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ABSTRACT

This document presents case studies and information related to the United States patent on a method of and structure for improving the reading efficiency of persons with specific dyslexia in which the reading matter is presented with a brightness substantially greater than the background of the reading material. The paper begins with a description of the background of the invention, an abstract, and a summary of the invention, in the form of a single page extracted from the patent application. The document then presents a description of the methodology employed in gathering data on three male dyslexic students (aged 8, 15.5, and 16 years) from Chicago public schools, offers some responses obtained from the students in diagnoses, and offers a set of conclusions. The paper suggests that the dyslexics' attitudes toward reading, reading vocabulary, reading rate, and fluency increased dramatically. An additional case study of a 16-year-old male and a sample of the reading material (white text on a black background are attached). (RS)

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ED 388 960

[54] METHOD OF AND MEANS FOR IMPROVED READING EFFICIENCY OF PERSONS WITH SPECIFIC DYSLLEXIA

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[57] ABSTRACT

A method of and structure for improving the reading efficiency of persons with specific dyslexia. The method of effecting such improvement includes providing to the dyslexiac reading material wherein the reading matter has a brightness substantially greater than that of the background on which the reading matter is provided. In the illustrated embodiment, the ratio of the brightness of the reading matter to the background is at least approximately 10 to 1. In a preferred form, the background is black and the reading matter is white. The treatment of the reading problem is advantageously adapted for increasing the reading speed of persons with specific dyslexia.

15 Claims, 3 Drawing Figures

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METHOD OF AND MEANS FOR IMPROVED READING EFFICIENCY OF PERSONS WITH SPECIFIC DYSLLEXIA

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to the diagnosing and treating of reading problems in dyslexiacs and, in particular, to methods and means for increasing the reading efficiency of persons with specific dyslexia.

2. Description of the Background Art

Teaching persons with specific dyslexia to read with at least minimum efficiency is difficult and time consuming. Conventionally, such teaching has been done on a one-to-one basis with the dyslexiac and involves going over and over simple minimum reading material in an effort to build up the vocabulary and reading facility of the dyslexiac.

One method of assisting the dyslexiac in gaining reading efficiency is to utilize tactile print means in conjunction with visual reading matter.

Another method which has been employed has been to have the dyslexiac run his finger along a sandpaper marker adjacent the printed reading matter as an aid in strengthening and training the movements of his eyes in reading the reading matter.

SUMMARY OF THE INVENTION

The present invention comprehends an improved method of and means for increasing the reading efficiency of dyslexiacs wherein the dyslexiac is provided with reading material wherein the reading matter thereof has a brightness substantially greater than that of the background on which the reading matter is provided.

In the illustrated embodiment, the background is black and the reading matter is white.

In the preferred form, the ratio of brightness of the reading matter to the background is at least approximately 10 to 1.

The use of the dark background-light reading matter reading material has been found to improve the reading speed and comprehension of the dyslexiac to a substantial extent. As a result, increase in the reading vocabulary is substantially accelerated. It has been found that the improved reading efficiency may result not only from the improved ability to read the dark background-light reading matter, but also the improved reading efficiency may result from the increased vocabulary.

In further accelerating the teaching of the dyslexiac to read ordinary reading material, i.e. dark reading matter on light background, such reading material may be suitably juxtaposed to the therapeutic dark background-light reading matter reading material of the invention. Thus, the dyslexiac may readily practice reading the normal reading matter with the aid of the therapeutic reading material of the invention serving as a self-guide in such activity. In one form, the ordinary reading material is disposed in line-for-line adjacency to the therapeutic reading material of the invention so that the dyslexiac may read the therapeutic reading material and immediately thereafter merely shift his eyes such as downwardly to the adjacent corresponding normal reading material for immediately attempting reading thereof.

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A STUDY OF THE RELATIVE EFFECTIVENESS OF  
TWO METHODS OF INSTRUCTION WITH DYSLEXIC READERS

During the school year, 1979/80 while teaching students one-to-one at The Reading Institute in Chicago, I developed a method of working with dyslexic readers which is startling in its effectiveness. Students expressed instant relief and pleasure, indicating that they were seeing the printed word in a way which they had never before experienced. The method consists of selected contexts, strategies, and a specific printing process. It is an outgrowth of many years of working on the problems of students with visual-perceptual handicaps in reading.

The body of data which I have gathered is small, but so dramatic that there does not seem to be any doubt about the greater effectiveness of the method over others in use today. Included here is a description of the methodology employed in gathering data on three students, some responses obtained from students in diagnoses, and a set of conclusions. The case studies were done by me. The diagnoses were conducted by Elsa G. Richmond, Director of The Reading Institute. The staff of The Reading Institute monitored the study as it progressed.

The method used in gathering data was to identify five of the most common behaviors of the disabled reader, to record the number of times each occurred in a reading session, and to alternate text, the traditional form with the Nelson Method.

I also recorded minutes per page for each reading session although for this kind of reader at this level of learning, speed as an objective was hardly relevant. I found, however, that the time factor did indicate a real difference in fluency, which, of course, was significant.

