NCSALL Seminar Guide:

Ideas for Teaching Reading: ABE

September 2005



National Center for the Study of Adult Learning and Literacy

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Ideas for Teaching Reading: ABE

This seminar guide was created by the National Center for the Study of Adult Learning and Literacy (NCSALL) to introduce adult education practitioners to ideas for evidence-based instruction in reading for adult basic education (ABE) learners. Programs or professional developers may want to use this seminar in place of a regularly scheduled meeting, such as a statewide training or a local program staff meeting.

Objectives:

By the end of the seminar, participants will be able to:

- Outline several strategies for teaching reading
- Explain how to use those practices in their teaching

Participants: 8 to 12 practitioners who work in adult education—teachers and tutors

Time: 3 hours

Agenda:

20 minutes 1. Welcome and Introductions

5 minutes 2. Objectives and Agenda

75 minutes 3. Reading Jigsaw

15 minutes **Break**

35 minutes 4. Reflections and Individual Planning

20 minutes 5. Planning Next Steps for the Group

10 minutes 6. Evaluation of the Seminar

Session Preparation:

August 2001)

This guide includes the information and materials needed to conduct the seminar—step-by-step instructions for the activities, approximate time for each activity, and notes and other ideas for conducting the activities. The readings, ready for photocopying, are at the end of the guide.

Participants should receive the following readings at least 10 days before the seminar. Ask the participants to read the articles before the seminar.

- Learning to Love Reading by Donna Earl (Focus on Basics, Volume 1, Issue B, May 1997)
 Reading for Pleasure: Learners' Personal Reading Choices Can Provide Teachers with Ideas on How to Motivate and Support Them by Sondra Cuban (Focus on Basics, Volume 5, Issue A, August 2001)
 Techniques for Teaching Beginning-Level Reading to Adults by Ashley Hager (Focus on Basics, Volume 5, Issue A, August 2001)
 Using a Multisensory Approach to Help Struggling Adult
- The Neurobiology of Reading and Dyslexia by Sally E. Shaywitz, M.D. and Bennett A. Shaywitz, M.D. (*Focus on Basics*, Volume 5, Issue A, August 2001)

Learners by Gladys Geertz (*Focus on Basics*, Volume 5, Issue A,

The facilitator should read the articles, in addition to studying the seminar steps and preparing the materials on the following list.

Newsprints (Prepare ahead of time.)
 Objectives and Agenda (p. 6)
 <u>Discussion Question</u> (p. 8)
 Reflections (p. 9)
 Next Steps (p. 9)
 Useful / How to Improve (p. 10)
Readings (Have two or three extra copies available for participants who forget to bring theirs.)
 Learning to Love Reading
 Reading for Pleasure: Learner's Personal Reading Choices Can Provide Teachers with Ideas on How to Motivate and Support Them
 Techniques for Teaching Beginning-Level Reading to Adults
 Using a Multisensory Approach to Help Struggling Adult Learners
 The Neurobiology of Reading and Dyslexia
Materials
 Newsprint easel and blank sheets of newsprint
 Markers, pens, tape
 Sticky dots

Steps:

1. Welcome and Introductions

(20 minutes)

- Welcome participants to the seminar. Introduce yourself and state your role as facilitator. Explain how you came to facilitate this seminar and who is sponsoring it.
- Ask participants to introduce themselves (name, program, and role) and briefly describe a favorite instructional strategy for teaching reading to adult basic education learners.
- Make sure that participants know where bathrooms are located, when the session will end, when the break will be, and any other housekeeping information.

Note to Facilitator

Since time is very tight, it's important to move participants along gently but firmly if they are exceeding their time limit for introductions.

2. Objectives and Agenda

(5 minutes)

• Post the newsprint Objectives and Agenda and review the objectives and steps with the participants.

Objectives

By the end of the seminar, you will be able to:

- Outline several strategies for teaching reading
- Explain how to use those practices in your teaching

Agenda

- 1. Welcome and Introductions (Done!)
- 2. Objectives and Agenda (Doing)
- 3. Reading Jigsaw
- 4. Reflections and Individual Planning
- 5. Planning Next Steps for the Group
- 6. Evaluation of the Seminar

3. Reading Jigsaw

(75 minutes)

- Explain to participants that in this activity they will be reviewing the
 articles that were sent to them to read in advance of this session.
 These articles describe evidence-based, instructional strategies for
 reading.
- Ask the participants to form three small groups and assign the articles they read to the groups as follows:
 - o Group 1
 - Learning to Love Reading

[Note to facilitator: Based on research on children and adults that determined a correlation between time spent reading and reading achievement, the author investigated whether students in her ABE program would experience greater gains in reading fluency and comprehension as a result of reading more. Earl's research revealed that students experienced improved reading ability and reported life changes due to increased time spent reading.]

