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# The Impact of Spalding's *The Writing Road to Reading* Training across Elementary Schools on AZ Literacy Rates

Examining the relationship between having Spalding Trained Teachers and achieving proficiency on third- to fifth-grade state test scores.

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## Abstract

Spalding's *The Writing Road to Reading* training integrates systematic and explicit instruction to aid in the reading process by preparing teachers to deliver high-quality literacy instruction. Spalding partnered with LXD Research to conduct a correlational study examining how the depth and breadth of Spalding's *The Writing Road to Reading* training within a school impacts student literacy proficiency over two years. Arizona state assessment results from 2022 and 2023 for grades 3-5 were used to compare proficiency rates in schools with and without Spalding Trained Teachers. Across all grades and both years, Spalding schools had a significantly higher Median Percent Passing than Non-Spalding schools, ranging from small to medium effect sizes. Across grades, Spalding schools maintained growth and continued improving from 2022 to 2023.

## ESSA Level

This study meets the criteria for ESSA Level 3, a correlational study, which includes covariates to control for statistical biases. This study has been reviewed by experts at LXD Research.





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## Introduction

Public education in the United States faces declining enrollment and teacher shortages, with staffing challenges in special education, mathematics, science, foreign languages, and English as a Second Language classrooms on the rise (McVey & Trinidad, 2019). In particular, many reading instructors are experiencing stress due to the mounting pressure to improve literacy rates coupled with inadequate support from administrators and districts. Recent research suggests that some teachers who fail to get help simply get out, specifically noting that “teachers who are thinking of leaving cite compensation, unreasonable expectations, and an inability to protect their well-being as top motivators” (Bryant et al., 2023, p. 5). The quality of teacher preparation and the perceived working conditions are critical factors in teacher retention, highlighting the need for effective and supportive teacher training and professional development (Geiger & Pivovarova, 2018).

Teacher turnover is highly undesirable because it undermines student achievement and overall school improvement efforts (Kini & Podolsky, 2016; Ronfeldt et al., 2013). On the other hand, well-designed training and mentoring programs can actually improve retention rates and increase new teachers’ feelings of efficacy and their facility with instructional skills (Sutcher et al., 2019). The present study was conducted by a team of independent researchers, [LXD Research](#), to examine the impact of Spalding’s *The Writing Road to Reading* teacher training program on literacy achievement. Specifically, this correlational study examines how the depth and breadth of Spalding training within a school impacts student literacy proficiency over two years.

### Spalding’s *The Writing Road to Reading* Training Description

Spalding’s *The Writing Road to Reading* is a K-6 teacher training program with a corresponding core reading curriculum that integrates systematic and explicit instruction to aid in the reading process. The reading process includes phonemic awareness, feature recognition, letter recognition, and sound-symbol relationships. It is essential for students to move toward mastery of each component of the reading process both in isolation and when interwoven together, often called the Simple View of Reading (Scarborough, 2001), which falls under the broader work around the Science of Reading (The Reading League [TRL], 2022). Research highlights that phonemic awareness is a critical predictor of reading success, emphasizing the need for instruction that presents sounds with their symbols (Stanovich, et al, 1986). Feature recognition research shows that the ability to distinguish lines and curves is essential for fluency in recognizing letters (Adams & Osborn, 1990). Additionally, letter recognition research demonstrates that familiarity with the distinctive features of each letter helps children overcome reading challenges. Spalding’s *The Writing Road to Reading* training incorporates these findings by teaching children phoneme manipulation tasks, symbol recognition, and handwriting instruction, which are crucial for developing reading skills (Fletcher & Lyon, 1998).



Furthermore, research asserts that direct instruction in alphabetic coding/sound-symbol relationships significantly facilitates reading instruction (Stanovich, 1994). Spalding's *The Writing Road to Reading* training includes strategies for decoding and understanding sound-symbol relationships, which are fundamental for early reading achievement (Moats 2000). For example, the training includes instruction in spatial placement, which teaches children to anticipate where specific letters are likely to be located, thereby enhancing their spelling and reading abilities.