The behaviors selected for recording were:

1. word supplied by instructor
2. word miscalled by reader
3. word or words skipped by reader
4. attempt to reverse word by reader
5. line lost by reader

The levels of material were labeled 1, 2, 3, 4 (designating approximate grade levels) in ascending range and complexity of vocabulary. Each sample was taken during a one hour, one-to-one session, instructor and reader. The sessions were normally one week apart; however, absences did alter this schedule.

Eileen Nelson  
August, 1980

Case A - Tim

Age 9, almost 10, 4th grade public school, Chicago. For 4 sessions he had struggled along at Level 1 with much help from the instructor. He tired quickly from the effort, actively disliked reading. When given both the Nelson and the traditional material to choose from, he immediately selected the Nelson. At the time the only material I had was Level 2, a level above what he had been attempting. He tried it and read a whole story (6 pages) with more ease than he had demonstrated at Level 1. For purposes of this study on March 28, 1980, I put him back in the traditional book at Level 2. He read 4 pages (16 lines per page) in 27 minutes with 12 assists. He was absent April 4, but at the next session on April 11, reading from the Nelson material he accomplished 4 pages in 12 minutes with 7 assists. On April 18, Tim read 5 pages in 14 minutes with 7 assists. The following week was interrupted by spring vacation. On May 9 he read 4 pages in 8 minutes with 7 assists. All of the readings after April 1 were from the Nelson material by his choice. On May 16 I started gathering more precise data on Tim:

Date	Level	Method	Told Word	Mis-called	Skip-ped	Lost Line	Re-versed	Pages	Lines per page	Min.
5/16	2	*Nels	2	5	0	1	1	5	16	11
5/23	2	*Trad	5	10	1	0	2	5	16	14
6/6	3	Nels	9	7	1	0	0	4	16	10
6/13	3	Nels	3	6	0	0	0	3	16	10
6/20	3	trad	10	24	1	0	6	5	16	14

Note that between the end of March and the middle of June, in approximately 9 one-hour sessions, Tim moved up 2 levels of difficulty, reading chiefly from the Nelson method. This is, to say the least, very unusual. The two times he read at the same levels from the regular book, the differences were striking, as seen in the chart. Tim's rate was very much influenced by his mood of the day.

The Level 3 material was produced for the Nelson method in a more professional manner, enhancing even more ease in reading. It elicited this from Tim, "I hope they get books like that. I mean in libraries and things. It is so much easier for me to read."

- \*Nels = Nelson method
- \*Trad = traditional method

Case B -- Cary

Age 8, 3rd grade, public school, Chicago. Needed much help at Level 1 (Beginner). Tried hard, rubbed eyes. Eyes teared. Obvious difficulty focusing and staying on text. Very bright child, not understanding her problems with reading and writing. Of course, was dropping behind her classmates. When I constructed the first material for my method in early March and showed it to her, she immediately read the first story through without hesitating. From then on she considered the loose leaf bound sheets her book. On March 22 she read a very long story with nice fluency, and we both noticed there was no more tearing of the eyes. In mid-April for comparison I put her back into the traditional book. She read 8 pages, losing her place many times and with many miscallings and skipping of words. May 10, back in the Nelson material, she read 10½ pages in 21 minutes with only 6 assists.

Date	Level	Method	Told Word	Mis-call	Lost Skip	Re-versed	Pages	Lines per page	Min.	
5/17	2	*Trad	5	19	14	0	0	10½	16	14
5/31	2	*Nels	1	7	4	0	1	29	16	24
6/14	3	Nels	3	2	1	0	0	7	16	7
6/21	3	Trad	1	13	5	1	2	8	16	12

Cary, too, has moved up two levels since we got the Nelson material, and the change in fluency is marked. The differences in her responses are clearly shown in her chart.

\*Trad = traditional  
 \*Nels = Nelson method

Case C - Mike

Age 15½, entering high school Fall, 1980, public school, Chicago. Mike is a hard core dyslexic, meaning that when he came to The Reading Institute two years ago he had spent eight years in school without being able to read. He was so damaged psychically that his only defense when a book was placed in front of him was to close his eyes and tip far back in his chair. Phonics had no meaning for him, not letter sounds or rhyming. At the end of his first year here he was just moving from various beginner materials to Level 2. His reading was still at such a low pitch (fear of being wrong) that I had to strain to hear him. We sometimes spent the whole hour getting through 5 or 6 pages. Mike stayed at Level 2 until January, 1980, when he finally moved to Level 3. In March, still reading from traditional text his performance was averaging 5 to 7 minutes per page with 6 to 8 assists per page. He worked very hard for every gain he made. The first time I gave him the Nelson material he said right away, "It's easier." At that sitting he read 6½ pages (contrasted to his customary 3) in less than 5 minutes per page with about 3 assists per page. April was disrupted by school testings and spring vacation.

