Hill Reading Achievement Program (HillRAP) Validity Evidence

Internal Study of Hill Learning Center Students

2017-2018 and 2018-2019

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Introduction

Hill Learning Center is a private school that serves students with a diagnosed learning difference. Students at Hill Learning Center attend school 3 hours daily in a class size of 4 students and 1 teacher. The curriculum and methodology used at Hill was developed by the teachers and administrators based on evidence-based practices for students with disabilities and grounded in research based approaches.

The Hill Reading Achievement Program (HillRAP) is the reading curriculum used in K-5th grade and with many middle school students. It is an Orton-Gillingham influenced reading curriculum that is individualized based on initial and ongoing assessment. The teaching model has evolved since 1977 as result of the combined efforts of Hill Learning Center's training team, learning disability specialists, and school partners. HillRAP is an intensive intervention, that includes the five essential components of a successful reading program, as put forth by the National Reading Panel: phonological awareness, phonics, fluency, vocabulary, and comprehension as well as a spelling component. The spelling and phonics/word attack components focus on teaching and generalizing phonics and spelling rules to an hierarchical sequence of skills. HillRAP is conducted daily for 45 minutes in classes with a 4:1 teacher student ratio.

Students at Hill Learning Center attend school 3 hours daily in a group of 4 students and 1 teacher. They receive 50 minutes of Hill Reading Achievement Program (HillRAP) in the components - Oral Drill (OD), Phonological Awareness (PHA), Word Attack (WAT), Fluency in list and text (FLU), Vocabulary (VOC), and Comprehension (COMP). They also receive 50 minutes of instruction in HillWrite which includes Oral Drill, Copying & Dictation, Handwriting, Oral and Written Spelling (SPL aligned to the WAT sequence), and Composition. The final part of their instructional day is 50 minutes of HillMath. All students who attend Hill

School must have a diagnosed learning difference of some kind, which may be ADHD, Specific Learning Disability, or Other Health Impaired. Students enrolled in the half day program are also enrolled for the remainder of the school day in a public school (traditional district or charter), homeschool, or private school. All teachers at Hill Learning Center maintain teacher licensure with the NC Department of Public Instruction.

Participants

The students in this study are from K-5th grade. The data set for the purposes of this report includes 48 students from 2017-2018 and 60 students from 2018-2019. In total, 29 of these students attended Hill Learning Center for two years and could be studied over that time span. Of the students involved in this study, there are **88 students with ADHD and 105 students with SLD.**

In order to better understand the impact of the fidelity model, only students who received daily instruction over the course of a full school year were included. Students from tutoring and summer programs were not included in this report. The students in this data set received an average of 118 HillRAP lessons that were on average 28 minutes each. While the instructional blocks are 50 minutes in length, only a portion of the instruction time can be tracked within the HillRAP app. The remainder of the time in the literacy block was devoted to instructional routines and student assignments that are not trackable in the app. In addition when considering student growth, it is important to recognize that the written language block works in tandem with the reading to increase overall literacy.

Measures

Hill Reading Achievement Program (HillRAP): Word Attack (WAT)

HillRAP assesses students to place each one appropriately in the program to meet their specific instructional needs and then moves individual students forward along a continuum of skills. In HillRAP's WAT component, students learn and apply phonics rules to decode words. Students are placed at a WAT level at the beginning of each school year and advance to the next levels as skills and word lists are mastered. Each WAT level has a Grade Level Equivalent (GE). WAT GE levels were used in this analysis.

Woodcock Johnson IV

The most recent version of the Woodcock Johnson Test of Achievement was released in 2014. The following WJ IV measures were used in this analysis:

- *Reading Comprehension* (READNG)

  This cluster is a combination of Passage Comprehension and Reading Vocabulary.

- *Broad Reading* (RDGBRD)

  This cluster is a combination of Letter-Word Identification, Reading Fluency, and Passage Comprehension.

- *Basic Reading* (RDGBAS)

  This cluster is a combination of Letter-Word Identification and Word Attack.

- *Letter-Word Identification* (LWIDNT)

The LWIDNT sub-test measures a student's word identification skills. This sub-test requires students to read individual letters or words from a list. For younger students and students with lower reading ability, this sub-test may require students to begin by identifying individual letters. Students eventually move into reading more difficult words in isolation.

- *Spelling* (SPELL)

The SPELL sub-test component measures a student's ability to correctly write words called aloud by the test administrator. Similar to other sub-tests, the SPELL sub-test increases the complexity of words as students progress through the assessment.

- *Passage Comprehension* (PSGCMP)

The PSGCMP sub-test component measures a student's understanding of written text. The PSGCMP sub-test increases passage complexity as students progress through the assessment.

Methods

Partial correlations are correlations between an independent variable and a dependent variable after controlling for the influence of other variables on both the independent and dependent variable. For instance, if a researcher is interested in the correlation between subtests from two different reading assessments while controlling for one or more potentially confounding variables, such as student grade level. In our context, this means that the partial correlation between any two of the reading subtests of interest would consider the impact of the student's grade level on both subtests.