Spalding's *The Writing Road to Reading* training addresses vocabulary development through high-frequency word instruction and the use of quality literature (Farnham-Diggory, 1992), while sentence structure and text comprehension are reinforced through direct teaching of language rules and cognitive strategies. These comprehensive, research-based practices included in the Spalding training aim to improve reading proficiency and ensure students can effectively decode and comprehend texts (NRP Report, 2000).

### Previous Studies on Spalding's *The Writing Road to Reading* Training

[Research on Spalding's \*The Writing Road to Reading\* training](#) consistently demonstrates its effectiveness in enhancing literacy skills among diverse student populations. In particular, studies show that Spalding schools often outperform local, state, and district averages in language arts, with some schools ranking as top performers in their state. Further, Dr. Robert Aukerman's validation in 1984 and additional longitudinal studies indicate that Spalding schools show significant improvements in reading and spelling, even for students with dyslexia and other learning challenges. Even pilot studies, such as in Peoria, AZ, revealed that Spalding classes achieved much higher reading comprehension scores compared to traditional programs. Additionally, implementation at The Gallego School in Tucson, AZ, showed rapid improvement in English reading proficiency among disadvantaged students. [These consistently positive findings](#), before the pandemic school closures, collectively underscore the program's ability to significantly boost literacy skills.

### Methods

To investigate the impact of Spalding training with as many teachers and students as possible, all of the training records from 2021 to 2023 were collected from the Spalding training database for the state of Arizona. Because the state dataset was incomplete for spring 2021, this study focuses on the 2021-2022 and 2022-2023 school year. The school-level data for Arizona's statewide achievement test for Arizona students in Grades 3-8 was downloaded for Spring 2022 and Spring 2023. These data files indicated the number of students assessed and the percentage of students in each performance level for all students and specific subgroups. Those subgroups included in this report are Hispanic or Latino, Gender, and Income Eligibility.



## Measures

### **Arizona Academic Standards Assessment (AASA)**

The Arizona Academic Standards Assessment is the statewide achievement test administered in the spring for Arizona students in grades 3-8. The ELA portion of the assessment addresses key components of reading and writing according to the ELA Standards adopted by the Arizona State Board of Education in 2016. Items on the assessment range from basic tasks such as correcting grammatical and spelling errors and defining terms to more complex, higher-order tasks such as assessing logical arguments and making inferences based on texts while citing evidence to support claims. For more information about how the items for each grade level were determined, see these ELA Item Specification Overviews: [Grade 3](#), [Grade 4](#), [Grade 5](#). Students receive composite scores that are categorized into four performance levels based on [cut scores](#): Minimally Proficient (Level 1), Partially Proficient (Level 2), Proficient (Level 3), and Highly Proficient (Level 4). Each grade has a detailed set of Performance Level Descriptors (see [Grade 3](#), [Grade 4](#), [Grade 5](#)). Passing Proficiency levels include Proficient or Highly Proficient scores, as students who score in these ranges are likely to be ready for the next grade.

## Research Questions

1. How many teachers are trained in AZ schools and how many schools have a low student: Spalding Trained Teacher (Spalding TT) ratio?
2. To what extent are literacy rates related to having a Spalding Trained Teacher? In other words, do schools with Spalding Trained Teachers have higher literacy rates than those without?
3. To what extent are the changes in literacy rates from 2022 to 2023 related to having a Spalding Trained Teacher within the school?
4. How did the impact of having a Spalding Trained Teacher vary in student subgroups?

## Data Collection

Using the district, school, and School ID number provided by the state, each Spalding teacher record was connected to its corresponding school. In total, 111 schools were identified to have had at least one Spalding training, with 2,120 trained instructors. Once the AASA and Spalding Training data were merged, 102 schools were identified as Spalding schools in 2022 and 103 schools were identified as Spalding schools in 2023. There were 1,232 comparison schools in 2022 and 1,223 comparison schools in 2023.

