lockdown in all grades: Grade 1 (-122.0), Grade 2 (-85.6), Grade 3 (-18.1), and Grade K (-12.4).

From 2019 to 2021, the “**female students**” group had losses from the baseline to the spring after the lockdown in all grades: Grade 1 (-131.1), Grade 2 (-85.6), Grade 3 (-34.3), and Grade K (-24.5).

From 2019 to 2021, the “**male students**” group had losses from the baseline to the spring after the lockdown in all grades: Grade 1 (-114.4), Grade 2 (-86.0), Grade 3 (-3.6), and Grade K (-1.6).

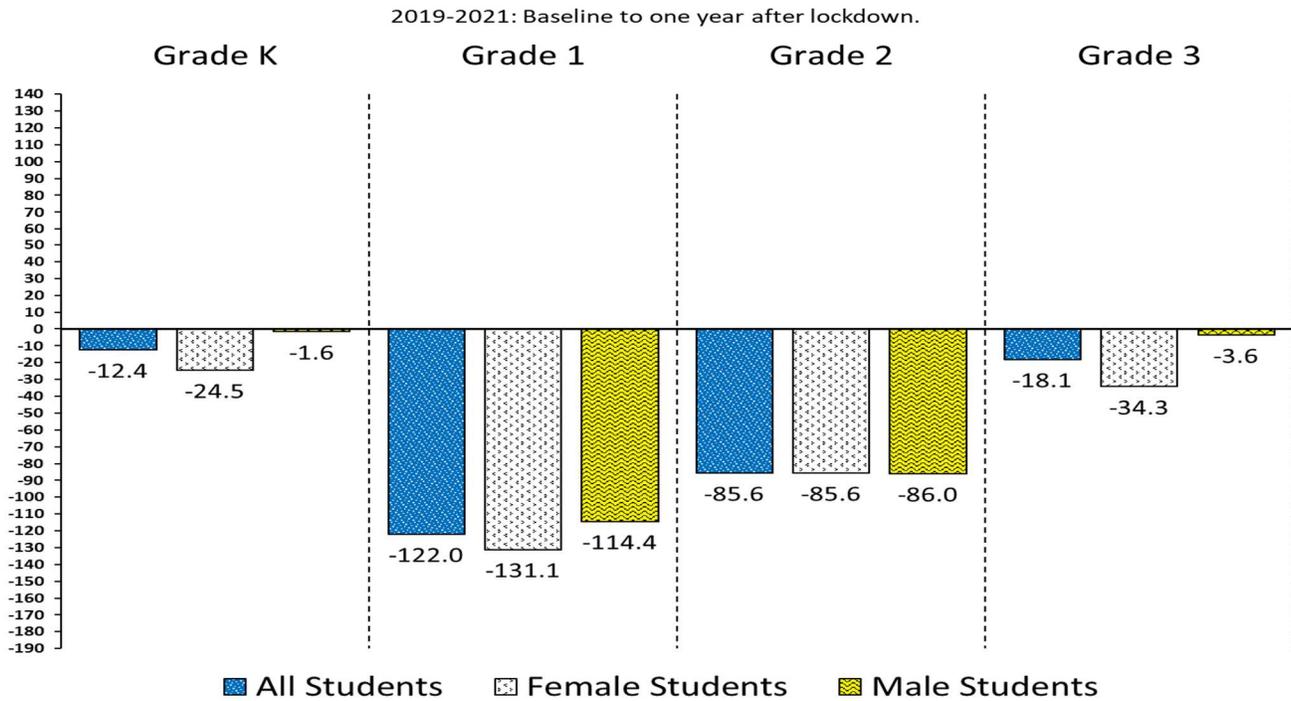


Figure 1. 2019 to 2021: Idaho Reading Indicator (IRI) effect sizes (1000 x Cohen d) from the Spring 2019 baseline (one year before the spring school lockdown in 2020) to Spring 2021 (one year after Idaho’s school lockdown) for grades K-3 across three student groups (all, female, and male).

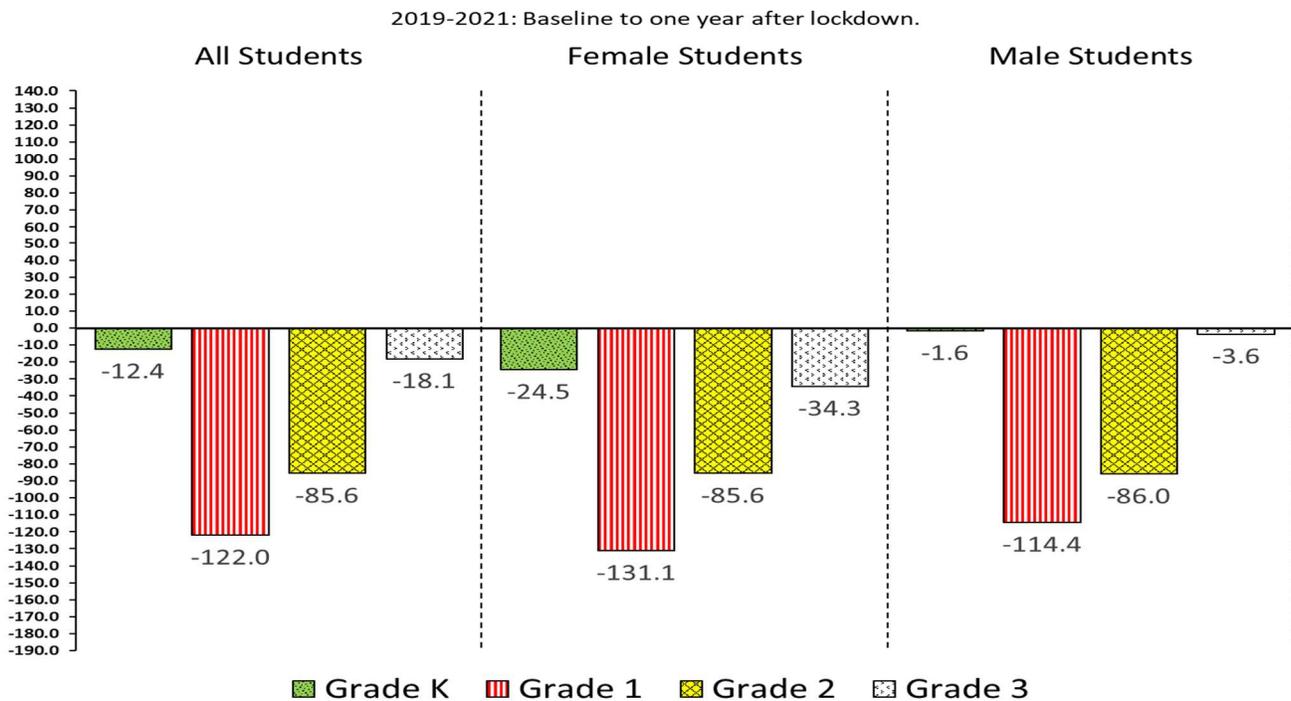


Figure 2. 2019 to 2021: Idaho Reading Indicator (IRI) effect sizes (1000 x Cohen d) from the Spring 2019 baseline (one year before spring school lockdown in 2020) to Spring 2021 (one year after Idaho’s school lockdown) for three student groups (all, female, and male) across each grade K-3.

Segment 2: 2021-2022 (effect size for recovery year)

Narratives for Figure 3

From 2021 to 2022, students in **Grade K** from the second to third year after the lockdowns had gains in all three student groups: male students (102.5), all students (+114.6), and female students (+128.7).