Multiple regression explains the relationship between multiple independent variables and one dependent variable. This method is applied when a continuous dependent variable can be predicted from a set of independent variables. Or in other words, how much variance in a continuous variable is explained by a set of predictors.

Growth was measured by taking the difference in grade level equivalent levels from a pre-test to a post-test for a specific component of the Woodcock Johnson. For the first-year growth, pre-test scores came from the beginning of the first year. The post-test scores were from the end of the first year and in some cases the beginning of the year 2. The growth for year two was measured using the beginning of year 2 assessment results and end of year 2 results. There were a number of students with data across both years. For these students, growth across two years was measured by taking the difference between the first year's pre-test results and second year's post-test results.

Results

End of Year 1 Results (Post Y1/PreY2 WJ subtests and Post Y1 WAT)

A partial correlation was analyzed to determine the relationship between a student's 2017-18 Woodcock Johnson reading battery sections (READNG, RDGBRD, RDGBAS, LWIDNT, SPELL, and PSGCMP) and final WAT grade level equivalent levels while controlling for student grade level. There was a high, positive partial correlation between WAT grade level equivalent levels ($M = 3.00$) and LWIDNT GE ($M = 5.23$, $r = .71$) which was statistically significant, $p < .001$. In other words, there was a strong correlation between a student's end of year 1 WAT grade level equivalent and end of year LWIDNT grade level equivalent. The higher students scored in one component, the more likely they were to score higher in the other of these two sub-tests. Strong, positive partial correlations were also found between WAT GE and READNG ($r = .65$), RDGBRD ($r = .62$), RDGBAS ($r = .68$) and SPELL ($r = .66$), all statistically significant ($p < .001$). See Table A1 in the Appendix for full correlation results.

Multiple regression analysis was conducted to evaluate how well 2017-18 Woodcock Johnson subtest GE levels predicted post-test WAT GE levels. Each of the following Woodcock Johnson subtests were included in the initial equation predicting WAT GE levels: READNG, RDGBRD, RDGBAS, LWIDNT, SPELL, and PSGCMP. From this initial equation, all insignificant predicting factors were removed from the equation. The raw coefficients for the final predictive equation were as follows:

post-test WAT GE = 1.35 + .75 (SPELL GE)

Results showed that SPELL GE ($\beta = 0.75$, $p < .001$) was a strong predictor of students' WAT GE. The correlation coefficient resulting from the multiple regression analysis shows that there is a strong correlation ($R = .75$) between the SPELL Woodcock Johnson subtest and WAT GE. The coefficient of determination is relatively strong ($R^2 = .57$) and shows moderate strength in predicting WAT GE. Thus, 57% of variance in the WAT GE was explained by SPELL GE.

End of Year 2 Results (Post Y1/PreY2 WJ subtests and Post Y1 WAT)

A partial correlation was analyzed to determine the relationship between a student's 2018-19 Woodcock Johnson reading battery sections (READNG, RDGBRD, RDGBAS, LWIDNT, SPELL, and PSGCMP) and WAT grade level equivalent levels while controlling for student grade level. There was a strong, positive partial correlation between WAT grade level equivalent levels ($M = 3.03$) and READNG ($M = 4.61$, $r = .64$), RDGBAS GE ($M = 5.99$, $r = .64$), LWIDNT GE ($M = 5.46$, $r = .65$), and SPELL GE ($M = 4.57$, $r = .61$) while controlling for student grade level, which were all statistically significant, $p < .001$. Moderate, positive partial

correlations were found between WAT GE and RDGBRD (r = .56) and PSGCMP (r = .42). See Table A2 in the Appendix for full Year 2 correlation results.

Multiple regression analysis was conducted to evaluate how well 2018-19 Woodcock Johnson subtest GE levels predicted post-test WAT GE levels. Each of the following Woodcock Johnson subtests were included in the initial equation predicting WAT GE levels: READNG, RDGBRD, RDGBAS, LWIDNT, SPELL, and PSGCMP. From this initial equation, all insignificant predicting factors were removed from the equation. The raw coefficients for the final predictive equation were as follows:

post-test WAT GE = 1.52 + .72 (SPELL GE)

Results showed that SPELL GE was a strong predictor of students' WAT GE. It was found that SPELL GE ($\beta = 0.72$, $p < .001$) significantly predicted WAT GE. The correlation coefficient resulting from the multiple regression analysis shows that there is a strong correlation (R = .72) between the SPELL Woodcock Johnson subtest and WAT GE. The coefficient of determination was relatively strong (R^2 = .52) and shows moderate strength in predicting WAT GE. Thus, 52% of variance in the WAT GE was explained by LWIDNT GE and SPELL GE.

Growth Year 1 (Pre Y1 to PostY1/PreY2 WJ subtests)

Year 1 growth was measured by finding the difference between the beginning of Year 1 grade level equivalent across each Woodcock Johnson subtest and students end of Year 1 grade level equivalent. For some students the beginning of Year 2 measure was used as the end of Year

1 measure. The number of students with available data for each subtest ranged from 44 to 49. The highest average grade level equivalent growth was on the Basic Reading (*M* = 2.04) and Letter-Word Identification (*M* = 1.88). For a full overview of descriptive statistics for Year 1 growth see Table 1.