 Reading for Pleasure: Learners' Personal Reading Choices Can Provide Teachers with Ideas on How to Motivate and Support Them

[Note to facilitator: The author explores reading practices outside of class in a qualitative study of women learners and determines that it is important for practitioners to consider students' literacy practices when developing curriculum. Cuban considers how Reader Response Theory highlights the ways in which readers gain meaning from texts as well as bring feelings to the text and argues that this theory supports an instructional approach that builds on students' interests.]

- o Group 2
 - Techniques for Teaching Beginning-Level Reading to Adults

[Note to facilitator: The author draws upon reading acquisition research on children that supports systematically organized and explicitly taught phonics to develop her approach with adults and argues for the importance of developing phonological awareness in students. The author describes a visual-auditory-kinesthetic-tactile method for introducing phonetically irregular words and suggests using spelling and reading to

reinforce both skills. Hager also advocates for the use of oral reading to promote accuracy and fluency and as a way to monitor learner progress.]

 Using a Multisensory Approach to Help Struggling Adult Learners

[Note to facilitator: This article describes how one practitioner adapted the multi-sensory Slingerland approach to meet the needs of her adult, low-level reading class.]

o Group 3

The Neurobiology of Reading and Dyslexia

[Note to facilitator: The authors review the most recent advances in comprehending the neurobiology of dyslexia and outline the implications for teaching adults with dyslexia. They determine that a deficit in phonology correlates with reading disabilities and argue that practitioners need to consider these research findings in order to adopt the most successful, evidence-based interventions.]

- Ask the groups to review the assigned articles and discuss the key
 points and the strengths and weaknesses of the evidence given to
 back up the practices. Pass out blank sheets of newsprint and tell
 groups to record their ideas on them. Give them 30 minutes to do this.
- Ask each group to post the newsprints on which they recorded the key points and briefly summarize them.
- Post the newsprint <u>Discussion Question</u>. Then conduct a general discussion about the summarized articles.

Discussion Question

Which of the findings or practices did you find surprising or intriguing? Why?

Break (15 minutes)

4. Reflections and Individual Planning

(35 minutes)

• Post the newsprint <u>Reflections</u>. Ask participants to reflect individually on students in their programs and how they might implement the research findings or instructional strategies with their particular students. Give the participants 15 minutes for reflections.

Reflections

 Reconvene the group and ask participants to briefly describe one strategy they would like to try, either with a particular student or in their classes. Summarize the responses on the newsprint. After each person presents, there should be time allotted for questions and comments from other participants.

5. Planning Next Steps for the Group

(20 minutes)

• Post the newsprint Next Steps. Explain that now that the individual participants have developed an instructional plan to try out in their classrooms, the group should make a plan about the group's next steps.

Next Steps

How might participants share with each other how their plans for instruction worked, or how might they ask each other questions?

- Write up potential next steps on the newsprint as the participants mention them. After 10 minutes of brainstorming, ask participants to silently look at the options and individually decide on two ways for the group to continue the discussions.
- **Hand out two sticky dots to each participant** and ask the group to put their dots next to the one or two ideas that they would most like the

group to do. If they don't want to do any of the activities, they should not put their dots on the newsprint.

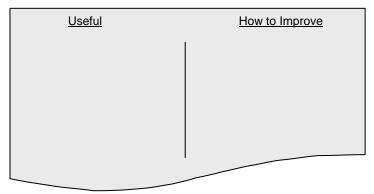
• Lead the group in organizing its choice:

- If they choose to schedule a follow-up meeting, set the date, time, and place for the meeting, and brainstorm an agenda for the meeting.
 Determine who will definitely be coming, and who will take the responsibility to cancel the meeting in case of bad weather.
- o If they choose to organize an e-mail list, pass around a sheet for everyone to write their e-mail addresses. Decide who is going to start the first posting, and discuss what types of discussion or postings people would like to see (e.g., questions about how to try out something in their classroom, descriptions of what happened after they tried it, sharing of other resources about instructional strategies, etc.).

6. Evaluation of the Seminar

(10 minutes)

- Explain to participants that, in the time left, you would like to get feedback from them about this seminar. You will use this feedback in shaping future seminars.
- U Post the newsprint <u>Useful/How to Improve</u>.



Ask participants first to tell you what was useful or helpful to them about the design and content of this seminar. Write their comments, without response from you, on the newsprint under "Useful."

- Then ask participants for suggestions on how to improve this design and content. Write their comments, without response from you, on the newsprint under "How to Improve." If anyone makes a negative comment that's not in the form of a suggestion, ask the person to rephrase it as a suggestion for improvement, and then write the suggestion on the newsprint.
- Do not make any response to participants' comments during this evaluation. It is very important for you not to defend or justify anything you have done in the seminar or anything about the design or content, as this will discourage further suggestions. If anyone makes a suggestion you don't agree with, just nod your head. If you feel some response is needed, rephrase their concern: "So you feel that what we should do instead of the small group discussion is . . .? Is that right?"
- Refer participants to the National Center for the Study of Adult Learning and Literacy Web site's (www.ncsall.net) for further information. Point out that most NSCALL publications may be downloaded free from the Web site. Print versions can be ordered by contacting NSCALL at World Education: ncsall@worlded.org.
- Thank everyone for coming and participating in the seminar.