From 2021 to 2022, students in **Grade 1** from the second to third year after the lockdowns had gains in a loss in one student group and gains in two three student groups: female students (-52.7), all students (+82.8), and male students (+87.6).

From 2021 to 2022, students in **Grade 2** from the second to third year after the lockdowns had gains in all three student groups: female students (+97.2), all students (+99.9), and male students (+103.4).

From 2021 to 2022, students in **Grade 3** from the second to third year after the lockdowns had gains in all three student groups: male students (+46.5), all students (+60.3), and female students (+75.2).

Narratives for Figure 4

From 2021 to 2022, the “**all students**” group had gains from the first year to second year after the lockdown in all grades: Grade 3 (+60.3), Grade 1 (+82.8), Grade 2 (+99.9), and Grade K (+114.6z).

From 2021 to 2022, the “**female students**” group from the first year to the second year after the lockdown, one grade had a loss and three grade had gains: Grade 1 (-53.7), Grade 3 (+72.5), Grade 2 (+97.2), and Grade K (+128.7).

From 2021 to 2022, the “**male students**” group had gains from the second to third year after the lockdown, one grade had a loss and three grade had gains: Grade 1 (-26.8), Grade 2 (+87.6), Grade K (+102.5), and Grade 3 (+193,4).

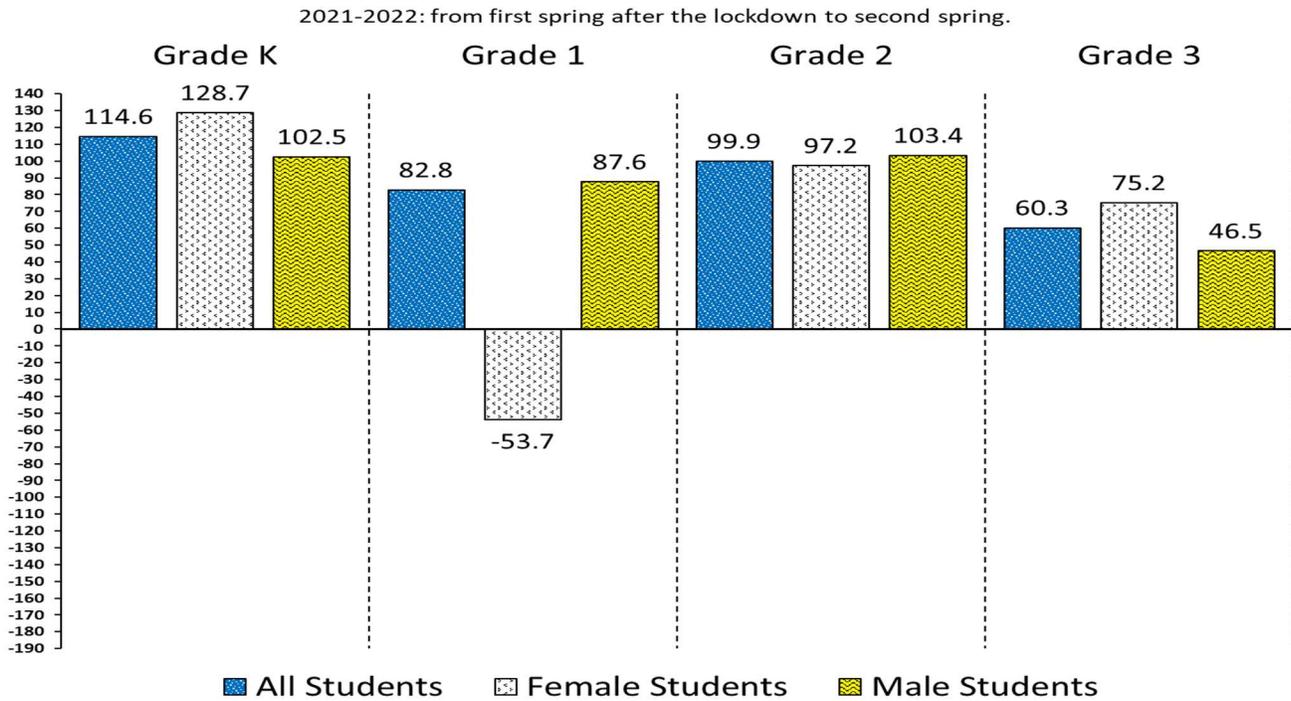


Figure 3. 2021 to 2022: Idaho Reading Indicator (IRI) effect sizes (1000 x Cohen d) from Spring 2021 (one year after the spring school lockdown in 2020) to Spring 2022 (two years after Idaho’s school lockdown) for grades K-3 across three student groups (all, female, and male).

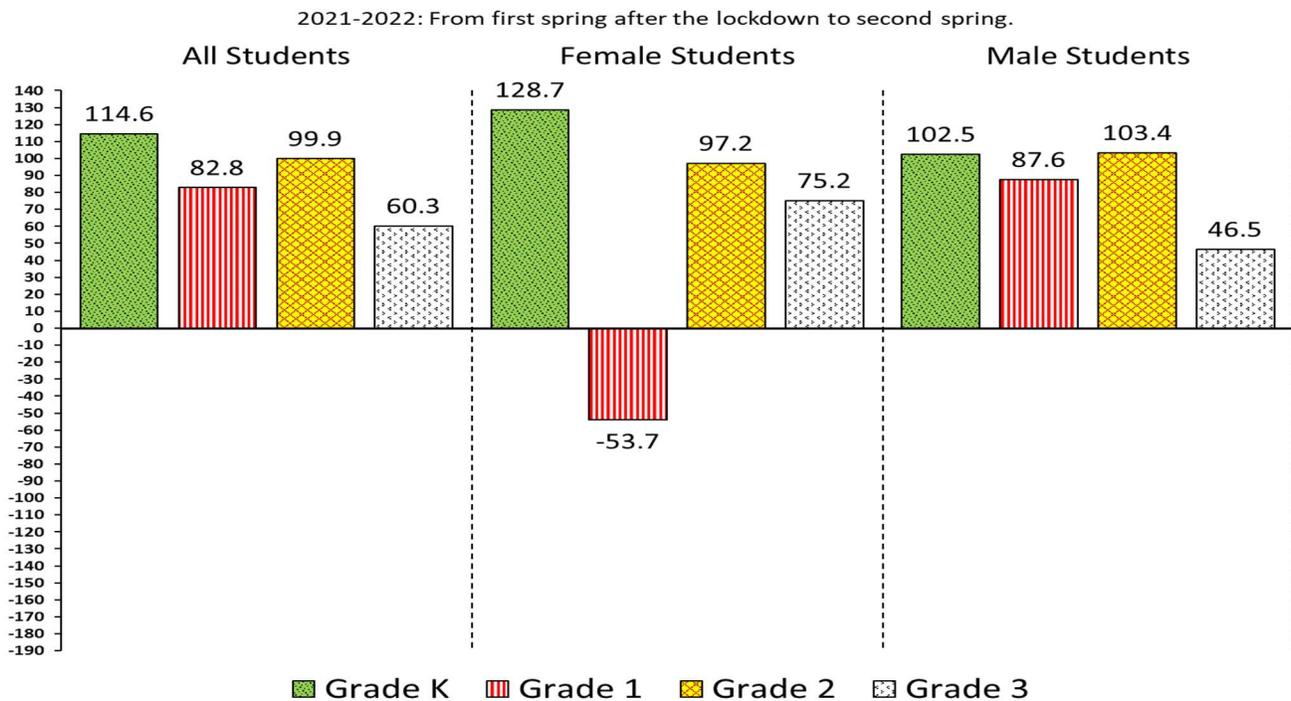


Figure 4. 2021 to 2022: Idaho Reading Indicator (IRI) effect sizes (1000 x Cohen d) from Spring 2021 (one year after the spring school lockdown in 2020) to Spring 2022 (two years after Idaho’s school lockdown) for three student groups (all, female, and male) across grades K-3.