Table 1
Grade Level Equivalent and Scale Score Growth, Year 1

Variable	*n*	*M*	*SD*	*Median*	Min.	Max.
Grade Level Equivalent Growth						
Reading Comprehension	44	1.68	1.30	1.40	-0.4	5.5
Broad Reading	45	1.50	1.18	1.10	-0.3	5.0
Basic Reading	45	2.04	2.03	1.40	-0.1	8.4
Letter-Word Identification	44	1.88	1.82	1.30	-0.4	8.0
Spelling	49	0.99	1.11	1.00	-1.5	6.4
Passage Comprehension	44	1.72	1.94	1.45	-3.6	6.0
Scale Score Growth						
Reading Comprehension	49	4.20	7.24	5.00	-10	20
Broad Reading	46	3.46	6.11	3.50	-11	16
Basic Reading	49	4.45	7.60	5.00	-9	25
Letter-Word Identification	49	4.18	7.58	3.00	-10	25
Spelling	49	0.29	6.37	0.00	-16	12
Passage Comprehension	49	3.63	10.74	3.00	-26	32

Figure 1 below shows the distribution of growth according to the applicable Woodcock Johnson subtest. The blue rectangles represent the range of values between the 25th and 75th percentiles for each subtest. The black line within the rectangle represents the mean score. The lines extending below each blue box represent the range of values in the bottom quartile (0 – 25%), while the lines extending above represent the upper quartile (75 – 100%). There was a total of 16 outliers across all six subtests in Year 1. All values were verified for accuracy and retained in the data set. Each subtest had students with outlying GE growth values, with just two

out of 16 outlying values falling below the boxplots (#86 in SPELL, #83 in PSGCMP). The other 14 outliers had scores falling above the upper quartile.

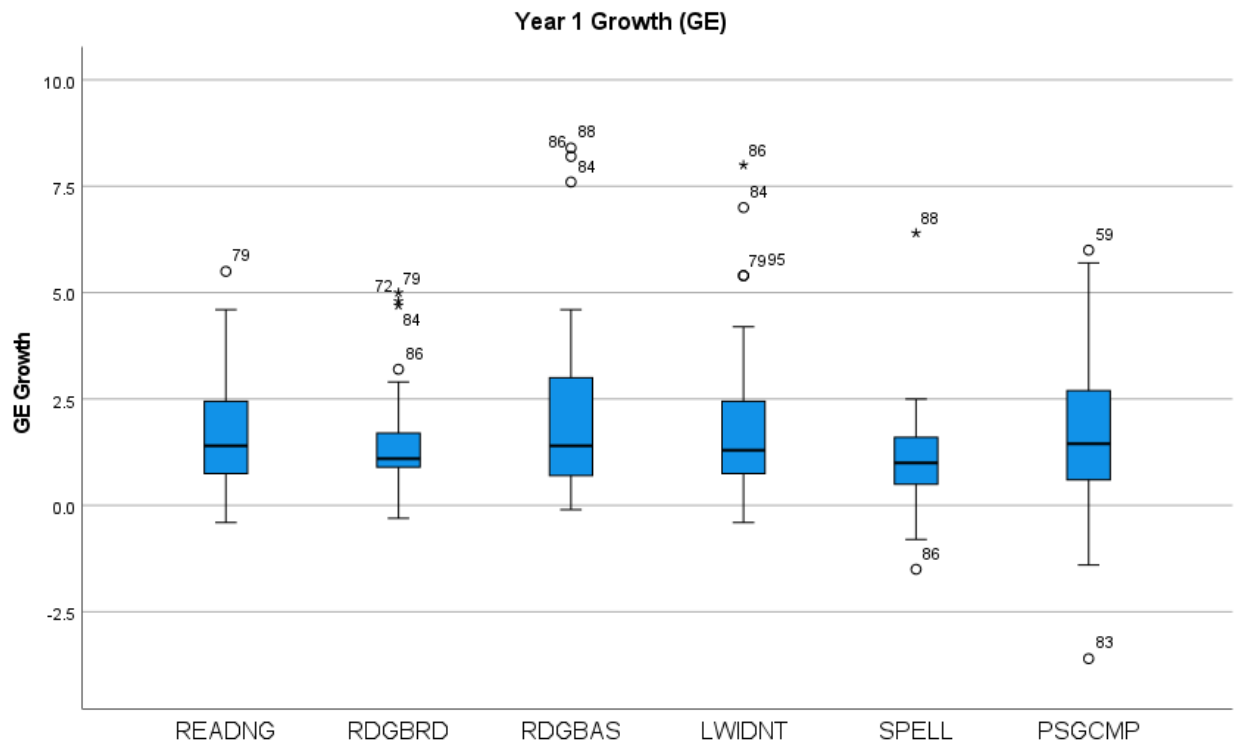

Figure 1. Year 1 Grade Level Equivalent Growth Boxplots.

Students with grade level equivalent growth values of 1.0 met growth; students with growth values greater than one exceeded growth. The majority of students met or exceeded growth according to grade level equivalent growth across all six Woodcock Johnson subtests. Over 60% of students exceeded growth on the reading comprehension, basic reading, letter-word identification, and passage comprehension subtests. For a full breakdown of students meeting or exceeding growth, see Table 2.

