Preliminary Report on Baseline Data for

Headsprout Early Reading Program

Pinellas County Schools

Research and Accountability

May 2008

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Introduction

Headsprout Early Reading is an online reading program designed to teach non-readers and struggling Pre-K to Grade 3 readers the essential skills and strategies required for reliable reading success.

A widely-used measure to assess such reading success is the Dynamic Indicators of Basic Early Reading Literacy Skills (DIBELS), a series of short tests administered in the fall, winter, and spring to children in kindergarten through third grade. Depending on grade level, students are tested on one or more of the five areas of Letter Naming, Initial Sounds, Phoneme Segmentation, Nonsense Words, and Oral Reading. Scores are then categorized into four "risk levels": high risk, moderate risk, low risk, and above average, color coded red, yellow, green, and blue, respectively. The range of scores defining these categories change according to grade level, subject area, and timing of test administration. The details are given in Appendix A, DIBELS Risk Levels Chart.

Headsprout Early Reading program consists of 80 episodes, divided into four groups of increasing difficulty. The program's expected effect on DIBELS performance at the completion of each lesson group is given below:

Lesson Group	*Expected effect on DIBELS performance*
1-23	None
24-40	Improvement in Phoneme Segmentation Fluency (PSF)
41-56	Improvement in Nonsense Word Fluency (NWF); Continued improvement in PSF
57-80	Improvement in Oral Reading Fluency (ORF); Continued improvement in PSF and NWF

Table 1. Headsprout Early Reading expected effect on DIBELS performance

The present study presents results on baseline data for a group of Pinellas students who participated in Headsprout's Early Reading program in the school year 2006-2007. In the absence of clear and precise guidance from Headsprout as to what constitutes "improvement" or "continued improvement," this report will interpret either of these expectations as an improvement (that is, a decrease) in pre- and post-test DIBELS risk level for each of the Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), and Oral Reading Fluency (ORF) areas. Such a one-group pre- and post-test design by nature does not lend itself to accurate or reliable results. Thus, in reporting the percentages of students in each group and grade level achieving improvement in these three areas, no claim is made regarding the effectiveness of the program in meeting the above expectations on DIBELS performance.

Data

As mentioned in the Introduction, the subjects in this study are the students identified by Headsprout as participants of its Early Reading program during the school year 2006-2007. In accordance with the program's expected outcomes as given in Table 1, a student must satisfy the 24-episode minimum completion requirement to be included in the study. The following table gives the number of students grouped according to grade level and the number of episodes completed.

Group	KG	1st	2nd	3rd	Total
1 (24 – 40 episodes completed)	187	110	93	36	426
2 (41 – 56 episodes completed)	83	103	90	13	289
3 (57 – 80 episodes completed)	310	342	205	82	939
Total	580	555	388	131	1,654

Table 2. Classification of students according to grade level and number of episodes completed

The following table gives the test administration from which pre- and post scores for the three DIBELS areas under consideration were derived, together with the number of students that have valid pre- and post-test scores for each subject area, according to grade level.

Grade	PSF			NWF			ORF		
	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*
Kindergarten	Winter	Spring	550	Winter	Spring	550			
1st	Fall	Spring	511	Fall	Spring	511	Winter	Spring	510
2nd				Fall	Spring	351	Fall	Spring	359
3rd							Fall	Spring	119

Table 3. Pre- and post-test score sources by subject area and grade level

Results

The presentation of the results is aligned with the table of expected effect on DIBELS performance, as described in the Introduction. That is, students' pre- and post-test risk level change in each DIBELS area targeted by Headsprout Early Reading Program, namely Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), and Oral Reading Fluency (ORF), is considered by group (according to number of completed episodes), by expected effect on DIBELS performance, and by grade level.

The complete list of these subgroups of students is given below. In each subgroup, the number of students, as well as the number and percentage of students who achieved improvement from pre-test to post-test, are presented. This is done by subject area in which an improvement on DIBELS performance is expected. Improvement is achieved if the risk level at pre-test is higher than the risk level at post-test.

Results for Group 1: 24 – 40 episodes completed

Expected effect on DIBELS performance:

- Improvement in PSF

	# Students	# improved	% improved
Kindergarten	183	51	28%
First grade	105	40	38%
Combined	288	91	32%

Results for Group 2: 41 – 56 episodes completed

Expected effect on DIBELS performance:

- Improvement in NWF

	# Students	# improved	% improved
Kindergarten	80	17	21%
First grade	96	27	28%
Second grade	86	54	63%
Combined	262	98	37%

- Improvement in PSF

	# Students	# improved	% improved
Kindergarten	80	24	30%
First grade	96	40	42%
Combined	176	64	36%

Results for Group 3: 57 – 80 episodes completed

Expected effect on DIBELS performance:

- Improvement in ORF

	# Students	# improved	% improved
First grade	317	37	12%
Second grade	187	12	6%
Third grade	72	22	31%
Combined	576	71	12%

- Improvement in NWF

	# Students	# improved	% improved
Kindergarten	287	86	30%
First grade	310	89	29%

Second grade	184	112	61%
Combined	781	287	37%

- Improvement in PSF

	# Students	# improved	% improved
Kindergarten	287	95	33%
First grade	310	116	37%
Combined	597	287	37%

The following are some of the observations that may be obtained directly from the above results.