Segment 3: 2019-2022 (effect size baseline through recovery year)

Narratives for Figure 5

From 2019 to 2022, students in **Grade K** from the baseline to second spring after the lockdown had gains in all three student groups: male students (+100.9), all students (+102.2), and female students (+104.2).

From 2019 to 2022, students in **Grade 1** from the baseline to second spring after the lockdown had losses in all three student groups: female students (-184.8), all students (-37.2), and male students (-26.8).

From 2019 to 2022, students in **Grade 2** from the baseline to second spring after the lockdown had gains in all three student groups: female students (+11.6), all students (+14.3), and male students (+17.4).

From 2021 to 2022, students in **Grade 3** from the baseline to the second spring after the lockdown had gains in all three student groups: male students (+46.5), all students (+60.3), and female students (+75.2).

Narratives for Figure 6

From 2019 to 2022, the “**all students**” group had one grade with a loss and three grades with gains from the baseline to the second spring after the lockdown: Grade 1 (-39.2), Grade 2 (+14.3), Grade 3 (+42.2), and Grade K (+102.2).

From 2019 to 2022, the “**female students**” group had one grade with a loss and three grades with gains from the baseline to the second spring after the lockdown: Grade 1 (-184.8), Grade 2 (+11.6), Grade 3 (+40.9), and Grade K (+104.2).

From 2019 to 2022, the “**male students**” group had one grade with a loss and three grades with gains from the baseline to the second spring after the lockdown: Grade 1 (-25.8), Grade 2 (+17.4), Grade 3, (+42.9), and Grade 4 (+100.9).

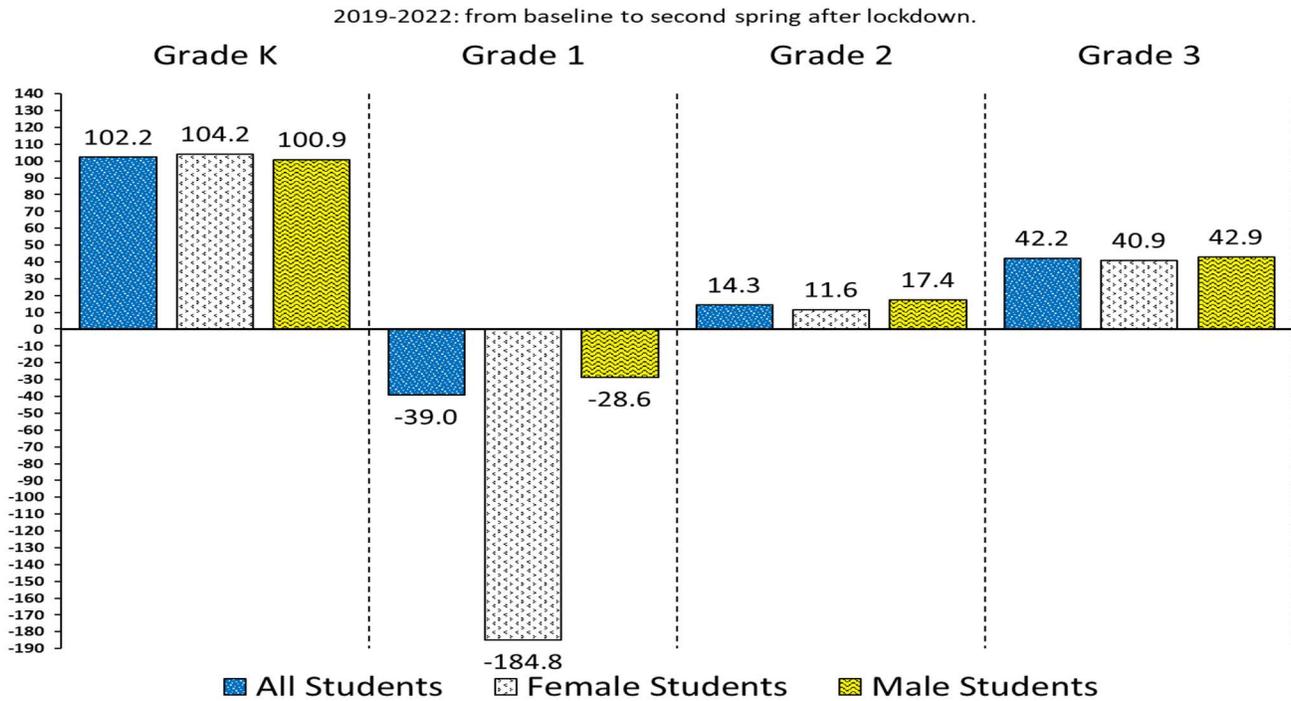


Figure 5. 2019 to 2022: Idaho Reading Indicator (IRI) effect sizes (1000 x Cohen d) from the Spring 2019 baseline (one year before the spring school lockdown in 2020) to Spring 2022 (two years after Idaho’s school lockdown) for grades K-3 across three student groups (all, female, and male).

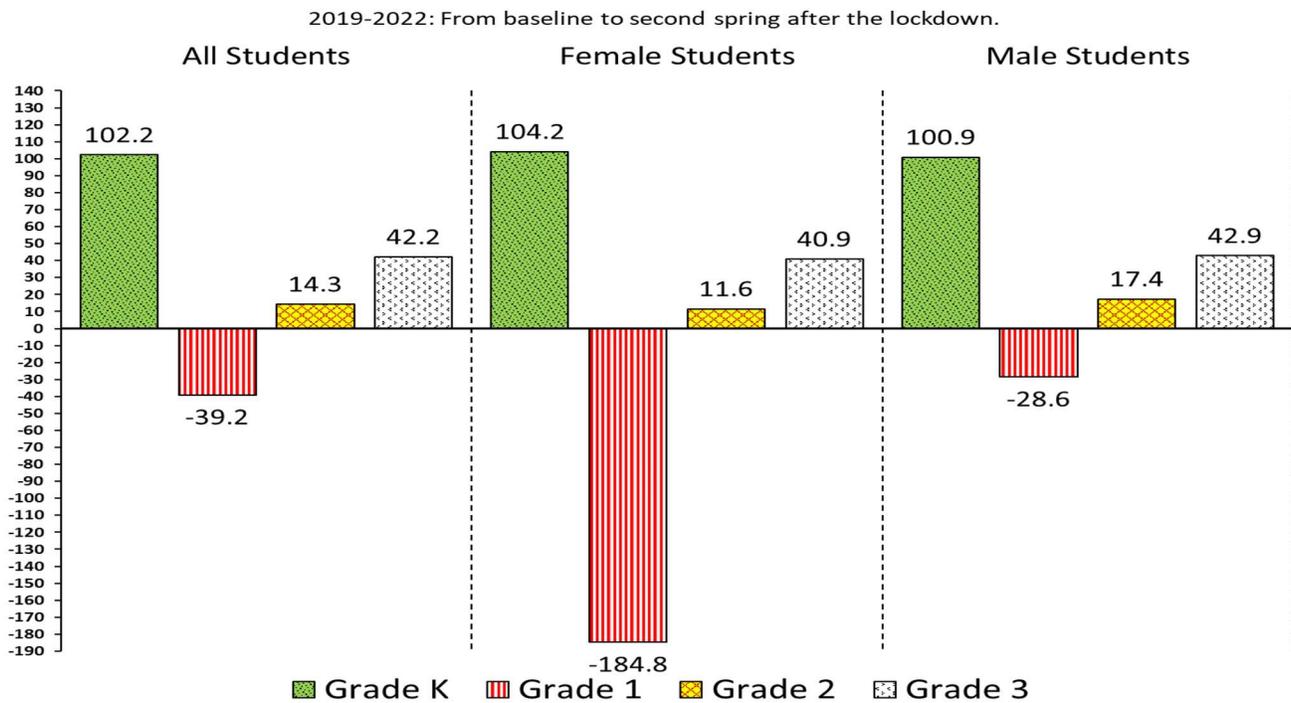
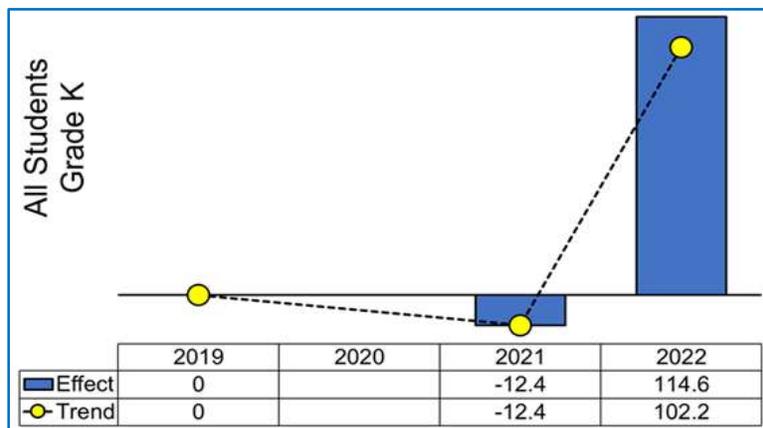