Table 2
Students Grade Level Equivalent Growth, Year 1

Variable	*Total Count*	*Met Growth*	*% Met*	*Exceeded Growth*	*% Exceeded*
Reading Comprehension	44	2	4.5	28	63.6
Broad Reading	45	4	8.9	25	55.6
Basic Reading	45	2	4.4	27	60.0
Letter-Word Identification	44	1	2.3	28	63.6
Spelling	49	4	8.2	22	44.9
Passage Comprehension	44	1	2.3	27	61.4

Note. Meeting growth in this example was = 1.0 grade levels of growth. Exceeded growth were students with > 1.0 grade levels of growth.

Growth Year 2 (PostY1/PreY2 to Post Y2 WJ subtests)

Year 2 growth was measured by finding the difference between the beginning of Year 2 grade level equivalent across each Woodcock Johnson subtest and students end of Year 2 grade level equivalent. For some students the beginning of Year 2 measure was the end of Year 1 measure. The number of students with available data for each subtest ranged from 56 to 58. The subtests with the highest average grade level equivalent growth were the Basic Reading (M = 1.94) and Letter-Word Identification (M = 1.57). For a full overview of descriptive statistics for Year 2, growth see Table 3.

Table 3
Grade Level Equivalent and Scale Score Growth, Year 2

Variable	*n*	*M*	*SD*	*Median*	Min.	Max.
Grade Level Equivalent Growth						
Reading Comprehension	58	1.26	1.01	0.95	-0.5	5.3
Broad Reading	56	1.11	0.86	1.10	-1.0	3.5
Basic Reading	58	1.94	1.93	1.35	-2.4	8.3
Letter-Word Identification	58	1.57	1.69	1.15	-3.4	6.8
Spelling	58	1.26	1.22	0.85	-1.0	4.7
Passage Comprehension	58	0.79	1.37	0.60	-2.3	4.7
Scale Score Growth						
Reading Comprehension	60	1.82	6.69	1.50	-10	25
Broad Reading	59	1.68	6.14	2.00	-14	16
Basic Reading	60	3.75	6.96	4.00	-11	23
Letter-Word Identification	60	3.60	8.14	3.00	-15	27
Spelling	60	1.33	7.38	1.00	-17	19
Passage Comprehension	60	-0.83	8.06	-3.00	-15	22

Figure 2 below shows the distribution of growth according to the applicable Woodcock Johnson subtest. There was a total of 22 outliers across all six subtests in Year 2. All values were verified for accuracy and retained in the data set. Five out of six subtests had students with outlying GE growth values; SPELL was the only subtest without outliers. In total, six out of 22 outlying values fell below the boxplots. The other 16 outliers had scores falling above the upper quartile.

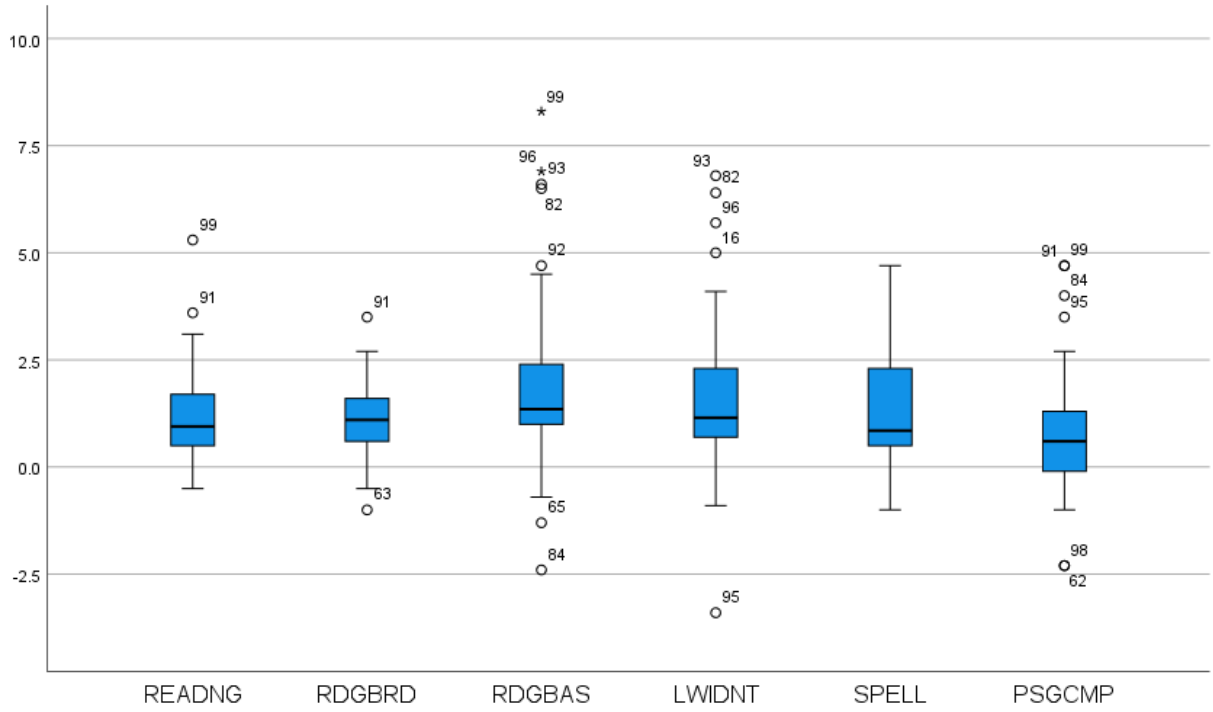

Figure 2. Year 2 Grade Level Equivalent Growth Boxplots.

