LXD RESEARCH
ESSA
Level 2
Evidence

LEARNING EXPERIENCE DESIGN | LXD Research | Heggerty

Heggerty Bridge to Reading Efficacy Study Preliminary Findings

MID-YEAR FIRST GRADE GAINS WITH MAP GROWTH AND MAP FLUENCY

SCHOOL YEAR 23-24

Authors

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March 6, 2024

Heggerty

Learning Experience Design (LXD) Research & Consulting

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UNDERSTANDING
ESSA Evidence

OVERVIEW

Evidence guidance under the Every Student Succeeds Act (ESSA) are designed to ensure that states, districts, and schools can identify programs, practices, products, and policies that work across various populations.

The Every Student Succeed Act (ESSA) requires education programs to provide evidence of effectiveness and impact in order to be federally supported. The Department of Education's Office of Educational Technology provides standards to assess the varying levels of strength of research for education products.

The categories for ESSA Evidence are: strong, moderate, and promising evidence of effectiveness, or demonstrates a rationale to be effective.

This product meets the requirements for Level 2: Moderate Evidence

- In a quasi-experimental design, students who used the program are compared to control groups through matching.
- A mixed-methods study with the proper design and implementation with at least two teachers and a multi-site sample of 350 students showing statistically significant, positive findings on a standardized test.
- The study uses a form of a program that could be replicated.
- A third-party research organization has reviewed the documentation for ESSA validation

"When product designers leverage learning sciences to design their products, educators can better target instruction, and students' skills soar. Through interviews with the product designers and an evaluation of their research-informed activities, Heggerty Bridge to Reading has earned the Digital Promise Research-Based Design certification. By conducting research using a quasi-experimental design that demonstrated a meaningful impact, the product meets the criteria for LXD Research's ESSA Level 2 Evidence."

– Rachel Schechter, Ph.D., Founder of LXD Research

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EFFICACY STUDY SUMMARY MID-YEAR 2023-2024

LXD RESEARCH ESSA Level 2 Evidence

PROGRAM DESCRIPTION

Bridge to Reading includes all the components teachers need to provide comprehensive foundational skills instruction in 30 minutes or less. The daily instruction includes 6-8 phonemic awareness skills alongside systematic phonics lessons, with student practice pages, decodable texts, multi-sensory learning aids, and progress-monitoring tools.

1st Grade Spotlight in Georgia

Analysis Sample Sizes

- 3 Heggerty schools, 247 students.
- 12 Comparison schools 736 students

Demographics

56% White | 38% Hispanic | 24% ELL | 8% SPED

Time Frame

August 2023 - December 2024

Implementation Description

- Teachers used Bridge to Reading every day for their phonics skill instruction during their daily reading block

Methodology

- Using Matching Frontier, students from the Heggerty schools were matched with demographically similar students with similar BOY MAP Growth scores.
- MOY MAP Growth scores were examined between the two groups.

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BRIDGE TO Reading

Heggerty

STUDY SUMMARY

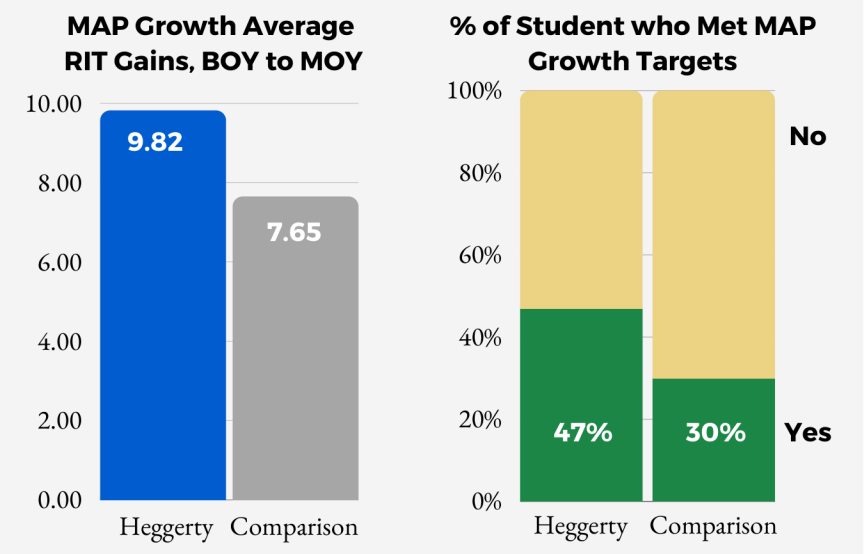
Heggerty hired LXD Research as a third-party researcher to investigate the impact of Bridge to Reading core curriculum on early literacy skills in Hall County, Georgia. Three schools were selected to use Bridge to Reading and 12 schools not trying new curriculum served as a comparison. The comparison schools used Fountas and Pinnell Guided Reading and Word Study and developed their own scope and sequences. LXD Research compared performance on the district's assessment of MAP Growth from the Beginning-of-Year (BOY) and Middle-of-Year (MOY) to understand the impact of Bridge to Reading on student literacy growth. First graders using Bridge to Reading for their core curriculum outperformed the comparison group on MAP Growth in terms of mid-year scores and gains.

KEY FINDINGS

In comparison to the district's typical literacy tools, 1st graders using Heggerty Bridge to Reading

1. had significantly higher mid-year MAP Growth RIT scores (effectively an average at the 49th percentile vs. the 60th percentile),
2. had significantly higher gains from BOY-MOY on MAP Growth RIT Scores, and
3. had a significantly higher proportion who met MAP Growth targets* (47%) compared to the comparison 1st graders (30%).

Significantly higher proportion of students met projected growth in Heggerty group vs. the comparison.



1. MAP MOY RIT Score: t(981) = 2.34, p<.05, Hedge's g Effect Size = .17
2. MAP RIT Gains: $t(981) = 3.45$, $p<.001$, Hedge's g Effect Size = .25
3. MAP Growth Met Target Yes or No: t(522) = 3.59, p<.001, Hedge's g Effect Size = .36

Students with Yes or No* were excluded from this analysis, based on guidance from NWEA, N=524

Abstract

This study aimed to assess the effectiveness of the Heggerty Bridge to Reading program for first-grade students compared to a business-as-usual reading program by employing a mixed-methods approach encompassing a matched quasi-experimental design, teacher surveys, and interviews. In light of the learning disruptions caused by the COVID-19 pandemic, the study underscores the necessity of explicit reading instruction, with a focus on phonemic awareness and systematic phonics. Results indicate that the Bridge to Reading program, integrating phonemic awareness lessons with daily explicit phonics instruction, significantly improves student achievement on MAP Growth and MAP Fluency formative assessments, leading to higher RIT scores and growth compared to the control group. Analysis of student subgroups reveals significant progress among lower-achieving students, indicating effective support in bridging foundational reading skill gaps from kindergarten. Moreover, the program surpasses the comparison group in meeting projected growth targets, with a greater proportion of students reaching their mid-year growth target. Feedback from educators in the treatment group underscores positive perceptions, with teachers reporting enhanced understanding of reading methods and alignment with literacy development. The study also examines demographic factors and baseline scores, revealing significant impacts in areas such as phonological awareness, phonics, and word recognition. Additionally, the study outlines future steps, including qualitative data collection and end-of-year quantitative analysis, to further elucidate the program's efficacy. These preliminary findings suggest that the Bridge to Reading program holds promise in bolstering student achievement in foundational reading skills, particularly amidst the challenges posed by the COVID-19 pandemic.