Figure 6. 2019 to 2022: Idaho Reading Indicator (IRI) effect sizes (1000 x Cohen d) from the Spring 2019 baseline (one year before the spring school lockdown in 2020) to Spring 2022 (two years after Idaho’s school lockdown) for three student groups (all, female, and male) across grades K-3.

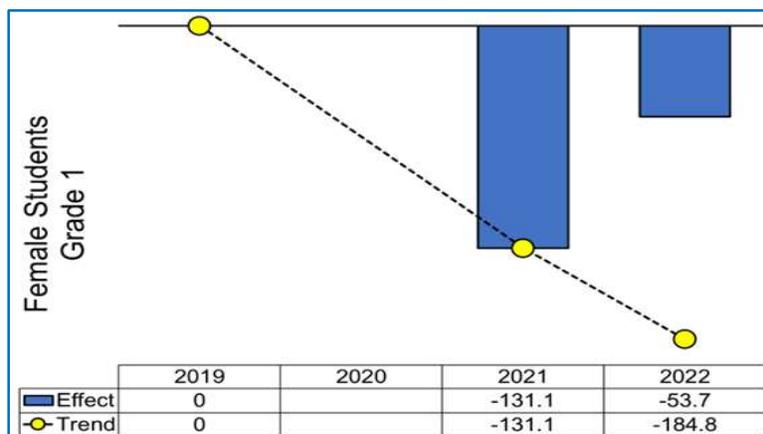
Effect Size Findings: Part II

Part II displays a separate figure for grades K through 3 for each student group over the timeline of this study, spring 2019 baseline to spring 2022. These 12 figures are not plotted on the same scale. The purpose of these figures is to evoke a general impression about overall level of student performance across the data points. However, if you choose to make comparisons from figure to figure, please be sure use the effect sizes and the trends in the results table the rather than the size of the bars.

For example, the reader would likely find a favorable impression for “All Students Grade K” -- lost some ground due to the lockdown (2020) and the chaotic start of the new year (2021), but more than made up lost ground during the “recovery year” finishing well above the baseline (2019).



Another example, the reader would likely find reason for concern for “Female Students Grade 1” -- lost considerable ground due to the lockdown (2020) and the chaotic start of the new year (2021), then lost even more ground during the “recovery year” finishing well below the baseline (2019).



IRI Effect Size, Spring, 2019-2022

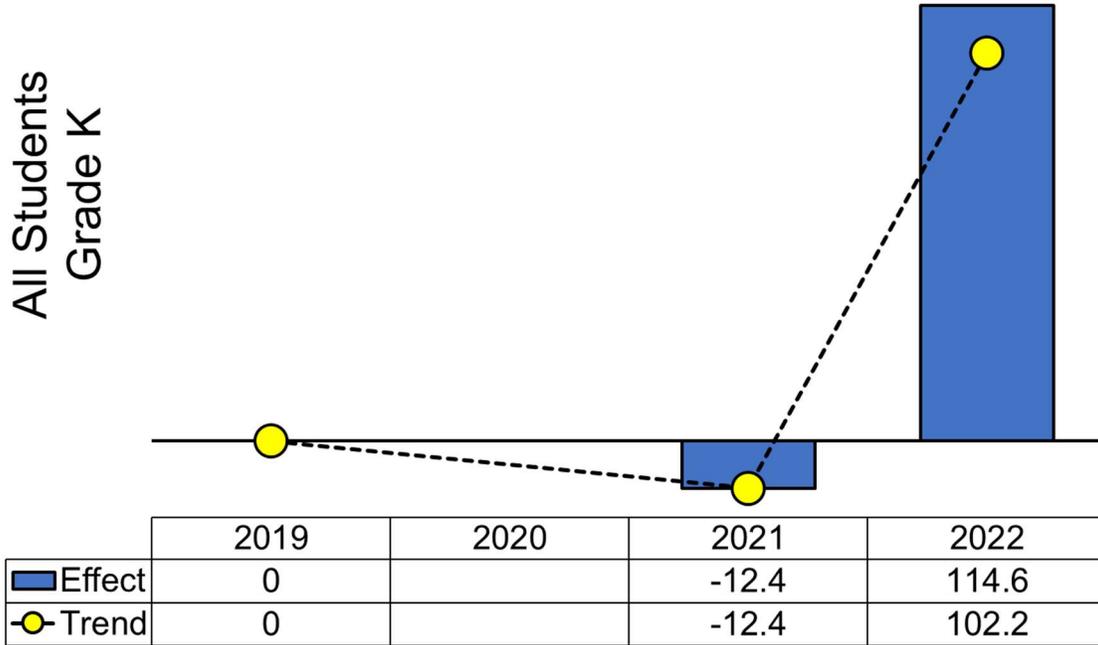


Figure 7. IRI effect sizes and trend for All Students in Grade K, Spring 2019 to Spring 2022.



Idaho kindergarten students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-12.4). They gained ground during the 2021-22 recovery year (+114.6), finishing above the 2019 baseline (+102.2).

