



SEE-N-READ™ READING TOOLS

A POSITIVE IMPACT ON FLUENCY

A CASE STUDY

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Abstract

According to the 2000 National Reading Panel Summary Report, *fluent* readers possess the ability to read text with speed, accuracy and proper expression. A key outcome defined by the National Reading Panel Report for reading instruction is that “Children who do not develop reading fluency, no matter how bright they are, will continue to read slowly and with great effort.” (National Institute of Child Health and Human Development, 2000).

Fluent readers are natural scanners. They have the ability to scan a page of text, keep their place as they scan and efficiently process information in a logical and organized manner into short and then long term memory. On the surface, this may seem to be an easy task; however, the importance of being able to control one’s field of vision and smoothly track left to right (Western languages) while reading is more complex than once thought.

Visual *saccades* (involuntary eye-movements) and *fixations* are a normal part of the brain’s visual processing and have nothing to do with intelligence. However, overactive saccades, which appear to be fairly common, feature an exaggerated and/or uncontrolled eye movement that interferes with the intake of information. If an individual’s visual processing does not effectively integrate a shorter saccade and longer fixation process, then it is very difficult for a reader to hold and control his/her field of vision as they move their eyes across a page of text. Thus, individuals who have overactive saccades may lose their place while reading, skip lines, re-read words or generally bounce around a page; in more severe cases describing “words moving on the page” (pattern glare). The bottom line is... *for many of these individuals, reading is not an easy or enjoyable activity.*

In this case study, the reading word count rate increases shown (page 4) from the double administration of the DIBELS® (first without and second with using the See-N-Read™ reading tool) in both the beginning and mid year evaluations provide insight into some of the visual and cognitive processing issues that can negatively impact the educational development of students. The second DIBELS score was not included in the students’ official record but shows the positive impact that See-N-Read has on a reading fluency. This case study is based on a small sample; however this valid and reliable feedback based on a standardized evaluation is powerful information for educators to help demystify the complexities of visual and cognitive processing and how they affect fluency and comprehension.

INTRODUCTION

Reading is a complex visual and cognitive task that requires the seamless integration of specific receiving, processing and memory skills. Reading involves the identification and localization of three key elements:

- 1.) Visual reference points for the lines involved in letter construction,
- 2.) Memory of what is seen, followed by
- 3.) The association of meaning and language (Fowler, 2000).

Poor integration of these skills negatively impacts reading fluency and comprehension.

Successful readers have the ability to control their field of vision while smoothly tracking left-to-right (Western languages) as they read. Controlling the field of vision allows readers to know *where* they are on a page of text without the stress of losing their place, skipping lines and/or re-reading the same words. Smooth left-to-right eye movement is composed of 3-5 saccades, ["...the ability of the eye(s) to move quickly from one point of interest to the next after an appropriate time of fixation of 100 to 300 msec" (www.lookingforlearning.com/aud.htm)] in conjunction with corresponding fixations (periods of no eye movements) and visual convergence (a coming together of input from different directions/peripheral vision). These visual skills play an important role in producing a stable image of the word on the page, and enable smooth tracking of the eyes along a line of print. (Robinson 1981). Accurate control of both involuntary (jump) eye movements and smooth (continuous) eye movements is necessary for reading (Fowler, 2000).

This case study discusses the See-N-Read™ reading tool's positive impact on reading fluency. The data examined is derived from the Dynamic Indicators of Basic Early Literacy Skills (DIBELS®) when it is administered *with* and *without* the See-N-Read™ reading tool.

BACKGROUND

This case study was initiated on a "hunch" by a fourth grade classroom teacher (referred to in this paper as Mrs. Jones) from a suburban district outside of Chicago. Mrs. Jones was concerned about five students in her class that scored well below the norm on the DIBELS® "Beginning Year" administration for the 2007-2008 school year.

In this district, elementary grades are given the Dynamic Indicators of Basic Early Literacy Skills (DIBELS®) three times a year. The DIBELS® is "...a set of standardized, individually administered measures of early literacy development. The standards are designed to be short (one minute) fluency measures used to regularly monitor the development of pre-reading and early reading skills." (Good, R. H., & Kaminski, R. A. (Eds.). 2002). The standardized measures

in the DIBELS® were developed in response to the National Reading Panel (2000) and the National Research Council (1998) reports targeting the development of “...phonological awareness, alphabetic understanding, and automaticity and fluency...” (Good, R. H., & Kaminski, R. A. (Eds.). 2002). The DIBELS® measures focus on reading fluency in K – 6th grade. “When used as recommended, the results can be used to evaluate individual student development as well as provide grade-level feedback towards validated instructional objectives.” (Good, R. H., & Kaminski, R. A. (Eds.). 2002). Information regarding the DIBELS® can be found at <http://dibels.uoregon.edu/>.

Mrs. Jones administered the DIBELS® in September, 2007 as did other classes in this elementary school. After she received the results for the first administration of the DIBELS®, Mrs. Jones noticed that five of her twenty-one students scored well below the standardized “Beginning Year” benchmark goals defined in the DIBELS® documentation (refer to Table 3). The five students in this case study did not have IEPs. One of the students is classified as ELL (English Language Learner) and between the fall and winter administration of the DIBELS® one student was diagnosed as Attention Deficit Disorder (ADD). These students are the subjects of this case study.