## Sample Size

There were nearly 100,000 students in this analysis in 2023. The percentage of students in the most common student subgroups were relatively similar to the whole population for the Spalding schools and the Non-Spalding schools.



Table 1. Demographic profiles of schools by group

	All Schools	Non-Spalding	Spalding
<b>All Students</b>	292,244	257,679	34,595
<b>Hispanic/Latino</b>	40%	41%	36%
<b>Income Levels 1 and 2</b>	45%	46%	34%
<b>Male</b>	44%	44%	43%

## Description of Treatment Schools

### Spalding Training by Year and Grade Level

Almost half of the Spalding teachers taught grades K-2 (53%) and 39% taught grades 3-5. Some teachers participated in more than one training across years, with over 32% of teachers who participated in training completed more than one training. Note that the total column and row reflect the total number of unique teachers trained across years—rather than a simple sum of the corresponding column or row, these totals are adjusted to remove any repeat training by teachers. While the bulk of educators who participated in Spalding training were K-5 teachers, several teachers of other grades, coaches, special education teachers, specialists, and administrators also participated in the training.

Table 2. Spalding Training Across 2021-2023 by Educator Role

Year	K-2	3-5	Other Grades	Coach, Specialist or SPED	Admin	Total
<b>2021</b>	388	287	52	1	4	731
<b>2022</b>	487	328	54	14	14	896
<b>2023</b>	421	338	30	5	18	812
<b>Total</b>	1072	803	115	16	31	2034

### Estimating the Depth and Breadth of Spalding Teacher Training

Even though the AASA data represented students in grades 3-5, the number of those tested was used as the reference for determining Spalding training adoption rate. To measure the depth of Spalding teacher training at a school, the number of students tested was divided by the number of Spalding Trained Teachers to develop a student-to-Spalding-Trained-Teacher ratio. Then, schools were binned into groups. While quartiles and quintiles were considered, conceptual groups were determined to more closely align to class size, the number of students taught in a



class (25), or two small groups (12). These groups are reported below to help characterize the adoption rates of Spalding training across the schools that were included in the study.

*Table 3. Summary of Spalding Trained Teacher-to-Student Ratio Groups*

Students Per Trained Teacher	Number of Schools	Number of Students	Number of Spalding Teachers
< 12	31	6,685	928
12-25	36	15,799	171
25-50	19	5,664	910
> 50	18	6,417	65
No Spalding Trained	1273	257,679	0

### Description of Comparison Schools

The comparison schools for the current study included all publicly available Arizona state public and charter schools. While the exact programs that each school used across 2021-2023 was not available in the data set, the [Arizona Move on When Reading](#) law that was passed in 2016 mandates that schools provide students evidence-based, effective reading instruction in kindergarten through third grade in order to position them for success as they progress through school, college, and the workforce. This legislation emphasizes early identification and immediate intervention for struggling readers, and provides an outline of requirements for programs that meet their evidence-based standards. The reading curriculum must provide explicit, systematic instruction, ample independent reading practice opportunities for students, comprehensive diagnostic assessments and screeners for instruction adjustment, high-quality professional development, and include the essential components of early literacy: phonological awareness, phonics, fluency, vocabulary, and comprehension. As such, the comparison schools serve as a treated comparison group, and any improvement by the Spalding schools over the Non-Spalding schools comparison group would suggest a particular advantage of Spalding training above and beyond the established benefits of having access to structured literacy instruction.

### Analysis Plan

To determine the effect of Spalding training on student literacy rates, the Median Percent Passing for schools that had Spalding Trained Teachers was compared to schools that did not have Spalding Trained Teachers. First, analyses compared percent passing for each grade and year separately, and then looked at percent passing longitudinally, following schools from 2022 to 2023. Then, a focused lens was placed on particular student subgroups to determine if the same pattern of results held for these subgroups.