Heggerty Bridge to Reading Efficacy Study Preliminary Findings

Mid-Year First Grade Gains with MAP Growth and MAP Fluency: ESSA Level 2

Conducted by Rachel L. Schechter, Ph.D., Anna Robinson, M.A., and Isabella Ilievski, Ed.M.
LXD Research at Charles River Media Inc.

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Introduction

Children do not automatically learn how to read but need to be taught through explicit instruction (Honig et al., 2018). Most children enter kindergarten as pre-readers, largely without prerequisite early literacy skills, including phonemic awareness (Castiglioni-Spalten & Ehri, 2003). Learning disruptions from the COVID-19 pandemic also impacted student reading development, with many children in grades K-3 lacking the foundational skills necessary to be successful readers (Kuhfeld et al., 2022). Even younger children who were not yet in kindergarten at the start of the pandemic are behind, with kindergarteners and first graders starting the 2022-2023 school year at lower achievement levels than in the past (Barshay, 2023). Further, despite ongoing efforts to combat learning loss as a result of the pandemic, scores in Phonological Awareness skills show a continued decline since 2019 (Curriculum Associates, 2023).

Many states have now passed laws requiring schools to implement a curriculum that aligns with the science of reading (Schwartz, 2022; Schartz, 2023a; Schwartz, 2023b). The science of reading approach emphasizes the importance of explicit and systematic instruction of foundational word recognition and language comprehension skills, including decoding, phonemic awareness, letter instruction, connected reading, vocabulary, and grammatical structures (The Reading League, 2022; Petscher et al., 2020).

Heggerty's Bridge to Reading is a foundational skills curriculum that pairs explicit phonics instruction with phonemic awareness lessons. Bridge to Reading provides all the components teachers need to provide comprehensive instruction in 30 minutes a day within the literacy block.

Heggerty partnered with LXD Research to conduct a third-party evaluation of the Bridge to Reading program as it was implemented for Tier 1 instruction during the 2023-2024 school year in Hall County School District in Georgia. For Tier 1 curriculum, the comparison elementary schools use Fountas and Pinnell Word Study, or teachers create their own curriculum with various resources from personal experience and research. This is an ESSA Level 2 study with a Moderate, quasi-experimental design because students in multiple schools who used Bridge to Reading were matched and compared to students who did not use the program.

Bridge to Reading combines Heggerty phonemic awareness lessons with explicit daily phonics instruction. The Teacher's Editions focus on building teacher knowledge with a comprehensive scope and sequence, explicit language, and guidance for Tier 1 instruction. Daily phonemic awareness lessons include up to eight phonemic awareness skills: Rhyme, Phoneme Isolation, Blending, Segmenting, and Manipulation, and provide ample support with explicit teacher language, hand motion icons, and QR codes for additional digital resources via myHeggerty to help build teacher knowledge and confidence with delivering the curriculum. Each phonics lesson outlines daily preparation details and materials, unit concepts, target skills, and is fortified with dynamic strategies such as "Jump In and Jump Out" for

review and assessment, "Boost and Expand" for differentiated instruction, and on day 4 of each week, a Multilingual Learner Connection activity is provided for additional ELL support.

Evaluation Questions

The evaluation aims to answer the following questions:

1. How does Bridge to Reading impact student achievement on MAP formative assessments in schools that implement the program compared to schools that do not implement the program?
2. What is the nature and extent of the Bridge to Reading implementation?
3. What is the nature and extent of literacy program implementation in comparison schools?
4. What are teacher and administrator perceptions about the quality and impact of the Bridge to Reading?
    a. What are teachers' and administrators' initial reactions to the Bridge to Reading, and associated materials, content, pacing, and professional development?
    b. What suggestions do they have for improvement?

Methods

Design

This study used a mixed-methods approach, including a matched quasi-experimental design complemented by teacher surveys and literacy coach/administrator interviews. This combination of methods allows researchers to understand how the materials are being used in the classroom, gather teacher feedback, and discern the perceived impact of the program while also quantifying academic achievement.

Bridge to Reading is being implemented in Hall County, Georgia, a rural local school district with a total of 37 schools, 20 being elementary schools (National Center of Education Statistics, 2023). According to hallcounty.org (2023), the district serves almost 26,000 students. The demographic makeup of the students includes 44.1% White, 47% Hispanic/Latino, 4.7% Black, 2.8% of students are two or more races, 1.3% Asian or Asian/Pacific Islander, and 0.1% American Indian or Alaska Native and 0.1% Native Hawaiian or other Pacific Islander (U.S. News, 2023). Academically, 32% of elementary students in Hall County Public Schools tested at or above the proficient level for reading (U.S. News, 2023).

The district assembled a team of principals and instructional coaches from across the district to create the pilot program that turned into this study. Six schools would use a new curriculum during the 2023-2024 school year. Three schools would use Bridge to Reading and implement the program with all K-1 students. Three schools tried a different foundational reading program (not Heggerty), and those schools are excluded from this analysis and report. All students were pretested within the first four weeks of school using MAP Growth, tested again in Winter 2023/2024, and will be tested for the

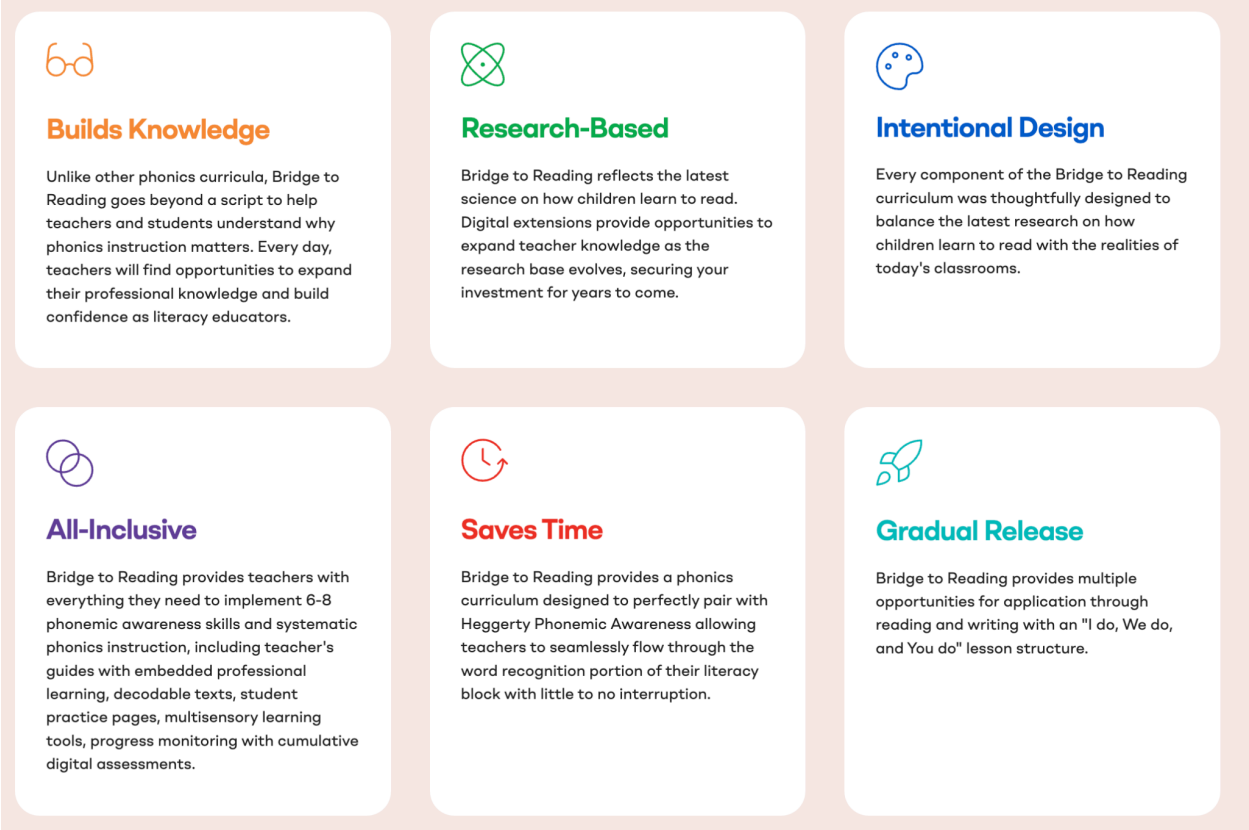
last time in Spring 2024. In exchange for participation, district leaders will receive a personalized version of the study results to inform district decision-making and free professional development from Heggerty for the Bridge to Reading schools.