Mrs. Jones was so concerned about the low scores of these five students that she decided to re-administer the DIBELS® to them the following week; this time using an assistive reading device in an attempt to isolate the source of the DIBELS® shortfall. During the second administration, Mrs. Jones allowed the five students to use the See-N-Read™ reading tool (Patent Pending) while taking the DIBELS® but used a *different* passage from the DIBELS® material. The results of this experiment were gratifying to Mrs. Jones since all five students increased their scores dramatically when they took the DIBELS® using the See-N-Read™ reading tool. The results of these two test administrations are discussed in the Results section of this paper (page 4).

In February 2008, Mrs. Jones decided to continue the double administration of the DIBELS® (first *without*, then *with*, the See-N-Read) to see what the mid-year results would be for the same five students she had flagged in September. This report discusses the results of the September and February double administration of the DIBELS®. In July of 2008, this paper will be amended to include the third and final double administration.

SEE-N-READ™ Reading Tool

The SEE-N-READ™ READING TOOL IS universally designed to help readers build reading fluency and comprehension. It is research-based in the fields of reading, dyslexia, cognitive processing and ophthalmology. The school in this study has been using it successfully in classrooms for three years.

RESULTS

The results of this case study are based on the DIBELS® standardized benchmark goals and indicators of risk for fourth grade student reading fluency with a three administration baseline (Beginning, Middle, End of year). The fourth grade standardized DIBELS® benchmarks are shown in Table 3.

Table 1 September 2007 DIBELS® Results – Reading Fluency

Student	Beginning Year Score <u>Without</u> See-N-Read	Beginning Year Score <u>With</u> See-N-Read	Average Word Count Change	Overall Average Word Count Change
Student 1	69	82	19%	21.5%
Student 2	88	105	19%	
Student 3	78	100	28%	
Student 4	69	80	16%	
Student 5	59	74	25%	

Table 2 February 2008 DIBELS® Results – Reading Fluency

Student	Mid Year Score <u>Without</u> See-N-Read	Mid Year Score <u>With</u> See-N-Read	Average Word Count Change	Overall Average Word Count Change
Student 1	95	95	No Change	19%
Student 2	Moved	Moved	Moved	
Student 3	96	114	18%	
Student 4	76	93	22%	
Student 5	95	127	34%	

Based on the results of the DIBELS® Beginning and Mid year test administration case study, use of the See-N-Read™ Reading Tool helped these students, on average, increase their reading fluency.

**DIBELS® Benchmark Goals and Indicators of Risk
Three Assessment Periods Per Year**

Table 3

DIBELS® Measures	Beginning of Year Month 1 - 3		Middle of Year Month 4 - 3		End of Year Month 7 - 10	
	Scores	Status	Scores	Status	Scores	Status
DIBELS® Oral Reading Fluency	ORF < 71	At Risk	ORF < 83	At Risk	ORF < 96	At Risk
	71 <= ORF < 93	Some Risk	83 <= ORF < 105	Some Risk	96 <= ORF < 118	Some Risk
	ORF > = 93	Low Risk	ORF > = 105	Low Risk	ORF > = 118	Low Risk

DISCUSSION

Reading fluency is impacted by a variety of environmental and cognitive factors. Examples of physical or environmental factors that can impact reading are fluorescent lighting, light or white paper and dark font color; all of which have the potential to cause visual and/or mental fatigue while reading. Cognitive processing factors that have been identified by Fowler (2000) as negatively impacting fluency are the poor integration of visual reference points, memory of what is seen, and association and language. These three factors relate closely to both fluency and reading comprehension.

The ability to read fluently and comprehend what is read is strongly linked to the capacity to control one's field of vision. Good readers not only have the ability to effectively control their field of vision, but they also benefit from the contextual clues of the material being read.

Mrs. Jones' experience with the See-N-Read™ reading tool in daily classroom activities gave her the idea that, if students were able to use a support tool to help them control their field of vision while reading, they might be able to improve their reading rates.

Mrs. Jones' initiative to re-administer the DIBELS® using the See-N-Read™ reading tool helped the five students in her class to improve, not only their measured reading rate but, just as importantly, their confidence when reading. The DIBELS® score differential for the five students from the first administration of the DIBELS® and the second administration while using the See-N-Read™ reading tool is significant. The range of 16% to 28% student word count increase for the "Beginning Year" scores (a 21.5% average increase) and 18% to 34% student word count increase for the "Mid Year" individual scores (a 19% average increase) provides support for Fowler's (2000) findings regarding the importance of accurate control of both involuntary (jump) eye movements and smooth (continuous) eye movements necessary for reading.

It is important to note that all humans have saccades and that minor variations in saccadic movement have nothing to do with intellectual ability. However, if an individual has what may be referred to as an *overactive* saccade, then his/her ability to read effectively is likely to be negatively impacted. An overactive saccadic movement has been cited as one of the causes for readers skipping lines, losing their places on a page or visual jumping while reading. It is easy to understand that when readers have an overactive saccade they spend far more mental energy just trying to stay focused on a line of text and moving left to right as they read. This wasted mental activity leaves less mental energy for critical cognitive processing required for higher level skills of memory and comprehension.