IRI Effect Size, Spring, 2019-2022

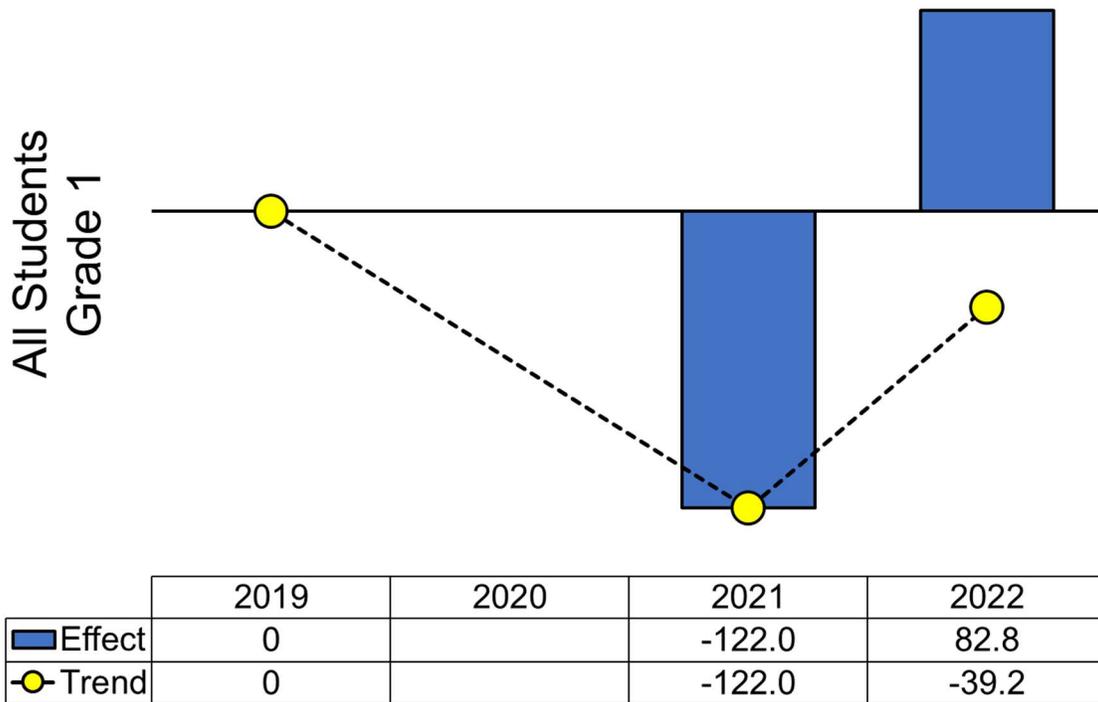


Figure 8. IRI effect sizes and trend for All Students in Grade 1, Spring 2019 to Spring 2022.



Idaho first grade students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-122.0). They gained ground during the 2021-22 recovery year (+82.8) but finished below the 2019 baseline (-39.2).

IRI Effect Size, Spring, 2019-2022

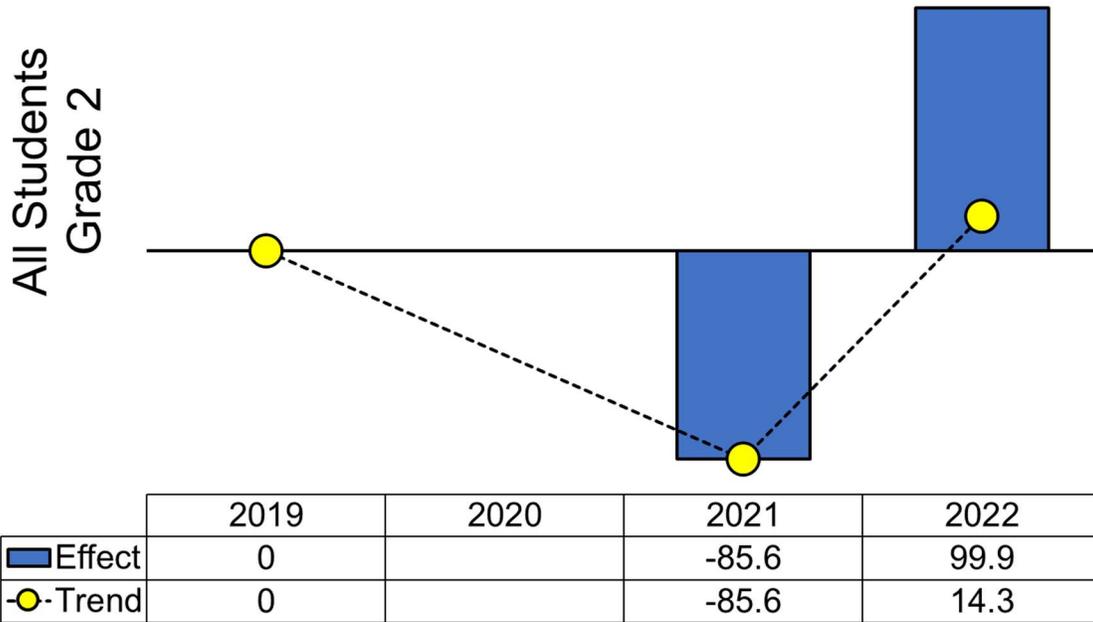


Figure 9. IRI effect sizes and trend for All Students in Grade 2, Spring 2019 to Spring 2022.

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Idaho second grade students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-85.6). They gained ground during the 2021-22 recovery year (+99.9), finishing above the 2019 baseline (+14.3).

IRI Effect Size, Spring, 2019-2022

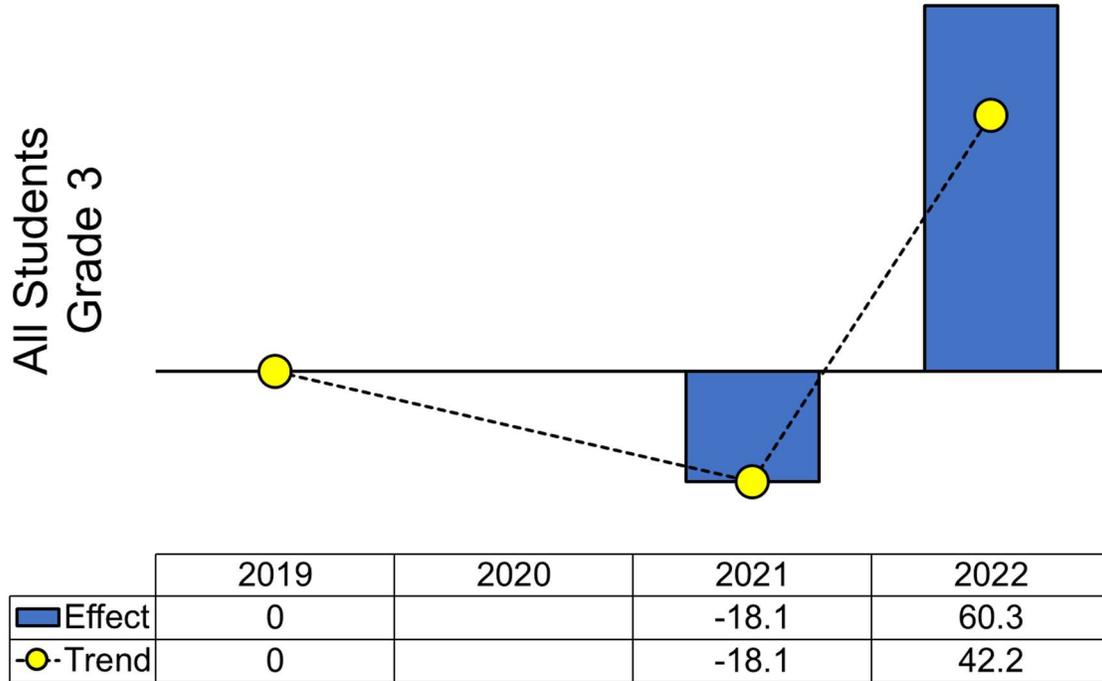


Figure 10. Idaho Reading Indicator (IRI) effect sizes and trend for All Students in Grade 3, Spring 2019 to Spring 2022.