Similar to the Year 1 growth specifications, in ***Year 2 students with grade level equivalent growth values of 1.0 met growth; students with growth values greater than one exceeded growth***. The majority of students met or exceeded growth according to grade level equivalent growth across four out of six Woodcock Johnson subtests (reading comprehension, broad reading, basic reading, and letter-word identification). Over 75% of students met or exceeded growth on the basic reading subtest. For a full breakdown of students meeting or exceeding growth in Year 2, see Table 4.

Table 4
Students Meeting Grade Level Equivalent Growth, Year 2

Variable	*Total Count*	*Met Growth*	*% Met*	*Exceeded Growth*	*% Exceeded*
Reading Comprehension	58	3	5.2	26	44.8
Broad Reading	56	2	3.6	29	51.8
Basic Reading	58	5	8.6	39	67.2
Letter-Word Identification	58	3	5.2	33	56.9
Spelling	58	2	3.4	26	44.8
Passage Comprehension	58	4	6.9	18	31.0

Note. Meeting growth in this example was = 1.0 grade levels of growth. Exceeded growth were students with > 1.0 grade levels of growth.

Growth Across Two Years (Pre Y1 to Post Y2 WJ subtests)

Growth across both years was measured by finding the difference between the beginning of Year 1 grade level equivalent across each Woodcock Johnson subtest and students end of Year 2 grade level equivalent. The number of students with available grade level equivalent data for each subtest ranged from 25 to 29. The subtests with the highest average grade level equivalent growth were the Basic Reading (M = 4.45) and Letter-Word Identification (M = 3.83). For a full overview of descriptive statistics for growth across both years, see Table 5.

Table 5

Grade Level Equivalent and Scale Score Growth, Across Both Years

Variable	*n*	*M*	*SD*	*Median*	Min.	Max.
Grade Level Equivalent Growth						
Reading Comprehension	25	3.09	1.47	3.00	0.8	7.5
Broad Reading	26	2.83	1.70	2.45	-0.1	7.0
Basic Reading	26	4.45	2.70	3.70	1.5	10.8
Letter-Word Identification	25	3.83	2.47	3.10	1.2	11.2
Spelling	29	2.71	1.65	2.30	0.5	8.3
Passage Comprehension	25	2.59	2.05	2.70	-0.4	8.2
Scale Score Growth						
Reading Comprehension	30	4.57	8.59	4.00	-12	25
Broad Reading	27	3.81	7.93	5.00	-15	22
Basic Reading	30	6.40	9.66	5.50	-16	29
Letter-Word Identification	30	6.07	9.83	5.00	-16	28
Spelling	30	3.17	7.85	3.50	-18	15
Passage Comprehension	30	2.10	9.99	3.50	-14	25

Figure 3 below shows the distribution of growth according to the applicable Woodcock Johnson subtest. There was a total of 13 outliers across all six subtests from students with data from both years. All values were verified for accuracy and retained in the data set. Five out of six subtests had students with outlying GE growth values; RDGBAS was the only subtest without outliers. In total, three out of 13 outlying values fell below the boxplots. The other ten outliers had scores falling above the upper quartile.