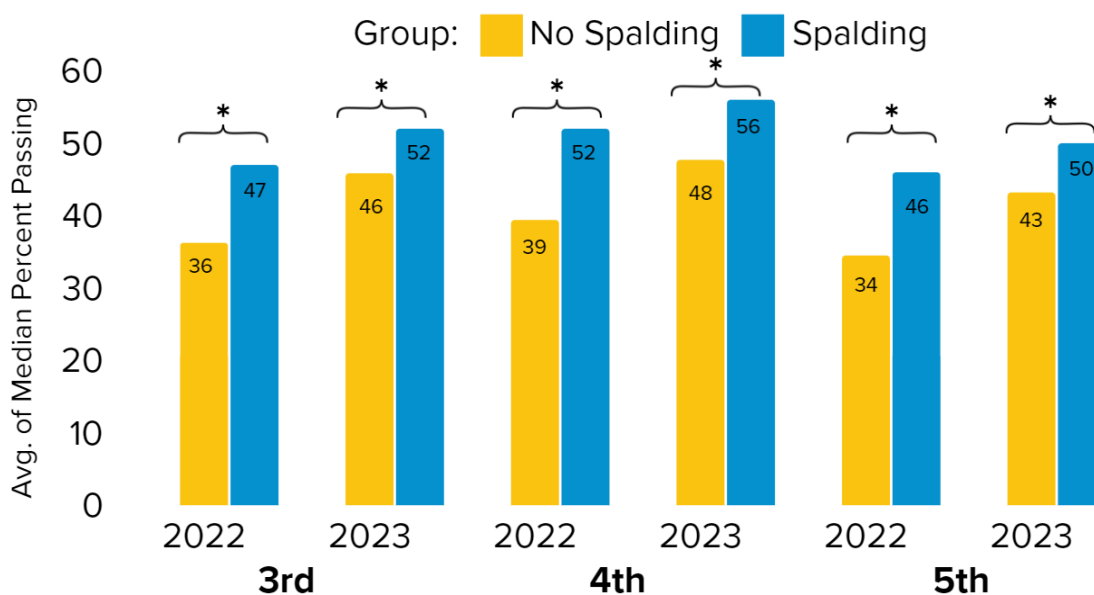
The Spalding group here included schools with a ratio of no more than 50 students per Spalding Trained Teacher. For the purposes of analysis, the group with >50 students per Spalding Trained Teacher was excluded due to the wide range of ratios beyond the 50-student mark (e.g., this group ranged from 50 to 260 students per trained teacher). The relatively small number of schools in this group with the large variation in the range of student-to-Spalding-Trained-Teacher ratio made it difficult to parse this category further. Cohen’s d effect sizes are included as a measure of the strength of the effect. The details of the analytic methods that correspond to each analysis are described before the results are outlined below.

## Results

### Effect of Spalding Trained Educators on Percent Passing

To assess the effect of having Spalding Trained Teachers present in the school overall on percent passing, the Median Percent Passing was examined using Independent Samples t-tests for each grade (3rd, 4th, and 5th) and year (2022 and 2023) separately across Spalding and Non-Spalding groups.

Table 4. Avg. of Median Percent Passing for Spalding vs. Comparison Schools by Year and Grade



\* Statistically significant differences in scores

All grades across both years included in this study showed higher Median Percent Passing for Spalding schools than for Non-Spalding schools.