Treatment Group: Program Key Features

The Heggerty Bridge to Reading curriculum combines Heggerty Phonemic Awareness lessons with daily explicit phonics instruction. The program features:

- 170 lessons (34 weeks) of logically sequenced, step-by-step lessons that follow an I Do, We Do, You Do model to introduce new phonics concepts, help students build confidence through Tier 1 whole group instruction, and develop independent readers through frequent individual practice opportunities.
- Bridge to Reading implements the gradual release of responsibility approach, which supports students while encouraging autonomy in learning new materials. This approach has been linked to higher literacy and reading skills.
- The curriculum is designed to meet the needs of a diverse range of learners by providing daily differentiated instruction activities, targeted assistance, and resources to maximize every learner's potential.
- Instruction incorporates meaningful decodable passages and an aligned library of decodable books. These resources engage students while reinforcing their learning at regular intervals.
- Bridge to Reading offers a short, whole class, or small group assessment to measure the encoding skills of all learners three times during the school year. The results of this assessment can be combined with data gathered from universal screening assessment tools and internal assessments around early literacy skills. The results can be used to inform instruction for reteaching, small groups, and/or intervention.
- The Weekly Word Check is designed to be a quick and efficient way to monitor children's ability to apply phonemic awareness and phonics knowledge to spelling words using the sound-spelling relationship and Red Words taught that week.
- Student READ (Ready, Engaged, Active Decoders) workbooks provide opportunities for independent practice, applying sound-spelling relationships, developing decoding skills, improving fluency, practicing encoding, and mastering high-frequency Red Words.
- The Bridge to Reading curriculum offers grade-level specific visual aids and resources to strengthen alphabet knowledge, illustrating the multiple sounds letters stand for, and promoting articulation awareness to recognize mouth placement and help guide children in producing and differentiating letter sounds.
- The myHeggerty digital component of the program provides teachers with flexible access to instructional resources, including: on-demand professional development, a digital edition of the curriculum, manipulatives and interactives to support instruction, and a variety of additional support and training materials for teachers.

Figure 1. Main Features of Bridge to Reading



Comparison Group: Core Reading Program

Comparison Interview Summary

Three administrator interviews were conducted in November 2023, one with three comparison schools, to gain a sense of the business-as-usual reading instruction practices. All three participants were instructional coaches with education experience ranging from 18-27 years. The instructional coaches identified using various resources in kindergarten through first grade but primarily using Fountas and Pinnell Guided Reading and Word Study for Tier 1 and Heggerty Phonemic Awareness for Tiers 1, 2, and 3, depending on the school. For interventions, the schools also mentioned the Florida Center for Reading Research. While these programs are in use, one school, in particular, discussed developing their own curriculum using a mixture of resources to suit the needs of their students and incorporating phonics. When asked about professional development and training, all the educators brought up doing their own research and finding resources. Through the district, instructional coaches were trained in Orton-Gillingham and had positive feedback. For teachers, the instructional coaches are responsible for relaying training and knowledge.

Fountas and Pinnell Guided Reading and Word Study

The Fountas & Pinnell Classroom™ Guided Reading Collection provides small-group instruction through a collection of leveled texts (Fountas & Pinnell, 2022) for K-6. The collection offers original A-Z level texts. Each title has an accompanying lesson folder to support small-group instruction. By grouping students at similar reading levels and selecting a text at their instructional level, teachers can scaffold students' growth by challenging them at the edge of their ability to process text incrementally (Fountas & Pinnell, 2022). The FPC Guided Reading Collection facilitates differentiated, small-group reading instruction to meet students where they are and help them progress as readers.

The Fountas & Pinnell Phonics, Spelling, and Word Study System (PWS) provides lessons to expand children's reading and writing skills (Fountas & Pinnell, 2022). The lessons focus on phonics, spelling patterns, high-frequency words, word meaning/vocabulary, word structure, and word-solving actions in whole-group and individual/small-group contexts. The program takes an inquiry approach and encourages students to construct their understanding of letters, sounds, and words. Connections are provided to mentor texts and examples for applying principles. Guidance is given for assessing student learning within lessons and in the online Assessment Guide. Additional digital classroom materials in Online Resources support instruction (Fountas & Pinnell, 2022).

Assessment Descriptions

Assessment: MAP Growth

MAP Growth assessments are adaptive interim tests designed to gauge a student's academic progress and development in the subjects of Reading, Language Usage, Mathematics, and Science. These assessments are not time-restricted and can be given up to four times annually during the fall, winter, and spring, with the possibility of a fourth optional administration in the summer. Typically, students take approximately one hour to finish each MAP Growth test.

MAP Growth assessments provide a personalized evaluation of each student's performance, considering their strengths and areas for improvement. These assessments rely on ability scores called Rasch Unit (RIT) scores, organized into percentiles based on a normed sample. This percentile data, as defined in the NWEA 2020 Norms Study (Thum & Kuhfeld, 2020), helps educators understand how much growth has occurred between testing events, and when combined with the norms established by the tests' authors, it reveals projected proficiency levels. As students progress from kindergarten through fifth grade, they use the same MAP Growth RIT scale assessment.

MAP Growth's unique approach offers a comprehensive view of student achievement, whether they perform on, above, or below their grade level. Moreover, the assessment provides students with an achievement percentile range, allowing both students and educators to effectively monitor performance during each assessment and over multiple years, making it a powerful tool for tracking academic growth throughout a student's educational journey.