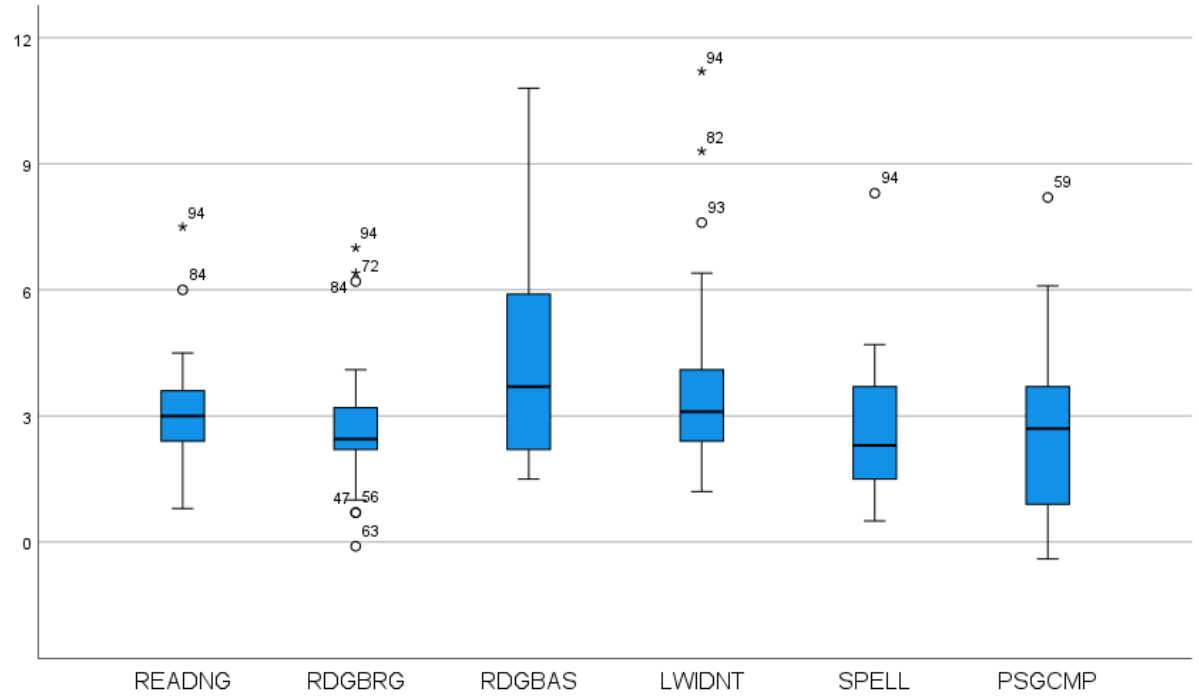

Figure 3. Grade Level Equivalent Growth Across Both Years.

Students with grade level equivalent growth values of 2.0 met growth; students with growth values greater than two exceeded growth. The majority of students with data from across two years met or exceeded growth according to grade level equivalent growth across all Woodcock Johnson subtests (reading comprehension, broad reading, basic reading, and letter-word identification). Over 75% of students exceeded growth on the reading comprehension, broad reading, basic reading, and letter-word identification subtests. For a full breakdown of students meeting or exceeding growth across both years, see Table 6.

Table 6
Students Meeting Grade Level Equivalent Growth

Variable	*Total Count*	*Met Growth*	*% Met*	*Exceeded Growth*	*% Exceeded*
Reading Comprehension	25	1	4.0	19	76.0
Broad Reading	26	0	0.0	20	76.9
Basic Reading	26	0	0.0	22	84.6
Letter-Word Identification	25	2	8.0	21	84.0
Spelling	29	1	3.4	17	58.6
Passage Comprehension	25	0	0.0	14	56.0

Note. Students with data from the beginning of Year 1 to end of Year 2 were included in this analysis. Meeting growth in this example was = 2.0 grade levels growth from the beginning of Year 1 to end of Year 2. Exceeding growth was > 2.0 grade levels growth.

WAT GE in relation to RDGBRD

Students WAT grade level equivalent and broad reading grade level equivalents were examined for further analysis. A snapshot of the corresponding grade level equivalent for HillRAP's WAT and Woodcock Johnson's broad reading component at the same end of year session were looked at to see where students at certain WAT levels were typically performing on this WJ subtest. All WAT grade level equivalents and broad reading grade level equivalents increase monotonically, meaning that each grade level increases in numerical order with each step in WAT level. This was true for the mean and median broad reading values.

Students with a WAT GE of 1.0 had a mean RDGBRD GE of 1.47, with a median score of 1.45. Confidence intervals for each mean were calculated. The confidence interval is a range of values that is likely to include a population value within a certain degree of confidence. For this set of data, the 95% confidence interval ranges between 1.13 and 1.81. This means there is a 95% chance this range includes the population value of the RDGBRD GE for students at WAT GE 1.0. Full results are shown in Table 7.

Table 7

Word Attack Grade Level Equivalent with Woodcock Johnson Broad Reading Results

	RDGBRD						95%	
WAT GE	n	Mean	SD	Median	Min.	Max.	Confidence Interval	
1.0	10	1.47	0.47	1.45	1.0	2.4	1.13	1.81
1.5	10	2.43	1.08	1.90	1.4	4.2	1.66	3.20
2.0	31	3.19	0.83	3.20	1.7	4.9	2.89	3.49
2.5	17	3.86	0.85	3.50	2.8	6.1	3.43	4.30
3.0	21	4.76	1.65	4.60	2.7	8.7	4.01	5.51
3.5	17	5.18	1.39	4.70	3.1	9.2	4.47	5.90
4.0	20	5.56	1.62	5.40	3.3	10.0	4.80	6.31
4.5	19	7.37	3.01	6.40	3.0	13.0	5.92	8.82