Reading

(To be read by participants *before* the session.)

Learning to Love Reading

by Donna Earl Focus on Basics, Vol. 1, Issue B, May 1997, pp. 1, 3-4

I have been teaching adult beginning reading classes for five years in a center located in an old elementary school in the mountains of north Georgia. Teaching adults in a rural mountain community has been both a joy and a challenge. The Southern Appalachians, while culturally rich, are often economically and educationally poor. Mountain people, long isolated from the outside world, have developed solid family ties and a strong oral language, but have traditionally placed little emphasis on education. While this appears to be slowly changing, for too many adults in our community, reading is difficult or even impossible.

In the fall of 1995, I participated in a practitioner research project that gave me the chance to work with a network of adult literacy providers from across the state. Choosing an area in which to conduct research was not difficult. The greatest problem I faced was helping those students who failed to make any significant progress, through my observations and their own, in spite of their personal motivation, commitment, and apparent ability to learn. Over the years, I have had ten or 12 students who came to class faithfully, studied at home, willingly tried new techniques in class, and still made agonizingly slow progress. These students ranged from a 19-year-old high school graduate who wanted to improve her reading skills enough to get a job to a 55-year-old grandfather who was tired of job advancements passing him by. Several young men came to class desiring skills so they could read their own job manuals, and one older man wanted to read his Bible for himself. Drawing on methods learned during my years as an elementary teacher and in graduate school, I had tried both traditional strategies such as phonetic analysis and language experience, and novel interventions such as the use of color and music to enhance learning. We even tried Barbara Vitale's (1982) colored transparencies over the reading material. These approaches led to little discernible progress. One student had gained six months on the reading comprehension sub-test of the Adult Basic Learning Exam (ABLE). He had attended class faithfully for four years. Another student had made two years' progress in her first year of class and had then made no further gains. Not all students experienced these problems, but for those who did, it was very frustrating.

I went to the first practitioner inquiry retreat hoping to find "the key" I had been missing. This did not happen. My peers were also puzzled by this and had experienced much the same with their own students.

A literature search unearthed little concerning adults learning to read. However, when I looked at literature dealing with teaching children to read, the overwhelming consensus was that children must spend a great deal of time practicing emerging skills if they are to become proficient readers. Gillet and Temple, in *Understanding Reading Problems-Assessment and Instruction* (1994), document numerous studies, such as Collins (1980) and Manning and Manning (1984), which point to the positive correlation between time spent reading and reading achievement. They state that people learn to read by reading and that, "we must use all our creativity and all our influence to get every student, especially the remedial reader, to read real books every day."

Later I found articles that supported the concept of adult beginning readers needing to read a great deal as well. According to Jago (1995), "the more a person reads, the easier the act becomes." Fink and Devine (1993) propose that many low-level readers read poorly because they never practice the skills they have. Only by practicing emerging skills do beginning readers develop the fluency and automaticity needed to become able readers. They suggest encouraging adults to develop the habit of reading regularly.

Discussions with my current students, some of whom had been studying with me for a number of years, revealed that they rarely, if ever, read at home. We had talked about the importance of doing so, and I had modeled reading, read aloud, and provided as many books and magazines in the classroom as I could find. In spite of my efforts, students rarely read anything at home. This led me to think about ways to motivate them to read more outside of class.

I decided to investigate two related areas. My primary research question was whether the students in my ABE program would experience greater gains in reading fluency and comprehension after reading for 15 minutes or more a day than they had without doing this reading. The second focus was the influence of personal incentives on student motivation to do the reading outside of class.

Initial interviews with each student determined what, if any, materials they read at home and how much time they spent reading outside of class. Very little time was spent reading at home: in most cases, less than 15 minutes a week. Some students read the local weekly newspaper and a few tried to read the Bible. Next, I gave a battery of tests to measure reading ability and fluency before the project. These tests included the ABLE/Level 1; an

informal reading inventory taken from Nadine Rosenthal's book, Teach Someone to Read (1987); and a taped oral reading. The results of these tests showed the students to be reading at a wide range of ability levels. Scores ranged from below first grade level to 6.7, with the average score 5.6.

I then gave the students weekly reading logs. They filled in their logs with the titles of the material they read outside of class, the amount of time they spent reading, and what they thought about the material. Each week, they turned the logs in and took another.

We discussed the idea of incentives to help motivate them to read outside of class. The students had selected pens, mugs, book bags, etcetera, from catalogs, and also planned how we should distribute the prizes. We would have a drawing whenever a student reached a reading milestone—for example, five hours of outside reading.