Date	Level	Meth	Told Word	Mis-call	Lost Skip	Re-verse	Pages	Lines per Page	Min.	
5/21	3	Trad	35	14	0	0	1	8½	16	44
5/28	3	Nels	8	5	0	1	2	6½	16	26
At this point I showed him the improved Nelson text. He picked it up, read 6 lines with a noticeably accelerated rate, and said, "That's the way they should make books."										
6/4	3	Trad	9	3	0	0	0	2	16	22
6/25	3	Nels	9	1	0	0	1	7	16	30

From his data it is evident that Mike, too, is substantially aided in his reading performance by the Nelson method. His case, however, tragically and clearly points up our hypotheses that if this method is available at an earlier age, his kind of trauma could be eliminated. Because of the great damage he suffered, he is at age 15½ at the same level as the dyslexic 8 and 9 year olds.



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June 25, 1980

In the evaluation of the reading of an individual who has extremely limited skills, one of our procedures is the identification of 220 basic words in the language.

The words appear on 2 x 3½ inch white cards, one word per card, printed in black type. We separate responses into three categories: immediate and accurate identification, those which require two or more tries before recognition, and those not known.

James (age 16 and sitting in a 7th grade classroom) finally recognized 28 of 42 basic words tried - many only after several unsuccessful efforts. So great was his struggle that I wondered which of us would be first to abandon the task.

Presenting the same list in the Eileen Nelson Method, James responded correctly without hesitancy or multiple tries to 98 of the words, acknowledging only 12 as unknown. The rate of recognition -- I could hardly turn over the cards fast enough -- was startlingly different as he read from this material. James covered 110 words in appreciably less time than the 42 presented in the traditional manner.

To summarize then: James had only 11% error with the Eileen Nelson Method in contrast to the 33% error with the traditional and responded correctly at what was surely more than twice the rate.



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The same difference was evident when James read from a little book (one he chose - "The Sea Hunt") - missing, even in context, such basic words as for, from, was, his, on, fast, work, were, where, want, went, here, there, pull, put, saw, first. 24 words were supplied in 12 lines of reading. When we turned to the material designed by Eileen Nelson there were only 17 words provided for 3 pages of reading. The words missed were temple, goddess, Heitaro, Emperor, Willow, whole, needed, build, stone, tries, wooden, heard, tears, bridge -- another level altogether -- with only 3 from the basic word list: they, these, by.

To the question "Which do you like better?" James promptly replied, "I like these (the Nelson materials) better." When asked, "Why?" James could not say.

Another child, Antonio (with skills comparable to James' and in an 8th grade classroom) also revealed significantly more facility in reading the Nelson materials than the traditional. His reply to the question "Which do you like better?" was as James'. But when asked, "Why?" he replied immediately, "You can understand these (the Nelson materials) easier. They have more meaning!"

A rather stunning explanation for a youngster who had responded minimally throughout the testing and for whom the world of print is almost nonexistent.

Elsa G. Richmond  
Director, The Reading Institute



At first the people in the village were good to the girl, who was all alone in the world. They gave her work. And they tried to take the big wooden bowl off her head.

"No," said the girl. "You must not take the bowl off my head. Before my mother died, she told me that I must wear this big wooden bowl on my head."

The boys and girls of the village began to laugh at the girl with the bowl on her head. So the girl went out to the country-side to work in the rice fields. The other workers laughed at her. Some of them tried to take the bowl off

The data, though brief, points up the following dramatic changes in reading performance of visual-perceptual handicapped persons when they are given white type on black background text as opposed to traditional books printed in black type on white paper:

- 1) The most gratifying, of course, is the change in attitude. These are bright children in a state of confusion and despair because they can not make sense out of reading. Suddenly this coveted skill comes within reach, and the surprise and relief is evident.
- 2) Reading vocabulary is accomplished at a totally different rate, (accelerated), as evidenced by the rapid changes in level of difficulty accomplished by the students:
- 3) Fluency increases as the reading changes from halting and painful with many teacher interventions to a smoother, more normal act.
- 4) The ease felt by the readers seems to increase with the degree of contrast between the white type and the black background - the more dense the black, the more effective it is.
- 5) When students are put back into a regular book after using the specially prepared material, there seems to be a carryover of vocabulary learned in the latter, even though the effort required to read, we suspect, is still too great. The limited work we have done would seem to indicate that the use of this material with dyslexics at an earlier age, enabling them to gain a basic reading vocabulary and good fluency before ego-damage occurs, can facilitate a later changeover to regular text with relative ease.
- 6) The evidence indicates the possibility that the vision of dyslexics may be abnormally sensitive to the light/dark relationships as well as unstable in eye movements. Whether the former contributes directly to the latter remains to be determined. There is some support for this conclusion in the writings of Adele Davis (discussing vitamin A deficiency in Let's Eat Right To Keep Fit) and of Cohen and Shapiro in Out Of Sight Into Vision.

Eileen Nelson

STUDENT COMMENTS

Brenda, 27, not able to advance in job because of a learning disability, "My eyes don't hurt when I read this."

George, 39, a severe dyslexic, "There's no glare."

Julia, 26, a severe dyslexic, "When it's black words on white paper I have to go word by word. With the white on black I can take in more with my eyes."

Eric, 10, "The white letters are poppin' out of the paper. I just see the white. I don't notice the black."