Idaho third grade students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-18.1). They gained ground during the 2021-22 recovery year (+60.3), finishing above the 2019 baseline (+42.2).

IRI Effect Size, Spring, 2019-2022

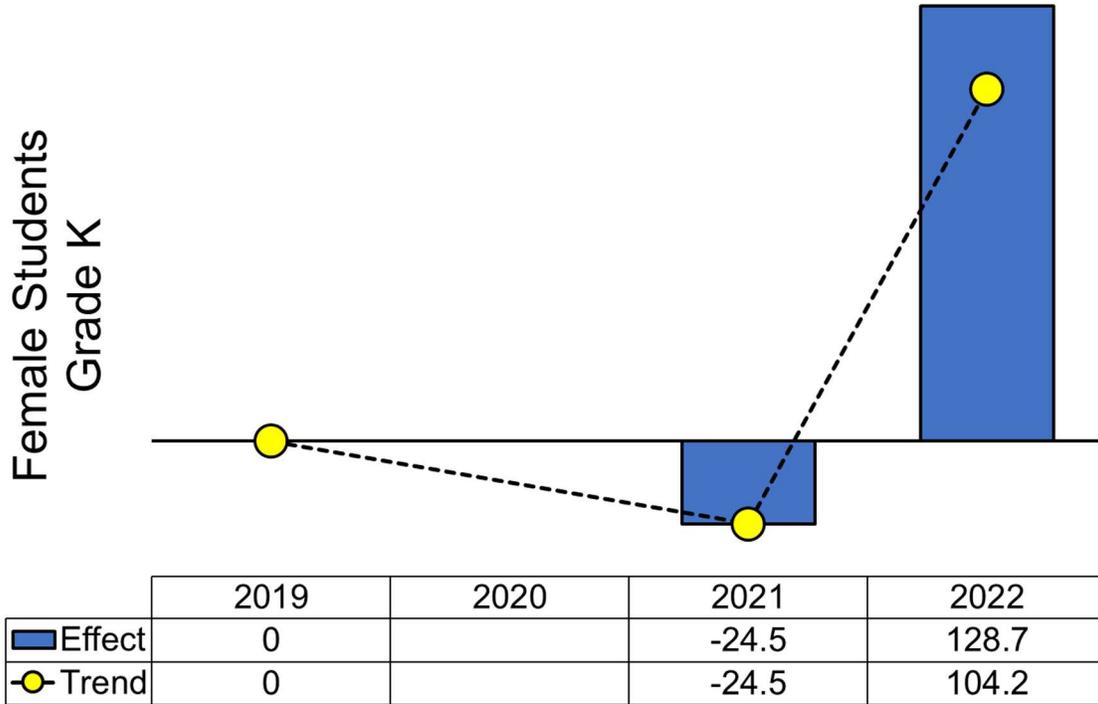


Figure 11. Idaho Reading Indicator (IRI) effect sizes and trend for Female Students in Grade K, Spring 2019 to Spring 2022.



Idaho kindergarten female students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-24.5). They gained ground during the 2021-22 recovery year (+128.7), finishing above the 2019 baseline (+104.2).

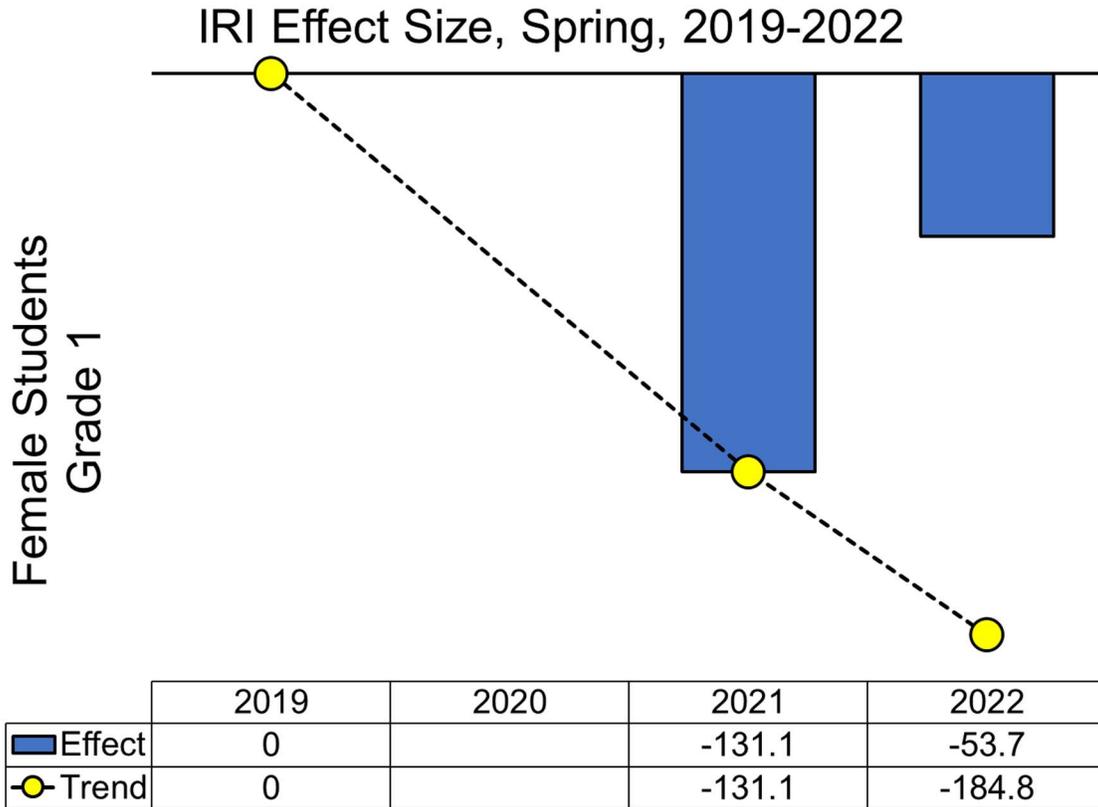


Figure 12. Idaho Reading Indicator (IRI) effect sizes and trend for Female Students in Grade 1, Spring 2019 to Spring 2022.



Idaho first grade female students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-131.1). They also lost ground during the 2021-22 recovery year (-53.7) finishing well below the 2019 baseline (-184.8).