Assessment: MAP Reading Fluency

In 2018, NWEA released MAP Reading Fluency, a versatile and adaptive tool designed for both universal screening and ongoing progress monitoring in early reading. Within a brief 20-minute session, it efficiently collects data on a class's oral reading fluency, literal comprehension, and foundational reading skills. Additionally, it serves as a proactive screener for potential risk factors related to dyslexia or other reading challenges. Benchmark tests, given once per term, evaluate oral reading fluency, literal comprehension, and/or foundational reading skills. The Foundational Skills Benchmark test, given once per term, evaluates students in three key areas: Phonological Awareness, Phonics and Word Recognition, and Language Comprehension (encompassing vocabulary and listening comprehension). For each of these domains, students receive scaled domain scores and performance levels. Researchers used domain scores for each key area to examine student outcomes.

Sample Description

The initial approach for this paper was to include a sample of three comparison schools. However, as demonstrated below, the Heggerty school groups were demographically different from the comparison groups that were randomly selected. Therefore, a new, larger sample was identified from all the available schools, leading to a very close demographic and score match.

Student Characteristics by Group

Three schools were randomly selected from the schools in the district that were not trying a new reading program this year. These schools had similar sized samples in each grade.

Table 1. Original Sample: Number of Students and Schools per Grade and Group

School Group	# of Schools	K	1
Heggerty	3	252	253
Comparison	3	329	318
Total	**6**	**581**	**571**

Heggerty and the comparison schools were similar in regard to gender distribution. However, Heggerty and the comparison group were disproportionate in terms of race/ethnicity. There were significant differences in the proportion of Hispanic, White, and Other (including Black, Asian, and Native American/Alaskan) students. Heggerty had more White students and fewer Hispanic students than the comparison schools.

Table 2. Original Sample: Demographic Data for Students by Grade and Group

	Race/Ethnicity			Gender		
		Heggerty	**Comparison**		**Heggerty**	**Comparison**
Kindergarten	Hispanic White Multiple Other	33%* 59%* 4% 4%*	46%* 40%* 4% 10%*	Female	48%	49%
1st Grade	Hispanic White Multiple Other	38%* 56%* 3% 2%*	48%* 42%* 3% 7%*	Female	47%	48%

**Significant difference between Heggerty and Comparison.*

Table 3. Original Sample: Percent of Students with Limited English Proficiency, Special Ed., and Section 504 Status by Grade and Condition

Grade	Condition	Number of Students	English Language Learners	Special Education	Section 504
K	Heggerty	252	17%	6%	1%
	Comparison	329	21%	6%	0%
1st Grade	Heggerty	253	24%	8%	1%
	Comparison	318	28%	12%	1%

Due to the demographic differences between the two groups of schools, a second sample of comparison students was pulled across all of the available schools that had MAP Growth data. For each grade, we used a matching procedure known as the 'balance-sample size frontier' to build a well-matched comparison group with data from all 14 comparison schools instead of just the original 3 comparison schools for the MAP Growth analysis. This method is outlined by King, Lucas, and Nielsen (2017) and implemented via the R package MatchingFrontier, developed by Noah Greifer.

The Matching Procedure & Groups

The matching procedure is designed to ensure comparability between treatment and comparison groups, with a specific focus on achieving balance across various sample sizes while minimizing participant exclusion. The matching process relies on a chosen imbalance metric (e.g., pairwise distance or energy distance) to calculate the best balance between groups. We used 'energy distance,' a measure of dissimilarity between multivariate cumulative distributions (Rizzo & Székely, 2016), rather than one-to-one matching between a treated unit and a comparison unit. By setting parameters to calculate energy distance exclusively between treated and comparison groups and selectively dropping participants from the comparison group, we aimed to enhance covariate balance.

We applied the procedure to each grade separately and the covariates included in the model were Fall RIT score as well as demographic variables (ethnicity, gender, ELL status, SPED status, 504 status).

The pre-matched Kindergarten sample included 252 Heggerty students and 1248 comparison students. Post-matching, we dropped 547 comparison students resulting in a total sample of 953 students (Heggerty: 252 and Comparison: 701). The pre-matched 1st-grade sample included 253 Heggerty students and 1251 comparison students. Post-matching, we dropped 500 comparison students resulting in a total sample of 1004 students (Heggerty: 253 and Comparison: 751).

Table 4. Post-matching: Number of Students and Schools per Grade and Group

School Group	# of Schools	K	1
Heggerty	3	252	253
Comparison	14	701	752
Total	**17**	**953**	**1004**

Table 5. Post-matching Demographic Data for Students by Grade and Group

	Race/Ethnicity			Gender		
		Heggerty	Comparison		Heggerty	Comparison
Kindergarten	Hispanic White Multiple Other	33% 59% 4% 4%	33% 58% 4% 5%	Female Male	48% 52%	49% 51%
1st Grade	Hispanic White Multiple Other	38% 56% 3% 2%	39% 56% 3% 2%	Female Male	47% 53%	47% 53%

Table 6. Post-matching Percent of Students with Limited English Proficiency, Special Ed. , and Section 504 Status by Grade and Condition

Grade	Condition	Number of students	English Language Learners	Special Education	Section 504
K	Heggerty	252	17%	6%	1%
	Comparison	701	17%	7%	0%
1st Grade	Heggerty	253	24%	8%	1%
	Comparison	751	24%	8%	1%

Table 7. Post-matching Fall RIT Scores by Grade

Grade	Condition	Number of Students	Average Fall RIT Score	SD	Baseline Equivalence
K	Heggerty	252	136.06	8.56	136.09 - 135.99 = 0.1 < Comparison SD of 8.79 * .25 = 2.19
	Comparison	701	135.99	8.79	
1	Heggerty	253	152.98	13.01	152.98 - 152.97 = 0.01 < Comparison SD of 13.36 * .25 = 3.34
	Comparison	751	152.97	13.36	

For both Kindergarten and 1st grade, MAP Growth Reading RIT scores at the beginning of the year were found to be equivalent between Heggerty and the new sample comparison schools (i.e., the difference in means was less than .25 SD).

Results

Note about Kindergarten Results

In the fall of 2023, the research team conducted interviews with the original three comparison schools. These interviews revealed that all comparison schools were using Heggerty PA in Kindergarten, which heavily overlapped with the scope and sequence of Bridge to Reading for the first few months of school. Therefore, the experiences of the kindergarten students in the fall semester were quite similar between the two study groups. After conferring with the product development team about the program material for the year's second half, the research team agreed that it would be more appropriate to report on the results of the full school year or the MOY to EOY MAP Growth and MAP Fluency, for kindergarten. As a result, the data from kindergarten samples are not included in this report but will be included in a future update once the EOY MAP Growth and MAP Fluency assessments are complete.

First Grade Results

Attrition & Continued Baseline Equivalence

Given the baseline equivalence found between Heggerty and Comparison schools on demographic variables and MAP Growth Reading RIT scores, differences in scores at mid-year reflect an effect of program effectiveness. The Winter MAP Growth Reading testing pool had a 2% attrition rate from Fall testing resulting in a new sample size of 247 Heggerty students and 736 comparison students. When examining Fall RIT scores for this group, they were still equivalent at baseline (see Appendix).

Results for MAP Growth RIT MidYear Scores & BOY-MOY Gains

At mid-year, 1st-grade students in Heggerty schools had significantly higher MAP Growth Reading RIT scores compared to students in comparison schools ($t(981) = 2.34$, $p<.05$, Hedge's g Effect Size = .17). In addition, Heggerty students gained on average more RIT from Fall to Winter compared to comparison students ($t(981) = 3.45$, $p<.001$, Hedge's g Effect Size = .25). Heggerty students' average RIT growth tracks with national growth norms, while comparison students are slightly behind.