The winter of 1996 was severe here in north Georgia. We missed more than three weeks of school due to icy roads. Despite missing a day or two each week, however, most of the students carried on with their reading at home. Our shipment of incentives was delayed by the weather as well, and not one student ever asked about it. When it arrived in March, the students laughed and said they had forgotten there were supposed to be prizes. Several suggested that we save them until the end of the project since they were remembering to read at home without them. When I questioned further, two students said that keeping the weekly reading log was reminder enough. One gentleman, Jim, said he had always wanted to read but never found the time. "That log sheet reminds me to make the time" he stated. So, we kept the "incentives" and gave them out at the end of the project.

After three months, I gave post-tests. They included the same battery of tests in alternate forms and a second taped oral reading. I conducted closing interviews and handed out the prizes. The eight student participants logged in a total of 318 hours of reading outside of class. Bobby, the student with the lowest reading level, read a total of three hours, in ten-minute segments. Another student, Joe, logged in 108 hours, averaging close to ten hours a week.

Tests revealed measurable changes in reading ability. No student lost ground in any area tested and all students showed significant progress on the Reading Comprehension sub-test. The class average on that sub-test went from a grade level of 5.6 to 7.8, a gain of 2.2 grade levels in three months. Each score was also the highest score that student had ever achieved. Improvement was also noted in oral reading, in the areas of expression, smoothness, and attention to punctuation.

We also observed many life changes over the course of the project. One student bought a book for herself that she had read in class. Another began reading to her child every evening. Jim began reading scripture passages aloud in class and to his church. Twice he read verses over the local radio station. Students began to check out books from the classroom library more often, and several borrowed books from me and from the GED classroom. They began to share in the selection of new books from catalogs and willingly told others in class about books they had enjoyed.

One morning, Jessie met me at the door with a book of short stories in her hand. As she gave me the book, she asked me to read a certain story. "It's the funniest story I ever read. You've got to read this," she explained. I sat down to read, while she watched, expectantly, over my shoulder. When I got to the climax, she laughed with me, sharing the joy of good literature. This was the highlight of the project for me: a moment which is shared rather than taught.

The students began noticing changes in their own lives. They said that they read more than they ever had. Jim said he could understand more. Anne's husband commented that she didn't ask for help as often as she had, even though she was reading a lot more. Joe expressed in best when he said, "I love reading now; I didn't before."

Conclusions

My conclusions are two-fold. First, my class's experience supports the theory that reading outside of class does have a positive effect on the reading abilities of ABE students. The test results bear this out and the students expressed this, too. Second, filling out the logs and turning them in weekly was a great motivational tool. The students enjoyed keeping the logs and felt that they reminded them to keep reading.

I have several recommendations based on this project. One, certainly, is to encourage ABE students to keep daily reading logs. Another is that teachers acquire a classroom library of books and materials for students to check out. I believe that having a variety of high-interest, low-level materials readily available was critical to the success of this project. Involving students in the selection of books for the classroom seems to be important, too. Students were more enthusiastic about checking out books they had chosen and for which they had waited than they had been about books which had been selected for us.

Further research is, of course, needed. Weaknesses of this project include the small sample size and the lack of a control group. The study was also limited by the homogeneity of the students. The students in my

classroom were white, low-income adults, living in a rural area. Increasing the number of participants considerably and extending the research to differing racial, socioeconomic, or cultural groups would add depth to the study and would increase generalizability.

References

Collins, C. (1980). "Sustained silent reading periods: Effect on teachers behaviors and students achievements." *Elementary School Journal*, 81, 108-114.

Fink, K., & Devine, T. (1993). "The habit of reading: A neglected dimension of adult reading instruction." *Adult Basic Education*, 3, 137-146.

Gillet, J., & Temple, C. (1994). *Understanding reading problems: Assessment and instruction, fourth edition*. New York, NY: Harper Collins College Publishers.

Jago, C. (1995). "An equation for success: Reading for pleasure equals reading for understanding." *GED Items*, 4.

Manning, G., & Manning, M. (1984). "What models of recreational reading make a difference?" *Reading World*, 23, 375-380.

Rosenthal, N. (1987). Teach someone to read. Belmont, CA: Fearon/Janus/Quercus.

Vitale, B. (1982). *Unicorns are real: A right-brained approach to learning*. Rolling Hills Estates, CA: Jalmar Press.

Reading

(To be read by participants *before* the session.)

Reading for Pleasure

by Sondra Cuban Focus on Basics, Vol. 5, Issue A, August 2001, pp. 20-23

Learners' personal reading choices can provide teachers with ideas on how to motivate and support them.

After tutoring, teaching, and doing research in literacy programs, I wanted to know more about how literacy fit into women's lives, thinking that this could help me understand how better to serve women learners in programs. I conducted a lengthy qualitative study of 10 women learners for my doctoral dissertation. I wanted to find out if the women learners I was studying read outside of the program, what they wanted to read about, and what their purposes were for reading. I focus here on my interviews with four women and what their experiences suggest for curriculum and instruction in literacy programs.