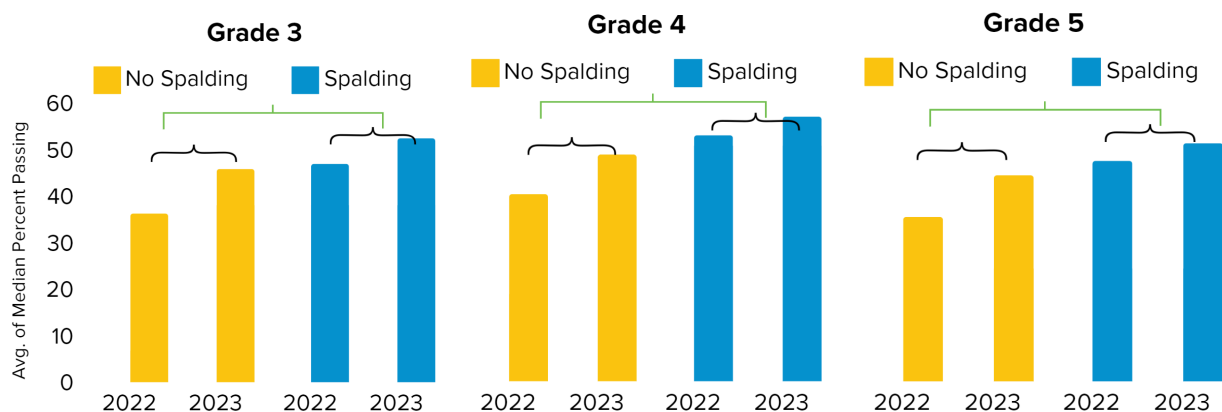


- For 3rd grade, Spalding schools had a higher Median Percent Passing than Non-Spalding schools in 2022 ( $t(1203) = 5.15, p < .01, d = 0.583$ ) and in 2023 ( $t(717) = 3.05, p < .01, d = 0.374$ ).
- For 4th grade, Spalding schools had a higher Median Percent Passing than Non-Spalding schools in 2022 ( $t(1215) = 5.80, p < .01, d = 0.656$ ) and in 2023 ( $t(787) = 3.68, p < .01, d = 0.444$ ).
- For 5th grade, Spalding schools had a higher Median Percent Passing than Non-Spalding schools in 2022 ( $t(1203) = 5.84, p < .01, d = 0.660$ ) and in 2023 ( $t(678) = 3.18, p < .01, d = 0.394$ ).

### Longitudinal Effect of Spalding Trained Educators on Percent Passing Across Years

To assess the extent to which the changes in literacy rates from 2022 to 2023 were related to the use of Spalding training in schools, repeated measures ANOVA was used with year as the within-subjects variable and group (Spalding or Non-Spalding) as the between-subjects variable. For this analysis, only schools that had percent passing data for 2022 and 2023 were included. Because the assessment performance data for this analysis was extracted from the Arizona state website, attrition is outside of the study’s control. Sample sizes for each grade are included below to represent the number of schools with data available to be included in the analyses.

Table 5. Growth in Avg. of Median Percent Passing for Spalding vs. Comparison Schools



Note: Green bracket means similar growth.

Across grades, Spalding schools showed an increase in Median Percent Passing rate from 2022 to 2023 that was similar to Non-Spalding schools.

- For 3rd Grade, Spalding schools ( $N = 72$ ) outperformed Non-Spalding schools ( $N = 632$ ) across both years,  $F(1, 702) = 9.66, p < .01$ , but grew from 2022 to 2023 at similar rates,  $F(1, 702) = 0.034, p = .85$ .
- For 4th Grade, Spalding schools ( $N = 74$ ) outperformed Non-Spalding schools ( $N = 698$ ) across both years,  $F(1, 770) = 18.51, p < .001$ , but grew from 2022 to 2023 at similar rates



$F(1, 770) = 5.52, p = 0.02$ , with the Non-Spalding group closing some of the gap and starting to catch up with the Spalding group.

- For 5th Grade, Spalding schools ( $N = 71$ ) outperformed Non-Spalding schools ( $N = 596$ ) across both years,  $F(1, 665) = 11.61, p < .001$ , but grew from 2022 to 2023 at similar rates  $F(1, 665) = 0.84, p = .361$ , with the Non-Spalding group closing some of the gap and starting to catch up with the Spalding group.