IRI Effect Size, Spring, 2019-2022

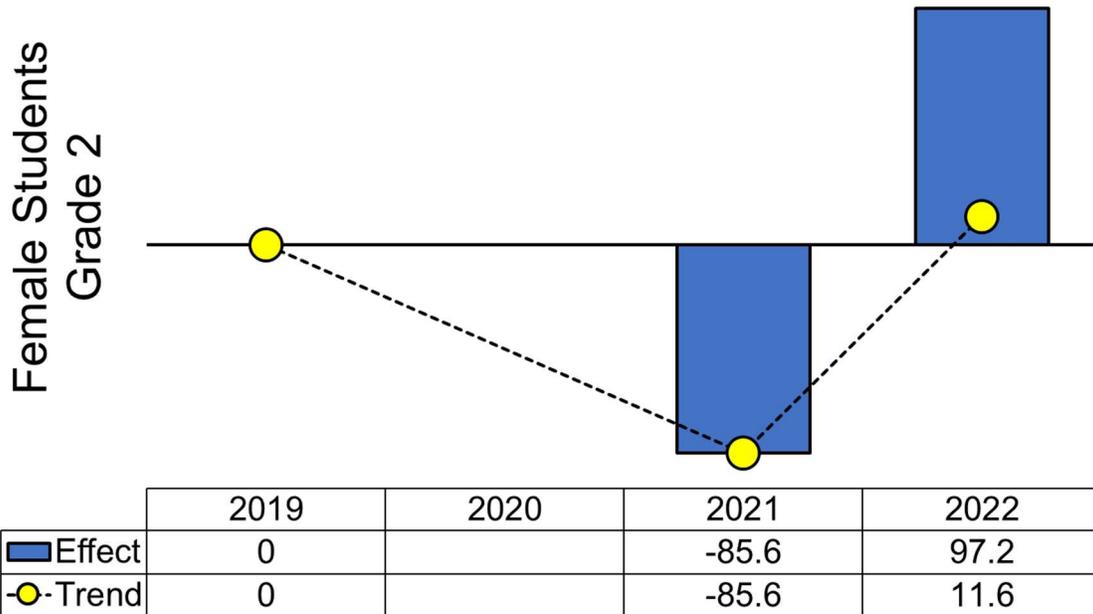


Figure 13. Idaho Reading Indicator (IRI) effect sizes and trend for Female Students in Grade 2, Spring 2019 to Spring 2022.



Idaho second grade female students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-85.6). They gained ground during the 2021-22 recovery year (+97.2) finishing above the 2019 baseline (+11.6).

IRI Effect Size, Spring, 2019-2022

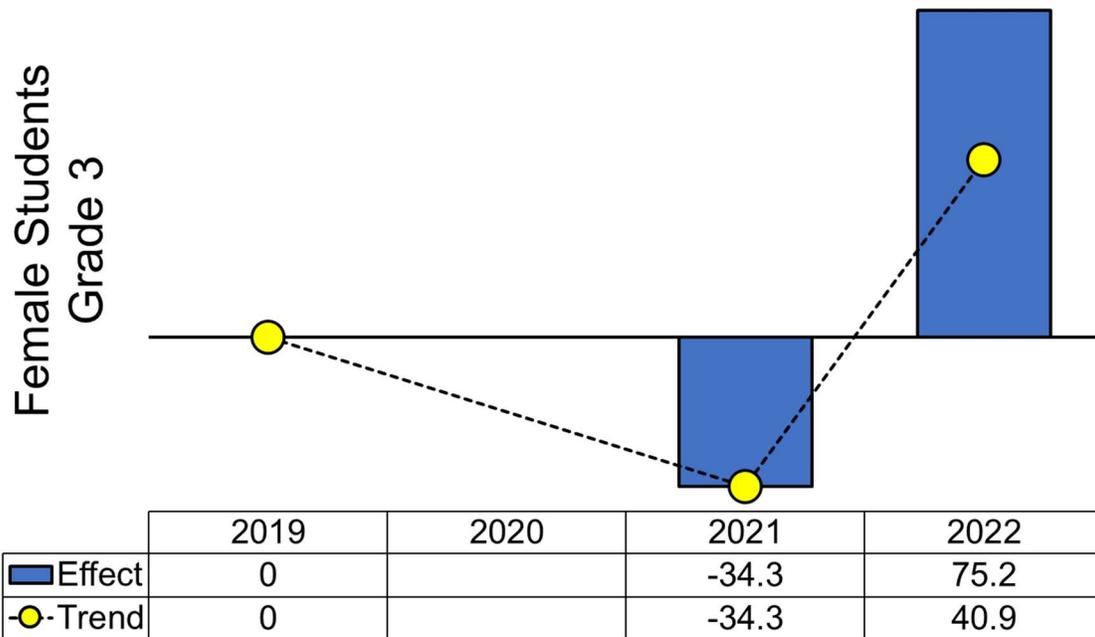


Figure 14. Idaho Reading Indicator (IRI) effect sizes and trend for Female Students in Grade 3, Spring 2019 to Spring 2022.



Idaho third grade female students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-34.3). They gained ground during the 2021-22 recovery year (+75.2) finishing above the 2019 baseline (+40.9).

IRI Effect Size, Spring, 2019-2022

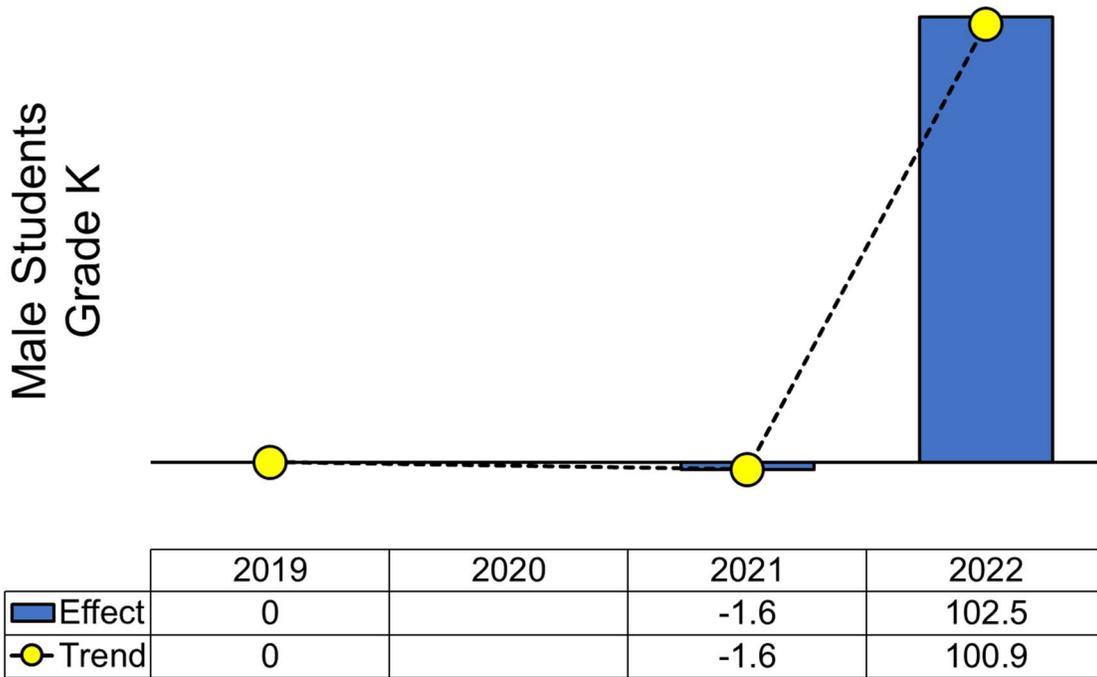
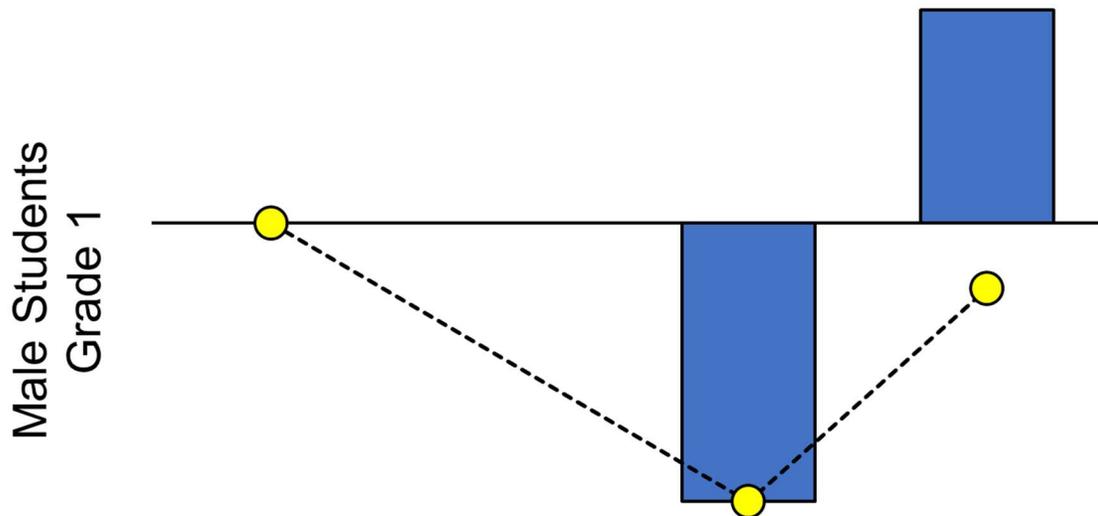