Gloria, Donna, Lourdes, and Elizabeth were enrolled in a computer-assisted literacy program in a semirural area of Hawaii. Gloria and Donna were beginning adult basic education (ABE) students; Lourdes and Elizabeth, both students of English for speakers of other languages (ESOL), were at slightly higher levels in the program. Donna was at the lowest level of literacy of the four women and rarely read. She told me she really wanted to read love stories but felt she couldn't. She said, "I guess my mind's so tired that I get frustrated and give up. I guess, like I said - too much stuff going [on] in my mind." Her desire to read love stories was fueled by the romances and comedies she watched on TV, which she enjoyed and which distracted her from her family problems.

The women in the study all read and wanted to read popular - culture materials - commercially published books also referred to as genre and trade books - that were not, for the most part, used in the literacy program they attended. They also used reading for similar ends: they read to make themselves feel better. I interviewed the women over the course of a year about their schooling and work experiences, the ways they learned in their families of origin, and about their use of mass media: anything from watching television to reading books. I also observed them and interviewed staff in the

program within this period. I discovered gaps between what the women read and wanted to read outside of the program and what the program offered.

In the literacy program, they learned basic keyboarding skills, English grammar, phonics, and oral pronunciation. Instruction in the program tended towards skills-based learning from commercial texts such as student dictionaries, Laubach books such as the *Challenger* series, reading skills workbooks such as the Steck-Vaughn *Reading for Today* series, as well as pre-GED materials. The program also used educational and diagnostic software and typing program tutorials. Library books and newspapers were sometimes brought into the tutoring instruction but were not central to the curriculum.

The Research

Each woman participated in five interviews between August, 1997, and May, 1998. Four of the interviews lasted between one and two hours and concerned the women's literacy and learning in school, their work, families, and social networks, as well as their use of mass media. The biographical interview was shorter and valuable for obtaining background information.

Gloria, Lourdes, and Elizabeth did read outside of the literacy program, and although I did not ask them how much they read or venture into the technical aspects of their reading, they described memorable reading experiences and the effects the books had on them. They read mainly for pleasure and to reduce tension, reading stories that nurtured them emotionally. The reading materials they referred to in the interviews would, by most standards, be considered too difficult for the learning level in which the program placed them. Lourdes, for example, was at an ESOL level of competency 2 (between grades 4.5 and 6.5). She described what she learned from reading Gail Sheehy's *The Silent Passage*, a book that deeply affected her. Lourdes also said she read the Bible and small prayer books. She read these books regularly, and as needed, sometimes on a daily basis.

Elizabeth

Elizabeth, a 70-year-old naturalized Japanese woman, was a meat wrapper for most of her working years. She confided in me with both excitement and shame that she had gotten hooked on soap operas through a friend, even videotaping them while she was away. She told me about the character development in these shows and that an advantage to watching them was that they helped her learn standard English. She also read books that had romantic storylines.

Reading and eating in conjunction with TV watching were important and ritualized for Elizabeth, who also read Japanese novels. Elizabeth explained

how she read when she was younger, "every day because I'm home alone so breakfast, lunch, dinner, I have a book stand in the center. I have the book there while I'm eating - I read books." She read trade books, for example, The *Joy Luck Club*, by Amy Tan, which helped with her English vocabulary and was stimulating to her. She also listened to tapes of this book. Her family members and acquaintances were uninformed about the intense pain a serious back problem gave her. So, turning to books and going to classes seemed like a smart move. "I have lots of pain. [Be]cause I don't complain ... I'm not expecting that person always feels sorry for you," she said.

Gloria

Gloria, a Hawaiian woman in her early 50s who spent her younger years working on macadamia farms and in pineapple factories, was worried about being able to pay her rent due to welfare cuts. She explained, "and, you know, like welfare - even though you know you're true [being honest], they don't know, they just give you hard time." She read the Bible every day and related to it as "a love letter" and a source of wisdom. She also listened to Bible tapes, used Bible software, discussed the Bible with her pastor and his wife, and used biblical resources to teach children in Sunday school. These activities invigorated her and distracted her from her worries. When she felt trapped by the welfare system, she sought spiritual materials for the direction and comfort they provided.

"The book. It's more intimate [than the computerized version of the Bible].... because that is more like a study tool. And then when you're reading, this is what the pastor said, when you're reading, it's like a love letter. Like somebody wrote to you and say how much he loves you. So the Bible is actually a love letter and he telling you what's taking place in the world"

Lourdes

Lourdes, a naturalized Mexican mother who used to sew aloha shirts and grade papaya, was in her 50s. Now a health aide, she was married to a local man. When facing problems with co-workers and her husband, Lourdes read her prayer book and inspirational books. She also watched a nun on television every night to relax and to seek encouragement. Oprah Winfrey and her guests, many of whom were authors, inspired her, and inspirational books gave her a sense of hope. This and other popular-culture books she read helped her to feel independent. As she described it, "The first book I read - I'll never forget it. Was back in 19..., maybe 1981, was with Norman Vincent Peale, the positive thinker. Oh that book was good. So from then on I start you know, in my

head I can do it. They interest me to go back to work and to be indep[endent]... you know what I am now. Not to listen to my husband too much..."