The See-N-Read™ reading tool (Patent Pending) is a research-based, classroom tested reading tool designed to support a reader's fluency and comprehension. The ability to control ones field of vision when reading while simultaneously benefiting from contextual clues (both graphical and text) are important elements in becoming a fluent reader and developing strong comprehension skills. The See-N-Read™ reading tool supports the development of these skills in five ways:

- The clear ReadBar™ window helps readers to smoothly track left to right while keeping their place on a page
- The shaded area (a transparent blue/gray/violet color derived from research in the field of ophthalmology) that surrounds the clear ReadBar™ window helps filter out distractions on the page, allowing readers to more effectively focus on the text they are reading without obscuring context.
- *Patented (Pending)* design of the See-N-Read™ reading tool supports the peripheral visual process by not interfering or stopping the eyes from visually scanning down a page (unlike when using an opaque tracker that stops the peripheral vision at the end of each line being read). When readers' peripheral vision is artificially slowed down or stopped at the end of each line, as when an opaque tracker is moved down to the next line, the risk of fragmented information entering into short term memory increases. Depending on *how* information is processed into short term memory greatly impacts *how*, or *whether*, the information is processed into long term memory. Fluent and comprehensive readers' have the ability to process information in logical and organized chunks that either support established "hooks" in long term memory or establish new relevant "hooks" for future information to be stored.
- The See-N-Read™ reading tool helps relieve the stressor of *where* a reader is on a page thereby allowing the readers to use more of their mental energy for comprehending *what* they are reading.
- The matte finish (both sides) of the See-N-Read™ reading tool helps reduce the glare on the page as they read, reducing eye strain.

In prior See-N-Read studies conducted with 1st through 8th graders, 96% of the readers in the studies stated that they liked using the See-N-Read™ reading tool and went on to indicate, with remarkable consistency, that it achieves the goal of helping them focus on the text they are reading. (Table 4)

Table 4

Student Survey Responses	Results
I like using the See-N-Read™	96%
See-N-Read™ helps me stay on the line when I am reading.	91%
See-N-Read™ helps me concentrate because I did not lose my place on the page.	91%

The success of the universally designed See-N-Read™ reading tool is deceptively simple. Students in any language merely lay it on a page and read at their own pace as they smoothly track left to right, right to left, up or down a page of text. This apparent simplicity and universality of design is essential to the effectiveness of the tool.

CONCLUSIONS

The importance of being able to control one’s field of vision while smoothly tracking left to right during reading is more complex than once thought. Visual saccades and fixations are a normal part of the brain’s visual processing during the reading process. Overactive saccades feature an exaggerated and uncontrolled eye movement that interferes with the intake of information. If an individual’s visual processing does not effectively integrate a shorter saccade and longer fixation process, then it may be very difficult for a reader to hold and control his/her field of vision as they attempt to read text. Thus, the result for individuals who may have overactive saccades is that they lose their place while reading, skip lines, re-read words or generally bounce around a page, in more severe cases describing “words moving on the page” (pattern glare).

An overactive visual saccade can be present in a variety of students, from those that have apparent learning difficulties to students that are considered gifted and talented. Since this condition is not linked to intelligence, at least in theory, it complicates the identification of students who have learning issues or obviously bright students who may be labeled as *lazy*.

Classroom teachers are in the best position to identify students that are having difficulty reading due to an overactive saccade. Teachers can identify the students that tend to lose their place while reading, skip lines, re-read words or generally bounce around a page to a point that it interferes with reading fluency and/or comprehension. Typically they read slowly, do not like to read aloud and generally try not to be involved in any activity that may require reading. [Tip: An informal method to identify students who may have overactive saccades is to observe students who tend to lean their head over to the left or right and/or very close to the page when

reading. What they are doing by this behavior is unconsciously trying to find a position that will help them control their field of vision.]

As in Mrs. Jones' case, she had a "hunch" about five of her students. Her hunch was based on prior experience as an educator and the results she previously had with students using the See-N-Read™ reading tool. These five students still have some distance to go to become fluent readers, but now they have a reading assistive tool that will help them control their field of vision and take away the stressor of *where* they are on the page. The use of the See-N-Read™ reading tool is a small adjustment for readers and has the potential to greatly improve their ability to focus, concentrate and use more mental energy to think about the material they are reading.

The results of the "Beginning Year" and "Mid Year" administrations of DIBELS® with the use of the See-N-Read™ reading tool are significant. In this case study, the increases shown in the Beginning and the Mid-year DIBELS® evaluations provide a unique insight into the visual and cognitive processing issues that may negatively impact the educational development of students. This type of valid and reliable feedback is powerful information for educators to demystify, to some extent, the complexities of visual and cognitive processing's impact on fluency and comprehension. See-N-Read provides educators with a practical research-based and classroom-tested reading tool to help students build fluency and comprehension in everyday reading situations.

To learn more about the See-N-Read™ reading tools go to www.see-n-read.com.

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