We also used a Hierarchical Linear Model (HLM) to look at BOY-MOY RIT gains clustered by school. Results showed that Heggerty students still outperformed comparison students regarding RIT gains after accounting for the variance at the school level, $\beta = 2.08$, $SE= .83$, $p < .05$.

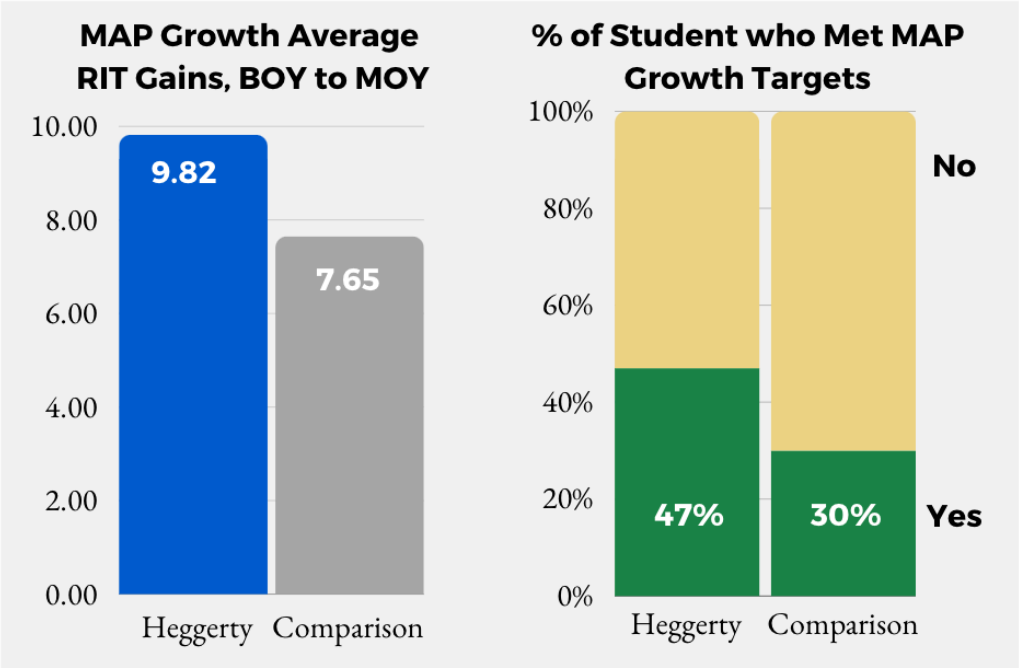
Table 8. Winter RIT Scores and RIT Growth by Condition

Grade	Condition	N	Winter RIT Score				RIT Growth Fall-to-Winter			
			Mean	SD	Significance	Hedge's g Effect Size	Mean	SD	Significance	Hedge's g Effect Size
1	Heggerty	247	162.98	13.54	p <.05	.17	9.82	8.22	p<.001	.25
	Comparison	736	160.65	14.00			7.65	8.64		

Results for MAP Growth Met Projected Growth

MAP creates projected RIT growth targets for each student based on their grade and RIT score at the beginning of the year. For every student, MAP provides a projected growth target and then indicates whether or not students met that target at the end of the year as "Yes" or "No" categories. Heggerty schools had a significantly higher proportion of students who met their target growth compared to comparison schools ($t(522) = 3.59$, $p<.001$, Hedge's g Effect Size = .36).

Figure 2. Graphs for Grade 1 RIT Gains and Proportion of Students Met Projected Growth



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Students with Yes or No* were excluded from this analysis, based on guidance from NWEA, N=524

Results for Heggerty Student Subgroups

Among Heggerty students, we examined whether lower BOY scores predicted higher change scores (i.e. did students who started further behind grow more?). Typically, students who are behind are placed in either Tier 2 or Tier 3 intervention groups to receive extra support in addition to their core reading program. As a reminder, both treatment and comparison schools used Heggerty Phonemic Awareness as a resource for Tier 2 and/or Tier 3 intervention in addition to Florida Center for Reading Research and other activities teachers found. There was a significant correlation for first graders, indicating that students with lower Fall RIT scores tended to gain more RIT by mid-year than students with higher starting scores ($r(245) = -.24$, $p<.001$).

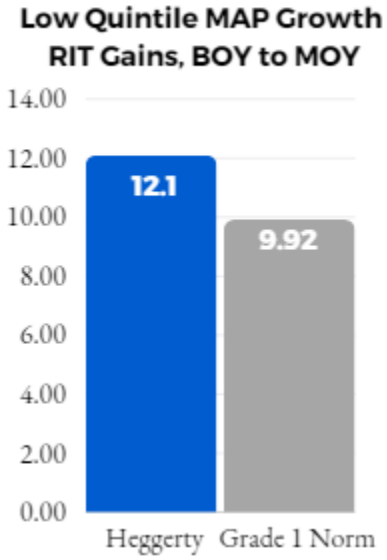
Students were grouped into 5 ranges (Low, LoAvg, Avg, HiAvg, High) corresponding to percentile ranges of 20 points each, or quintiles. For example, the lowest quintile covers the 1st through 20th percentiles. Descriptors and corresponding percentile ranges are as follows: Low: 20th percentile or lower; LoAvg: 21st to 40th percentiles; Avg: 41st to 60th percentiles; HiAvg: 61st to 80th percentiles High: 81st percentile or higher.

When comparing Heggerty students to Grade 1 MAP Growth national norms, students in the Low quintile grew significantly more (12.1 RIT points) than the expected national growth norm (9.92 points, $p < .01$, Hedge's g Effect Size = .36).

Table 9. Mean First Grade RIT Gains by Fall Quintile

Fall Quintile	Number of Students	Mean Fall-to-Winter RIT Growth	SD
Low	70	12.10	11.0
LoAvg	42	9.10	6.49
Avg	64	9.94	7.10
HiAvg	40	8.02	6.85
High	31	7.81	5.62

Figure 3. Low Quintile MAP Growth RIT Gains, BOY to MOY, Compared to National Norms



Deep Dive into First Grade MAP Fluency Subdomain Scores

A portion of the study sample also took the MAP Fluency assessment at the beginning and middle of the year. The following analysis was done with MAP Fluency Foundational Skills domain scores and revealed that first graders who used Heggerty Bridge to Reading had significantly higher scores in Phonological Awareness in the middle of the year, one of Heggerty's key targets, compared to students using business-as-usual methods.

Differences in Demographics and Baseline Scores

MAP Fluency students who used Heggerty Bridge to Reading (N = 227) were not statistically different from comparison students (N = 243) in terms of gender, Special Education status or 504 status. However, there were statistical differences in terms of minority status ($\chi 2 = 22.72$, $p < .001$) and ELL status ($\chi 2 = 4.40$, $p = .036$). Comparison schools had a higher proportion of minority and ELL students than Heggerty students. Therefore, these demographics were controlled for in the analysis to determine the true effect of the Heggerty program.