She carried books in her purse and consulted them when she had "the blues." She learned to use them as a shield from pain, using them for comfort:

"...I have another one [a book], pick-me-up-prayers. Pick me up. And it's, like, if I do a lot of those things for somebody, then something goes wrong, and I remember what that book says...So these little books help me a lot. Oh, it make me feel good because you know that God is here."

The Theory

Cultural theories of reading for pleasure, including reading response theory (see Storey, 1993; Simonds, 1992; Radway, 1991; Fiske, 1989; Modleski, 1982), focus on the psychological benefits readers receive from reading mass-produced materials, otherwise called "popular texts." Pleasure reading is pleasurable because it can bring out the "melodramatic imagination" of women readers (Storey, p. 141). It provides "a terrain on which to dream" (Storey, p. 148) with fantasies that both reflect and counter "the very real problems and tensions in women's lives" (Modleski, 1982, p. 14).

"Popular culture texts" or "genre literature" (self-help books, mysteries, romance novels, Christian literature, even the Bible) may be favored by casual readers over other "classical" literature (i.e., "great books") because they evoke readers' emotions and are not intimidating. They carry familiar messages from the media that are open for interpretations. John Fiske refers to these texts as "producerly" (p.103) because the story lines do not follow strict rules and they contain many "loose ends" and "gaps" that seduce readers to fill them in and produce new meanings. These meanings are themselves relevant to readers' lives, feelings, and cultures. This process is possible because the texts are open and accessible. Readers identify with strong and weak characters because the characters act out their problems in ways that readers understand and desire. The readers can imagine themselves as treasured heroines and feel emotionally strong.

Janice Radway (1991) studied 42 women romance readers, many of whom had some college education. She learned that the women often read romances when they were under stress and depressed or just to relax: it had tranquilizing effects. Reading these stories allowed them to unwind and focus on their "personal needs, desires and pleasures." (p. 61). It also fulfilled their fantasies of being cared for by another person. The women knowingly read and reread

the formulaic accounts for a desired emotional experience, in part, as a "reversal of the oppression and emotional abandonment suffered by women in real life" (p. 55).

Reader-response theory offers another way to understand the role of reading in women's lives by asking not only about the meanings women receive from texts but also the feelings they bring to reading. Reader-response theory provides an approach for understanding and building on students' reading interests and their imaginations.

Other research demonstrates how pleasure reading can be used effectively in the classroom. Cho and Krashen's study (1994) found that women studying English for speakers of other languages (ESOL) who read romance novels (the Sweet Valley series) felt that this reading increased their vocabularies and their interest in reading as it helped them learn English. A practitioner-researcher, Donna Earl, reported that students in a literacy program read more outside when she focused on increasing their outside reading practices. She felt that providing learners with high-interest, easy-to-read materials is one factor in enabling learners to "learn to love reading" (1997, p. 1).

Lessons for Practice

Lourdes, Elizabeth, and Gloria turned to books for love, pleasure, and comfort, and I think Donna would read for similar reasons, if she felt she could. These women related to books in ways that nourished them emotionally and reflected their life concerns and gender roles. They also used electronic media, such as television, computers, and video, to supplement their pleasure reading. This reflects newer theories about electronic and print literacy technologies as intertwining and complex social activities: part of people's everyday social relations and identities, not divorced from public activities and institutions (see Brandt, 1990; Hemphill & Ianiro, 1995; Merrifield, 1997; Pattison, 1982; Tuman, 1992). Lourdes, for example, used two different types of media (prayer books and a television show featuring a nun) for the same purpose: comforting herself during rough times and to connect to her emotions. Her use of these sources also related to her gender, her access to technological resources, her generation, and her ethnicity.

Asking about and then listening to women's struggles and problems allows you to see their interests and needs at different life stages and under particular circumstances. It also allows you to understand their coping strategies and the resources and people to which they turn. The process of describing themselves helps them to become the "experts" and assert more control over the curriculum (see, CCLOW, 1996; Imel & Kerka, 1997). The

same process can assist teachers to create curriculum based on learners' changing needs. It may be difficult to ask sensitive questions at intake, but as soon as rapport is established, this can be a very useful activity.