- The percentage of students achieving improvement from pre-test to post-test varies from a low of 6% in Oral Reading Fluency for 2nd grade students who have completed between 57 to 80 episodes of the program, to a high of 63% in Nonsense Word Fluency for 2nd grade students who have completed between 41 to 56 episodes.
- The percentage of students showing pre-test to post-test improvement in kindergarten Phoneme Segmentation Fluency appears to increase with the number of episodes completed. This trend is not present, however, for 1st grade students, or for the combined group of kindergarten and 1st grade students.
- The same may be said about the percentage of kindergarten and 1st grade students achieving pre-test to post-test improvement in Nonsense Word Fluency for, but not for 2nd grade students, nor for the combined group of kindergarten, 1st, and 2nd grade students.
- With regard to Oral Reading Fluency, the highest percentage of students showing pre-test to post-test improvement are 3rd grade students.

Conclusion and Recommendation

As stated in the Introduction, the results presented in this report are solely for use as baseline data. They are not subject to statistical analysis that could meaningfully answer the question as to whether Headsprout's Early Reading program is meeting its stated expected effects on DIBELS performance.

Of interest for future evaluation of the program beyond the initial year of implementation is a more detailed study of Headsprout's Early Reading program itself. The program does not appear to differentiate between grade levels because the expected effect on DIBELS performance increases only with the number of episodes completed. On the other hand, DIBELS risk levels, when used to measure improvement, are ladderized in nature and depend not only on grade level but also on the area of fluency being measured and the timing of the measurement. Therefore, the appropriateness of the expected effects on DIBELS performance as a result of exposure to the program must be carefully studied within the context of the structure and objectives both of the program and DIBELS. Only then could a rigorous assessment of the program's effectiveness be undertaken. Alongside this assessment, an evaluation of fidelity of implementation must also be considered.

Appendix A

DIBELS Risk Levels Chart, taken from

http://www.fcrr.org/assessment/pdf/benchmarks/K-3_Benchmark_Chart.pdf

DIBELS Risk Levels Chart

	Kindergarten Fall (1)	Kindergarten Winter (2)	Kindergarten Spring (3)	First Fall (1)	First Winter (2)	First Spring (3)	Second Fall (1)	Second Winter (2)	Second Spring (3)	Third Fall (1)	Third Winter (2)	Third Spring (3)
Initial Sounds Fluency	0-3 / 4-7 / 8-11 / 12+	0-9 / 10-24 / 25-33 / 34+	HR / MR / LR / AA									
Letter Naming Fluency	0-1 / 2-7 / 8-16 / 17+	0-14 / 15-26 / 27-35 / 36+	0-28 / 29-39 / 40-49 / 50+	0-24 / 25-36 / 37-46 / 47+	HR / MR / LR / AA							
Phoneme Segmentation Fluency		0-6 / 7-17 / 18-33 / 34+	0-9 / 10-34 / 35-47 / 48+	0-9 / 10-34 / 35-41 / 42+	0-9 / 10-34 / 35-49 / 50+	0-9 / 10-34 / 35-54 / 55+	HR / MR / LR / AA					
Nonsense Word Fluency		0-4 / 5-12 / 13-21 / 22+	0-14 / 15-24 / 25-34 / 35+	0-12 / 13-23 / 24-31 / 32+	0-29 / 30-49 / 50-54 / 55+	0-29 / 30-49 / 50-71 / 72+	0-29 / 30-49 / 50-71 / 72+	0-29 / 30-49 / 50-71 / 72+	0-29 / 30-49 / 50-71 / 72+	HR / MR / LR / AA		
Oral Reading Fluency		HR / MR / LR / AA		0-1 / 2-6 / 7+ / NA	0-7 / 8-19 / 20-33 / 34+	0-19 / 20-39 / 40-64 / 65+	0-25 / 26-43 / 44-65 / 66+	0-51 / 52-67 / 68-89 / 90+	0-69 / 70-89 / 90-108 / 109+	0-52 / 53-76 / 77-96 / 97+	0-66 / 67-91 / 92-109 / 110+	0-79 / 80-109 / 110-128 / 129+

HR - High Risk: Seriously below grade level and in need of substantial intervention

MR - Moderate Risk: Moderately below grade level and in need of additional intervention

LR - Low Risk: At grade level

AA - Above Average: At or above the 60th percentile

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Note: Pending future research, ORF Fall assessment in first grade is not color coded on this chart as an indication of risk status. Estimated levels of risk will be identified within the PMRN, however.