Additionally, the results of T-tests indicated that the differences in baseline foundational scores were within the boundary for statistical adjustment according to the What Works Clearinghouse (WWC) criteria (WWC, 2022). Specifically, effect sizes (measured by Hedge's g) between 0.05 and 0.25 are acceptable with statistical adjustment (i.e. statistically controlled in the final model). Only Phonics and Word Recognition Domain Scores were considered equivalent between Heggerty and the comparison group at baseline and were not included in the final model (See Appendix).

Researchers used ANCOVAs to examine whether there was a significant effect of Heggerty's Bridge to Reading program and mid-year student reading outcomes on NWEA MAP Reading Fluency. The ANCOVAs controlled for students' Fall Foundational Domain Scores (baseline), ethnic minority status and ELL status. Comparing all three domain scores necessitated correction for multiple testing. Therefore only p-values less than 0.016 were accepted as a significant finding.

Foundational Skills Domain Scores and Fall-to-Winter Growth

Overall, results demonstrated that, at mid-year, Heggerty students had significantly higher scores than comparison students after controlling for the effects of covariates in Phonological Awareness, $F(1, 463) = 14.28$, $p<.001$, η^2_p Effect Size = .03 (small effect). Here, partial eta squared (η^2_p) is used as a measure of effect size that accounts for the effects of the other variables. Groups were not statistically different in Phonics and Word Recognition or Language Comprehension, though Heggerty had descriptively higher average scores. Baseline (i.e. Fall scores) were also significant predictors of Winter scores.

Table 10. Winter Foundational Skills Scores: 1st Grade

Variable	Heggerty			Comparison		
	n	mean	sd	*n*	mean	sd
Phonological Awareness	226	**505.02**	9.86	243	**501.35**	10.37
Phonics and Word Recognition	227	**503.62**	8.52	243	**500.56**	9.37
Language Comprehension	227	**500.59**	9.58	243	**497.17**	9.51

In terms of Fall to Winter growth across Foundational Skills domains, students who used Heggerty Bridge to Reading had significantly higher score gains than students in the comparison group for the two decoding domains: Phonological Awareness, $F(1, 464) = 14.35$, $p<.001$, η^2_p Effect Size = .03 (small effect), and Phonics and Word Recognition, $F(1, 466)=29.27$, $p<.001$, η^2_p Effect Size = .06 (medium effect), after controlling for the effect of minority status and ELL. Students in both groups made similar gains in Language Comprehension.

Table 11. Fall-to-Winter Foundational Skills Growth: 1st Grade

Variable	Heggerty			Comparison		
	n	mean	sd	*n*	mean	sd
Phonological Awareness	225	**9.32**	8.07	243	**6.45**	7.02
Phonics and Word Recognition	227	**7.86**	6.18	243	**4.92**	5.31
Language Comprehension	227	**4.64**	8.60	243	**3.23**	7.87

Grade-level Expectations

MAP Fluency provides grade-level expectations as performance levels (e.g. Below, Approaching, Meets, and Exceeds Expectations) and there is an expected progression of skills as a student moves from grade to grade. Students are expected to have mastered Foundational Skills by the winter of first grade and to have moved on to Oral Reading by the spring.

Figure 4 shows the percentage of students in each performance level and condition across Foundational Skills. At the beginning of the year, there were no significant associations between condition (Heggerty vs. comparison) and performance level (Below, Approaching, Meets) for any Foundational Skills domain, indicating that proportions of students in each performance level were relatively similar across both groups. This includes the two Language Comprehension subdomains (Listening Comprehension and Picture Vocab) as well as the two decoding domains (Phonological Awareness and Phonics and Word Recognition).

However, at mid-year, there were significant associations between condition and performance level for all Foundational Skills, indicating that the proportion of students below, approaching, or meeting expectations was no longer equal between groups (Table 12).

Figure 4. First Grade Performance Levels by Group and Testing Period (Fall & Winter)

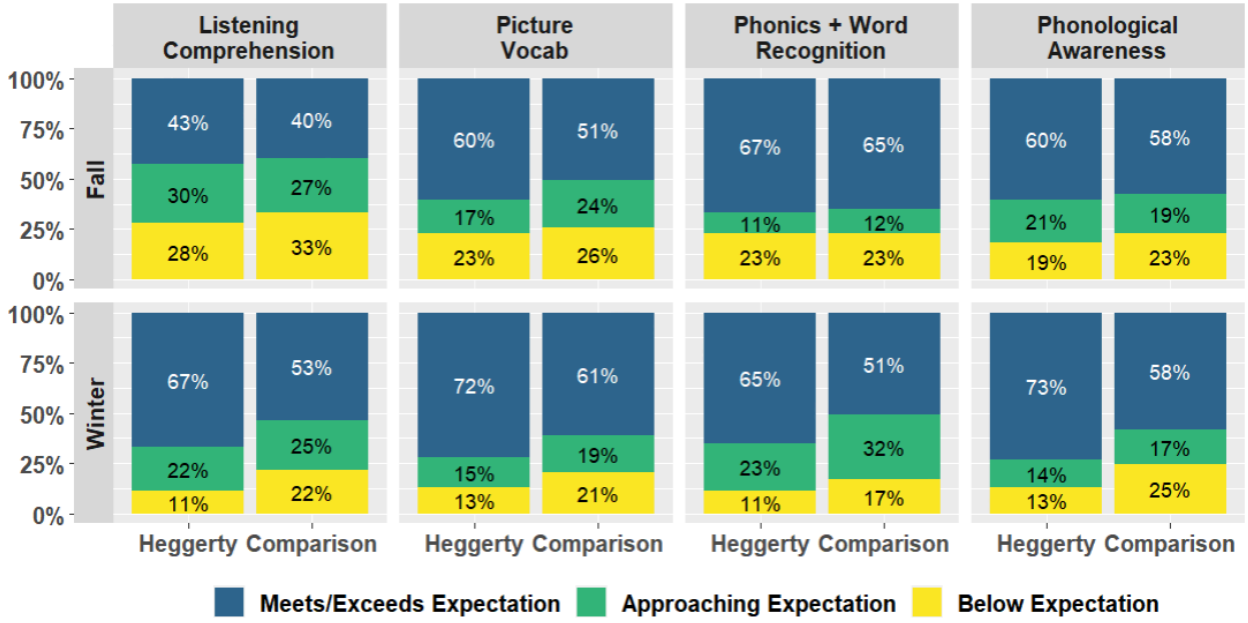


Table 12. Chi-Squared Tests: Winter Foundational Skills Subtests

Subtest	N	X^2	df	p	Cramer's V
Listening Comprehension	470	11.52	2	< .01	.16
Phonics/Word Recognition	470	10.31	2	< .01	.15
Phonological Awareness	470	12.73	2	< .01	.16
Picture Vocab	470	7.13	2	< .05	.12

Note. Cramer's V, an alternative to phi in tables bigger than 2x2, is the measure of the strength of the association between condition (2 groups) and performance level (3 levels) for each subtest. Values > .10 are considered moderate. Values >.15 are considered strong associations.

Post-hoc analysis revealed that while the proportion of students approaching expectation remained similar across groups, there were significantly higher percentages of Heggerty students meeting or exceeding expectations for Listening Comprehension, Phonics and Word Recognition, and Phonological Awareness compared to comparison students. There were also significantly lower percentages of Heggerty students below expectations in Listening Comprehension and Phonological Awareness compared to students in the comparison schools (See Tables 13 and 14).