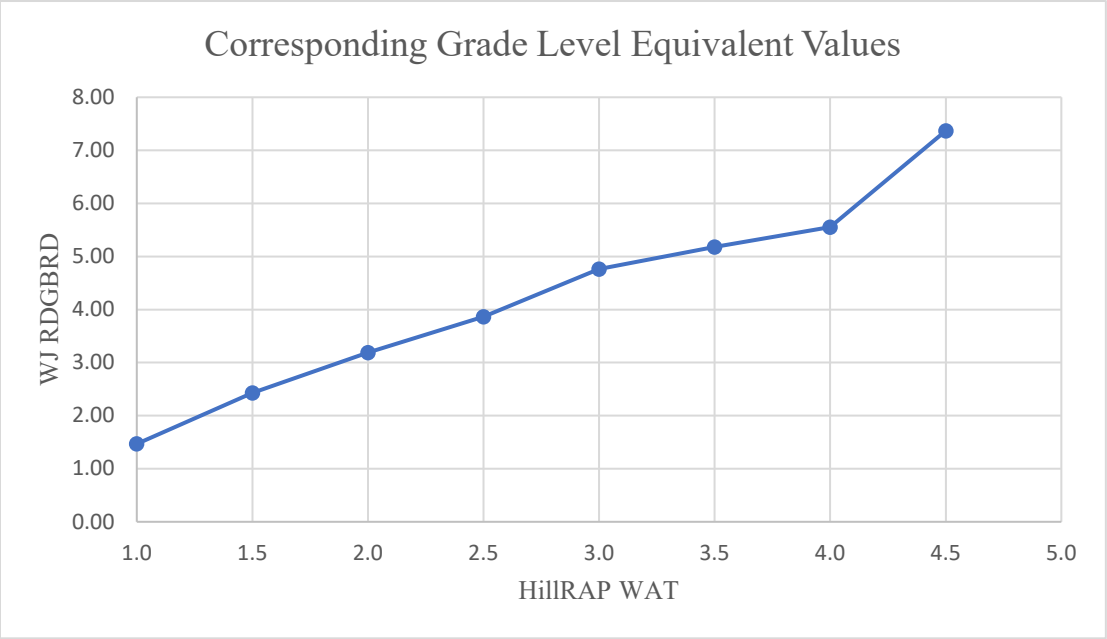

Figure 4. Line graph displaying the average Woodcock Johnson Broad Reading subtest grade level equivalent according to corresponding HillRAP Word Attack grade level equivalent.

Key Findings

- Students receiving consistent and the recommended amount of HillRAP instruction exceeded expected growth in all Woodcock Johnson subtests, on average
    - Subtests analyzed in this study included reading comprehension, broad reading, basic reading, letter-word identification, spelling, passage comprehension
- Over 75% of students with HillRAP data across both years exceeded growth on the reading comprehension, broad reading, basic reading, and letter-word identification subtests
    - This points to the benefits of the program taking place across multiple years
- Findings validate that HillRAP Word Attack component measures reading skills in a similar way to subtests of the Woodcock Johnson IV
- Woodcock Johnson Spelling subtest grade level equivalent results were a predictor of HillRAP Word Attack grade level equivalent at the end of both years

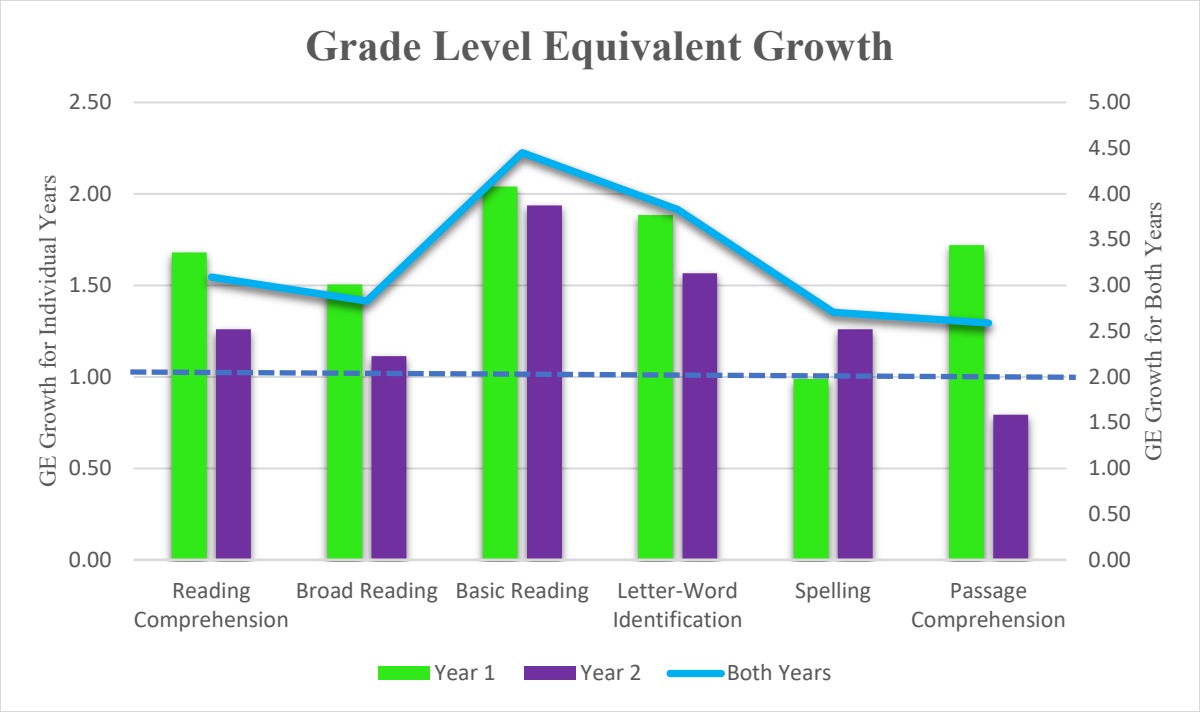

Figure 5. Average Woodcock Johnson grade level equivalent growth per year by subtest.