Learners like Donna, who claim they want to read love stories but still feel embarrassed about their literacy levels, might be doubly embarrassed to "come out" and admit to literacy staff that they want to read these stories and popular psychology books. She said, "I really feel stupid because I didn't do this long ago. Should of. Like I said, I was so embarrassed to tell it. To face somebody and tell them. I still cannot do that you know and say, 'I cannot read.' It's really hard to come out." Pleasure reading and inspirational books may appear frivolous and inconsequential to instructors. Women students may be ashamed or too shy to admit they enjoy these books and find them moving (see Simonds, 1992). Yet these materials can motivate students to read because they reinforce emotional responsiveness between the reader and the text and relate to students' cultures (see Rowland, 2000). These texts give students opportunities to practice reading without the pressure to "get it right." Teaching students to see reading as a tool for relaxation (see Horsman, 2000; Kortner, 1993) rather than a forced and difficult activity is important in creating in learners a desire to read.

Conclusion

Offering pleasure reading to a woman learner as one of many reading choices in a literacy program may make her feel that the program is an oasis rather than a tax on her energy. Offering pleasure reading that makes women feel good can "hook" women into reading because it is an enjoyable, emotionally stimulating practice. This type of reading can connect to women's emotional lives in a nonthreatening way and potentially turn reading a satisfying daily ritual.

References

Brandt, D. (1990). *Literacy as Involvement: The Acts of Writers, Readers and Texts*. Carbondale, IL: Southern Illinois University Press.

Canadian Congress for Learning Opportunities for Women (1996). *Making Connections*. Toronto, Ontario: CCLOW.

Cho, K., & Krashen, S. (1994). "Acquisition of vocabulary from Sweet Valley Kids Series. Adult ESL acquisition." *Journal of Reading*. 37 (8), 662-667.

Earl, D. (1997). "Learning to love reading." Focus on Basics 1(B), 1-4.

Fiske, J. (1989). Understanding Popular Culture. Boston: Unwin Hyman.

Hemphill, D., & Ianiro, R. (1995) "Media, technology, and literacy in immigrant and multicultural contexts." Alberta University, Edmonton. Faculty of Education. 36th Annual Adult Education Research Conference Proceedings.

Horsman, J. (2000). Too Scared to Learn. Mahwah, NJ: Lawrence Erlbaum Associates.

Imel, S., & Kerka, S. (1997). Women and Literacy: Guide to the Literature and Issues for Woman-Positive Programs, 367. Columbus, OH: ERIC.

Kortner, A. (1993) *Bibliotherapy*. Bloomington IN: ERIC Clearinghouse on Reading and Communication Skills.

Merrifield, J. (1997). *Life at the Margins: Literacy, Language and Technology in Everyday Life*. NY: Teacher's College Press.

Modleski. T. (1982). Loving with a Vengeance: Mass Produced Fantasies for Women. Camden, CT: Archon Books.

Pattison, R. (1982). *On Literacy: The Politics of the Word from Homer to the Age of Rock*. New York: Oxford University Press.

Radway, J. (1991). *Reading the Romance: Women, Patriarchy and Popular Literature*. Chapel Hill: University of North Carolina Press.

Rowland, M. (2000). *African-Americans and Self-help Education: the Missing Link in Adult Education*. Bloomington IN: ERIC Clearinghouse for Adult, Career, and Vocational Education.

Simonds, W. (1992). Women and Self-Help Culture: Reading between the Lines. New Brunswick, NJ: Rutgers University Press.

Storey, J. (1993). An Introductory Guide to Cultural Theory and Popular Culture. Athens, University of Georgia Press.

Tuman, M. (1992). *Wordperfect: Literacy in the Computer Age*. Pittsburgh, PA: University of Pittsburgh Press.

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Reading

(To be read by participants *before* the session.)

Techniques for Teaching Beginning-Level Reading to Adults

by Ashley Hager

Focus on Basics, Vol. 5, Issue A, August 2001, pp. 1, 3-6

I have been teaching beginning-level reading (equivalent to grade 0-2) at the Community Learning Center in Cambridge, MA, for the past eight years. The majority of students in my class have either suspected or diagnosed reading disabilities (dyslexia). The difficulty they experience learning to read is as severe as the urgency they feel about mastering the task. One of my students, a former Olympic athlete, had to turn down a job offer as a track coach because of his inability to read the workout descriptions. He describes his life as "an ice cream that he is unable to lick."

Little research is available on the most effective methods for teaching reading to beginning-level adults. My continuing challenge has been to determine how reading acquisition research conducted with children can be applied to teaching reading to adults. In this article, I describe the techniques I have found most useful; I hope other teachers working with beginning readers will find them helpful.

Our Class

This year our class includes nine students: six men and three women. Three are from the United States, five are from the Caribbean, and one is from Ethiopia. Their ages range from late 20s to late 50s and all are employed. Their educational experiences range from completing four to 12 years of school; one student has a high school diploma. One student has documented learning disabilities (LD). Students typically enter my class knowing little more than the names of the letters and a handful of letter sounds. They are usually only able to write their name and, in most cases, the letters of the alphabet. However, one student had never held a pencil before he entered my class.