Table 13. Post-hoc Tests for Meets Expectations by Subtest and Condition

Subtest	Condition	N	% Meets	T-test*	Cohen's d Effect Size
Listening Comprehension	Heggerty	227	67%	t(467.96) = 3.01 p = .011	.28
	Comparison	243	53.5%		
Picture Vocab	Heggerty	227	72.2%	t(467.86) = 2.62 p < .05 (ns)	NA
	Comparison	243	60.9%		
Phonics/Word Recognition	Heggerty	227	65.2%	t(467.81) = 3.23 p < .01	.30
	Comparison	243	50.6%		
Phonological Awareness	Heggerty	227	58.4%	t(467.34) = 3.39 p < .01	.31
	Comparison	243	73.1%		

Note. Multiple testing correction requires a p-value of .012 or less to be considered a significant finding

Table 14. Post-hoc Tests for Below Expectations by Subtest and Condition

Subtest	Condition	N	% Below	T-test	Cohen's d Effect Size
Listening Comprehension	Heggerty	227	11.5%	t(452.05) = 3.05 p < .01	.28
	Comparison	243	21.8%		
Picture Vocab	Heggerty	227	13.2%	t(462.63) = 2.14 *ns*	NA
	Comparison	243	20.6%		
Phonics/Word Recognition	Heggerty	227	11.5%	t(463.14) = 1.81 *ns*	NA
	Comparison	243	17.3%		
Phonological Awareness	Heggerty	227	13.2%	t(454.80) = 3.21 p < .01	.29
	Comparison	243	24.7%		

Note. Multiple testing correction requires a p-value of .012 or less to be considered a significant finding

Educator Feedback

Comparison

A survey of 13 teachers from three comparison schools was conducted to understand instruction for K-2nd grade. Specifically, 46% of the teachers taught Kindergarten, another 46% taught 1st grade, and 8% taught grades K-2. Fewer than half of teachers (46%) reported conducting dedicated phonics and decoding instruction five days a week. Reading instruction generally lasted between 76 and 90+ minutes per day. The most commonly employed comprehensive phonics lessons reported were using a gradual release model, recognizing and manipulating phonemes, and practicing reading decodable words in isolation. Approximately half of the teachers used pictures as clues to unfamiliar words.

Most teachers utilized some version of Fountas & Pinnell for reading instruction. Notably, two teachers reported piloting the Heggerty Phonemic awareness curriculum, and one commented that it "completely transforms phonemic awareness instruction for young learners." While 58% reported including phonics instruction in their Tier 1 reading program, only 17% reported that their reading program fully covered phonics instruction. Additionally, Istation was the primary tool used by the majority of teachers to provide supplemental instruction for Tier 1 instruction or when working with Tier 2 and 3 students. Diagnostic assessments are administered two to four times each year, and results are used to group students and identify intervention needs.

Demographically, 85% of the teachers were female, and 77% were white. The teaching experience varied, with 46% having taught for seven or more years and 31% having taught for one to three years. Most teachers held a master's degree and were trained in reading methods. All teachers reported receiving professional learning and professional development training four or more times a year using Shift the Balance book.

Treatment

A survey of 21 teachers from three treatment schools was conducted to understand instruction for K-1st grade in the 2023/2024 academic year, where all teachers were asked to implement Heggerty's Bridge to Reading program. 52.1% taught 1st grade, and 42.9% taught Kindergarten. The instructional practices predominantly involved comprehensive phonics lessons using a gradual release model, recognition and manipulation of phonemes, reading decodable words in isolation, and explicit teaching of phonics patterns. Teachers using Bridge to Reading reported more instances of teaching irregular high-frequency words and reading decodable words in connected texts compared to the comparison group. The most common instructional strategy was instructing students to read letters left-to-right through the word.

85% of the teachers indicated they administer diagnostic assessments two to four times each year. These assessments were generally used to group students and identify intervention needs. 81% of teachers felt they had a better understanding of what was missing in F&P since using Bridge to Reading. Teachers reported the most perceived impact of Bridge to Reading to be skill development in Blend Consonant-Vowel-Consonant, application of knowledge during classroom activities that require word decoding, and understanding word patterns. Nearly all teachers (95%) indicated using the program 5 days a week, and 62% used the program for more than 30 minutes a day. Over half of the teachers grouped students by skill, while the rest grouped by ability.

Professional development was commonly provided through live in-person workshops and onsite coaching by Heggerty two to three times a year. Teachers generally found the quality of the professional development to be excellent and engaging, with the right pacing. The learning objectives at these sessions were mostly, if not fully, met. Teachers felt that the Bridge to Reading program required less or equal effort to implement compared to other similar programs. They felt comfortable

also leveraging the materials in Bridge to Reading for students who needed additional support and believed that the program was very well aligned with literacy development.

All participating teachers were female and white. Their teaching experience varied between 2 - 27 years, with most having taught at their current school for 1-4 years. 52.4% of teachers held a master's degree, and the remaining held a bachelor's degree. Most teachers were explicitly trained in reading methods.

Conclusion & Next Steps

Students using the Heggerty Bridge to Reading program showed more growth on RIT at mid-year than students using comparison instruction. Bridge to Reading is designed to provide explicit instruction on phonemic awareness, systematic phonics, and high-frequency words, all essential components of learning to read (Honig et al., 2018). The guided practice and hands-on activities allow children to practice previously taught concepts with spiral and cumulative review.

Perhaps unexpectedly, first graders who started the year with lower reading skills made the most progress, indicating the core instruction supported students in closing foundational reading skill gaps from kindergarten. In terms of meeting each student's projected growth, the Heggerty program more effectively contributed to student gains than the comparison program, with an additional 17% of students reaching their mid-year growth target. These results are consistent with the evidence that explicit instruction supports all students, particularly those with skill gaps.

The next steps for the study include qualitative data collection activities and EOY quantitative analysis. LXD Research will interview Bridge to Reading administrators or literacy coaches at the building level to gain perspective on implementing Bridge to Reading at the school level. Finally, estimated around June, Hall County district will share EOY MAP Growth and MAP Fluency assessment data with LXD Research. LXD Research will share results with Heggerty and the Hall County district.