Recommendations for Next Steps

- Build upon current data set to further develop and validate HillRAP Word Attack skill sequence and anchor to Woodcock Johnson IV Broad Reading subtest
- Anchor HillRAP Word Attack (and other HillRAP components) to other measures of reading ability (i.e., Lexile scores)
- Compare public school outcomes to those within Hill
- Select a comparable reading measure that can be used to compare growth of HillRAP participants

- Develop standard setting process for leveling of HillRAP Word Attack sequence. This would involve bringing together a panel of literacy and child development experts to review and possibly modify the current levels attached to the WAT sequence.
- Investigate through data analysis and teacher interviews where students plateau in HillRAP WAT sequence

Potential Areas for Future Research

- Efficacy Study – Examine the effects of HillRAP for (grade level range or specific group of students) based on their performance on (select reading or accountability assessment). This could involve randomly assigning students to a treatment condition or a "business-as-usual" comparison condition.
- Dosage Study – Examine student responses to varying amounts of reading intervention. Assign students to groups: (a) recommended number of sessions and amount of time per session; (b) a double dose of intervention (double number of recommended sessions at the same recommended time per session); or (c) no intervention.
    - The topic of having HillRAP across years is worth researching further to understand longitudinal benefits of learning in the program. Dosage could also refer to systematically varying the number of consecutive years receiving the program.
- Implementation Fidelity Measure – Design and conduct a study of HillRAP Implementation Fidelity. The study will gather implementation fidelity data from a sample of HillRAP teacher users. HLC personnel and teachers implementing HillRAP will be asked to review implementation recommendations and will be interviewed to gather their feedback about HillRAP format and content as well.

- Implementation Indicators – create a profile that identifies key characteristics of districts/schools and teachers that have demonstrated successful HillRAP implementation, along with teacher and district/school profiles that have experienced implementation challenges.
- Qualitative Study - collect qualitative data from surveying or interviewing teachers on their insights into decisions they make around delivering HillRAP and perspectives of HillRAP. This information could assist in making professional development decisions and allow Hill to have a better understanding of how the program is implemented in practice.
    - 1 year in HillRAP & 2 years in HillRAP for each subtest

References

Houghton Mifflin Harcourt. (2014). HMH assessments: Glossary of testing, measurement, and statistical terms. Retrieved from: hmhco.com/HMHAssessments

Montgomery County School District. (2022). Woodcock Johnson subtest abbreviations and descriptions. Retrieved from: MontgomerySchoolsMD.org/departments/specialed/OSSresources/assessments

Appendix

Table A1

Descriptive Statistics and Partial Correlations for Reading Subtests, Year 1

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. Reading Comprehension	4.99	2.24	-						
2. Broad Reading	4.75	2.44	0.86	-					
3. Basic Reading	5.68	3.17	0.73	0.60	-				
4. Letter-Word Identification	5.23	2.93	0.82	0.64	0.93	-			
5. Spelling	4.52	2.22	0.50	0.60	0.72	0.62	-		
6. Passage Comprehension	5.15	2.63	0.71	0.66	0.12*	0.20*	0.09*	-	
7. HillRAP Word Attack	3.00	0.97	0.65	0.62	0.68	0.71	0.66	0.26*	-

Note . $n = 48$; * Not significant; all other correlation values significant at $p < .001$

Table A2

Descriptive Statistics and Partial Correlations for Reading Subtests, Year 2

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. Reading Comprehension	5.02	2.50	-						
2. Broad Reading	4.61	2.25	0.88	-					
3. Basic Reading	5.99	3.70	0.84	0.66	-				
4. Letter-Word Identification	5.46	3.18	0.88	0.76	0.95	-			
5. Spelling	4.57	2.50	0.72	0.71	0.69	0.72	-		
6. Passage Comprehension	4.70	2.48	0.81	0.75	0.45	0.46	0.46	-	
7. HillRAP Word Attack	3.03	1.12	0.64	0.56	0.64	0.65	0.61	0.42	-

Note . $n = 69$; all correlation values significant at $p < .001$

Table A3

Multiple Regression Coefficients for Year 1

Variable	*B*	β	*SE*
Constant	1.35***		.16
Spelling	.33***	.75	.03

Note. $n = 77$; ***$p < .001$.

Table A4

Multiple Regression Coefficients for Year 2

Variable	*B*	β	*SE*
Constant	1.52***		.20
Spelling	.33***	.72	.04

Note. $n = 69$; ***$p < .001$.

Key Terms

Grade Level Equivalent: a number that is expressed in terms of grade and months into a grade. The number corresponds to a score a test to indicates the grade level at which the typical student obtains this score.

Standard Score: allows for the comparison of students compared on a standard measure to their age group peers. Does not indicate how well a child can do a specific task or work, but it does tell us that when compared to a group of age group peers where the student performance is located. Also allows for comparison across other measures. Commonly referred to as scale score.