### Effect of Spalding Trained Educators within Demographic Subgroups

To assess whether these findings held within specific subgroups, Independent samples t-tests were used to compare Spalding and Non-Spalding Median Percent Passing rates within subgroups of interest. Note that Student's t-tests were used unless a Brown-Forsythe test indicated that the equality of variances assumption was violated, in which case a Welch's t-test was used in its place. These subgroup analyses are not intended to compare results within a given subgroup to the overall group, but to determine whether the growth and differences observed in the full sample hold when placing a closer lens on populations that may especially benefit from additional support provided by a Spalding Trained Teacher. The subgroups analyzed in this study include Hispanic or Latino students, Male students, and students whose family household income qualifies them for free and reduced lunch.

#### Hispanic or Latino Students

For 3rd through 5th grade across 2022 and 2023, the pattern of results held for Hispanic and Latino students, showing higher Median Percent Passing in Spalding schools compared to Non-Spalding schools.

- 3rd Grade 2022:  $t(1105) = 5.27, p < .001, d = 0.605$
- 3rd Grade 2023:  $t(422) = 3.07, p < .01, d = 0.475$
- 4th Grade 2022:  $t(1111) = 5.89, p < .001, d = 0.676$
- 4th Grade 2023:  $t(478) = 4.41, p < .001, d = 0.658$
- 5th Grade 2022:  $t(1096) = 5.96, p < .001, d = 0.68$
- 5th Grade 2023:  $t(358) = 3.04, p < .01, d = 0.48$

#### Male Students

For 3rd through 5th grade across 2022 and 2023, the pattern of results held for male students, showing higher Median Percent Passing in Spalding schools compared to Non-Spalding schools.

- 3rd Grade 2022:  $t(1167) = 5.55, p < .001, d = 0.632$
- 3rd Grade 2023:  $t(531) = 2.35, p = .019, d = 0.312$
- 4th Grade 2022:  $t(1177) = 5.42, p < .001, d = 0.617$
- 4th Grade 2023:  $t(575) = 3.14, p < .01, d = 0.414$
- 5th Grade 2022:  $t(1158) = 5.36, p < .001, d = 0.611$
- 5th Grade 2023:  $t(466) = 1.26, p = .208, d = 0.177$



### ***Income Eligibility Students***

For 3rd through 5th grade across 2022 and 2023, the pattern of results held for students who qualify for free or reduced lunch, showing higher Median Percent Passing in Spalding schools compared to Non-Spalding schools.

- 3rd Grade 2022:  $t(1036) = 4.57, p < .001, d = 0.545$
- 3rd Grade 2023:  $t(381) = 2.16, p = .032, d = 0.342$
- 4th Grade 2022: *Welch's*  $t(84.03) = 6.04, p < .001, d = 0.762$
- 4th Grade 2023:  $t(454) = 3.28, p < .01, d = 0.515$
- 5th Grade 2022:  $t(1021) = 5.81, p < .001, d = 0.689$
- 5th Grade 2023:  $t(293) = 2.72, p < .01, d = 0.484$

Overall, these analyses indicate that the pattern of improvement in Median Percent Passing rates for the Spalding schools over the Non-Spalding schools holds when considering the proficiency results within specific subgroups.

### **Conclusion and Next Steps**

The current study sheds light on the effect of Spalding training on a school's literacy rates. Across 3rd to 5th grade, significantly more students passed the state test in Spalding schools than Non-Spalding schools, in both 2022 and 2023. This pattern of results holds when placing a closer lens on student subgroups, including for Hispanic or Latino students, male students, and students who qualify for free or reduced lunch. Students in Spalding schools also maintained growth across years, growing at similar rates to Non-Spalding schools.

The current study is a correlational study, meaning the results may have been influenced by other factors outside of the researchers control or beyond what was measured. Future work can address these limitations through a quasi-experimental or experimental design that controls for extraneous factors to determine the causal relationship between Spalding's *The Writing Road to Reading* training and student literacy scores. A future design could also look at student-level characteristics and control for baseline scores by collecting student-level data, rather than school-level data.

The overall results reveal a strong indication that Spalding training has a positive impact on student outcomes. Having teachers trained in Spalding's *The Writing Road to Reading* training may be an important means by which schools can support student literacy rates.



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