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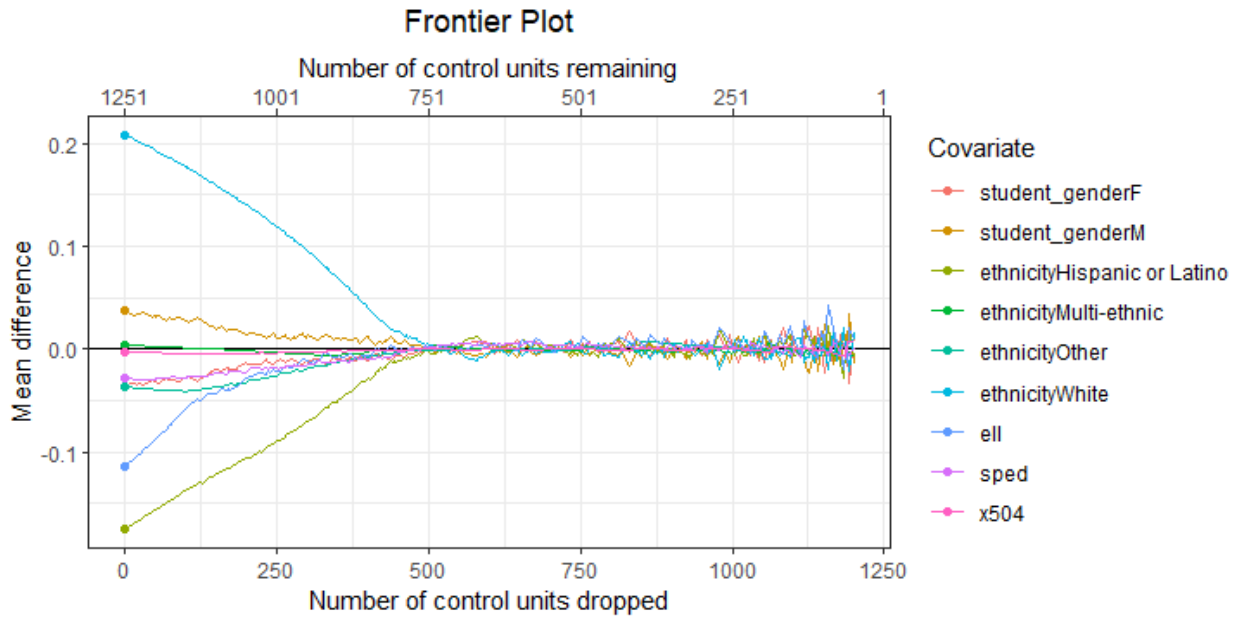
Appendix

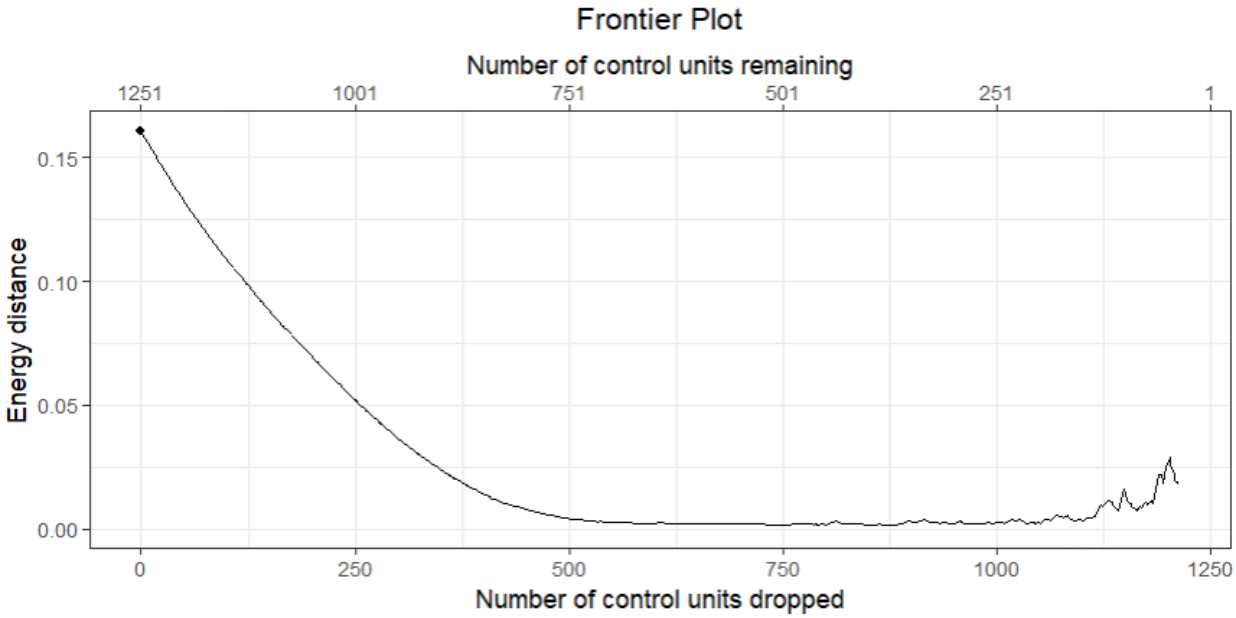
List of Figures and Tables

Matching Frontier Plot with Individual Covariate Balance



Note. Starting point for each covariate is the mean difference between treatment and control groups.

Full Frontier. Relationship Between the Number of Units Dropped and the Imbalance Metric



Fall RIT Scores for Students Who Took MAP Growth at Mid-year

Grade	Condition	Number of students	Average Fall RIT Score	SD	Baseline Equivalence
1	Heggerty	247	153.17	12.90	153.17-153.01 = 0.16 < Comparison SD of 13.41 *.25 = 3.35
	Comparison	736	153.01	13.41	

Multilevel model results for 1st grade MAP Growth RIT Gains, accounting for school membership

Fixed Effects	*b*	*SE*	*t*	*p*
(Intercept)	7.63	0.39	19.59	< .001
Group (Heggerty)	2.08	0.83	2.52	< .05

Note. Random effects for School (Intercept) Variance is 0.69.

Baseline MAP Fluency Scores and T-tests.

	Group	N	Mean	SD
Fall Phonological Awareness	Heggerty	226	495.761	9.020
	Comparison	243	494.905	9.732
Fall Phonics and Word Recognition	Heggerty	227	495.762	8.379
	Comparison	243	495.638	9.296
Fall Language Comprehension	Heggerty	227	495.956	9.525
	Comparison	243	493.938	8.976

Independent Samples T-Test

	t	df	p	Hedges' g	SE Hedges' g
Fall Phonological Awareness Domain Score	0.988	466.995	0.324	0.091	0.092
Fall Phonics & Word Recognition Domain Score	0.152	467.407	0.879	0.014	0.092
Fall Language Comprehension Domain Score	2.360	460.526	0.019	0.218	0.093

Note. Welch's t-test.

MAP Fluency ANCOVAs

ANCOVA - Winter Phonological Awareness

Cases	Sum of Squares	df	Mean Square	F	p	η_p^2
Group	711.134	1	711.134	14.285	< .001	0.030
Minority	221.423	1	221.423	4.448	0.035	0.010
ELL	288.242	1	288.242	5.790	0.017	0.012
Fall Phonological Awareness	16263.775	1	16263.775	326.694	< .001	0.414
Residuals	23049.481	463	49.783			

Note. Type II Sum of Squares

ANCOVA - Winter Phonics & Word Recognition Domain Score

Cases	Sum of Squares	df	Mean Square	F	p	η_p^2
Group	393.763	1	393.763	5.593	0.018	0.012
Minority	1098.170	1	1098.170	15.599	< .001	0.032
ELL	952.317	1	952.317	13.528	< .001	0.028
Residuals	32805.637	466	70.398			

Note. Type II Sum of Squares

ANCOVA - Winter Language Comprehension

Cases	Sum of Squares	df	Mean Square	F	p	η_p^2
Group	277.945	1	277.945	5.323	0.021	0.011
Minority	363.519	1	363.519	6.961	0.009	0.015
ELL	746.707	1	746.707	14.299	< .001	0.030
Fall Language Comprehension	8254.349	1	8254.349	158.071	< .001	0.254
Residuals	24281.903	465	52.219			

Note. Type II Sum of Squares

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