Figure 15. Idaho Reading Indicator (IRI) effect sizes and trend for Male Students in Grade K, Spring 2019 to Spring 2022.

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Idaho kindergarten male students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-1.6). They gained ground during the 2021-22 recovery year (+102.5) finishing well above the 2019 baseline (+100.9).

IRI Effect Size, Spring, 2019-2022



	2019	2020	2021	2022
Effect	0		-114.4	87.6
Trend	0		-114.4	-26.8

Figure 16. Idaho Reading Indicator (IRI) effect sizes and trend for Male Students in Grade 1, Spring 2019 to Spring 2022.

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Idaho first grade male students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-114.4). They gained ground during the 2021-22 recovery year (+87.6) but finished below the 2019 baseline (-26.8).

IRI Effect Size, Spring, 2019-2022

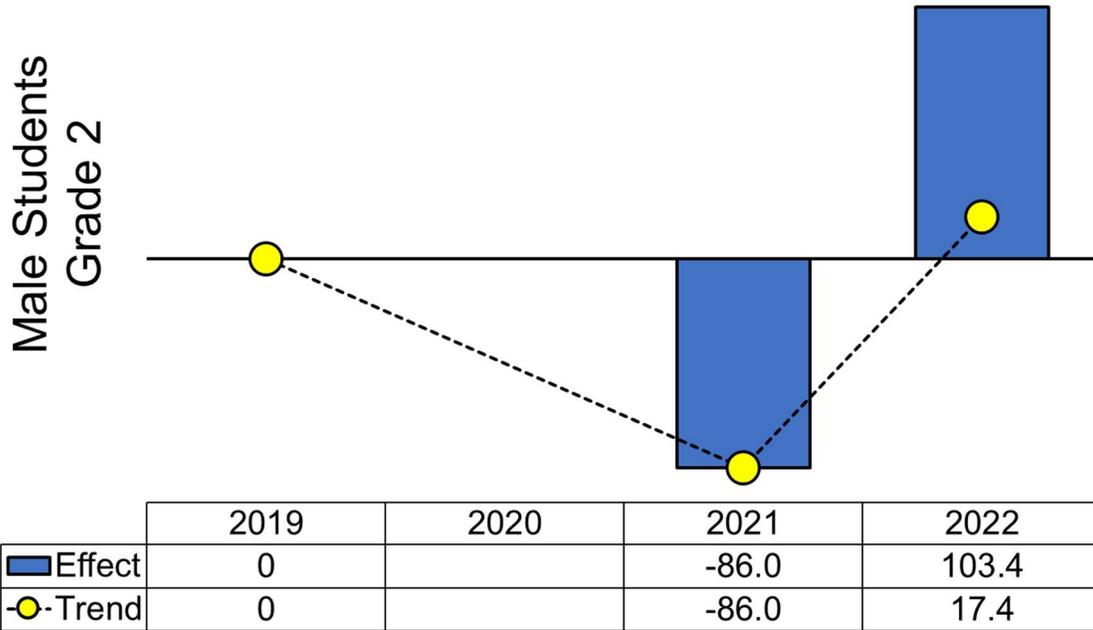


Figure 17. Idaho Reading Indicator (IRI) effect sizes and trend for Male Students in Grade 2, Spring 2019 to Spring 2022.



Idaho second grade male students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-86.0). They gained ground during the 2021-22 recovery year (+103.4) finishing above the 2019 baseline (+17.4).

IRI Effect Size, Spring, 2019-2022

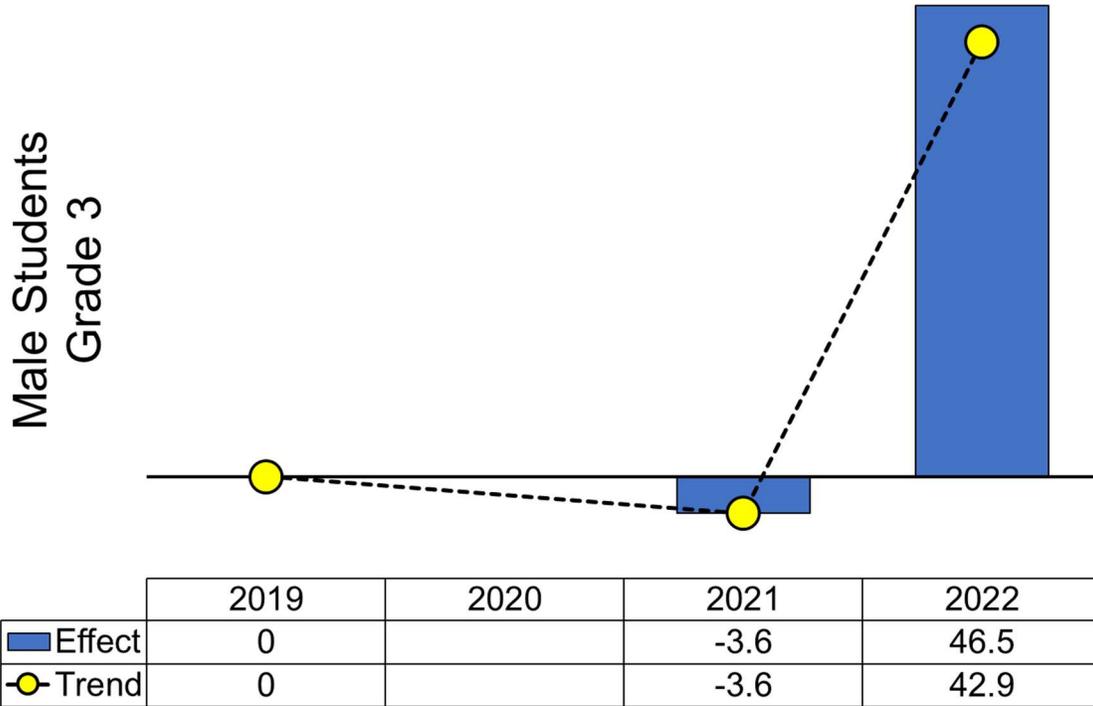


Figure 18. Idaho Reading Indicator (IRI) effect sizes and trend for Male Students in Grade 3, Spring 2019 to Spring 2022.



Idaho third grade male students lost ground between the 2019 baseline and the end of the statewide lock down and new school year marked by a chaotic return to regular reading instruction (-3.6). They gained ground during the 2021-22 recovery year (+46.5) finishing above the 2019 baseline (+42.9).

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