Typical Lesson Plan for a Three-Hour Class		
Component	Time (min)	
Phonological Awareness	10	
Word Analysis	20	
Word Recognition "Sight Words"	10	
Spelling	20	
BREAK	10	
Oral Reading (Accuracy)	20	
Oral Reading (Fluency)	35	
Comprehension	25	
Writing	30	

Our class meets two evenings a week for three hours each evening. Because skilled reading depends on the mastery of specific subskills, I find it helpful to teach these explicitly. I organize the class into blocks of time in which, with the help of two volunteers, I directly teach eight components of reading: phonological awareness, word analysis, sight word recognition, spelling, oral reading for accuracy, oral reading for fluency, listening comprehension, and writing. These components embody the skills and strategies that successful readers have mastered, either consciously or unconsciously. My curriculum also includes an intensive writing component.

Over the last 30 years, a significant amount of research has compared the effectiveness of different approaches to teaching beginning reading to children. It consistently concludes that approaches that include a systematically organized and explicitly taught program of phonics result in significantly better word recognition, spelling, vocabulary, and comprehension (Chall, 1967; Curtis, 1980; Stanovich 1986; Adams, 1990; Snow et al., 1998). For this reason, I directly teach the structure of the English language using a phonics-based approach.

I draw from a number of phonics-based reading programs, including the Wilson Reading System, the Orton-Gillingham System, and the Lindamood-Phoneme Sequencing Program. The Wilson Reading System is a multisensory, phonics-based program developed specifically for adults.

Unlike phonics-based programs for children, the Wilson system is organized around the six syllable types, which enables even beginning level adults to read works with somewhat sophisticated vocabulary (see the box on page 4 for the six syllable types). The Orton-Gillingham program is a phonics-based program similar to the Wilson Reading System but designed for dyslexic children. Students learn about syllables much later in the program. I find particularly helpful the Orton-Gillingham technique for learning phonetically irregular sight words. The LiPS Program is useful for helping students acquire an awareness of individual sounds in words. This ability, referred to as phonemic awareness, is a prerequisite for reading and spelling.

Phonological Awareness

Phonological awareness, which involves the ability to differentiate and manipulate the individual sounds, or phonemes, in words, is the strongest predictor of future reading success for children (Adams, 1995). No research exists that describes the affects of phonological awareness on reading for adults. However, I have found that teaching phonological awareness to my beginning-reading adults significantly improves their reading accuracy and spelling, especially for reading and spelling words with blends.

Three phonological tasks that I use with my students, in order of difficulty, are auditory blending, auditory segmenting, and phonemic manipulation. Auditory blending involves asking students to blend words that the teacher presents in segmented form. For example, I say "/s/-/p/-/l/-/a/-/sh/" and the students respond with "/splash/." Auditory segmenting is exactly the opposite. I present the word "/sprint/" and the student must segment the word into its individual sounds "/s/-/p/-/r/-/i/-/n/-/t/." Phonemic manipulation, which is the strongest predictor of reading acquisition, is also the most difficult. The student must recognize that individual phonemes may be added, deleted, or moved around in words.

The following exchange is an example of a phonemic manipulation task. I ask the student to repeat a word such as "bland." Then I ask the student to say the word again, changing one of the phonemes. For example, "Say it again without the "/l/." The student responds with "/band/." While phonological awareness does not include the student's ability to associate sounds with letter symbols, and tasks are presented orally, the research concludes that the most effective way to promote phonemic awareness is in conjunction with the teaching of sound-to-symbol relationships (Torgesen, 1998).

Word Analysis

Word analysis, or phonics, involves teaching the alphabetic principle: learning that the graphic letter symbols in our alphabet correspond to speech sounds, and that these symbols and sounds can be blended together to form real words. Word analysis strategies enable students to "sound out" words they are unable to recognize by sight. Explicit, direct instruction in phonics has been proven to support beginning reading and spelling growth better than opportunistic attention to phonics while reading, especially for students with suspected reading disabilities (Blackman et al., 1984; Chall, 1967, 1983). Beginning readers should be encouraged to decode unfamiliar words as opposed to reading them by sight, because it requires attention to every letter in sequence from left to right. This helps to fix the letter patterns in the word in a reader's memory. Eventually, these patterns are recognized instantaneously and words appear to be recognized holistically (Ehri, 1992; Adams, 1990).

I use the Wilson Reading System to teach phonics because the six syllable types are introduced early on. This enables even beginning-level adults to read words that are part of their oral vocabulary and overall cognitive abilities. After learning the closed syllable rule, for example, students are able to read three-syllable words such as "Wisconsin," "fantastic," and "Atlantic." Reading multisyllabic words provides my students, who have acquired a history of reading failure, with an unexpected sense of accomplishment and opens possibilities for them. Recognizing syllable types is important because the syllable pattern determines the sound of the vowel and how the word must be pronounced.

Syllable Types		
SYLLABLE TYPE	DESCRIPTION	
Closed Syllable (vc/cv)	 one vowel per syllable ends with one or more consonants the vowel has a short sound example: pit, bath, splash, mitten 	
Vowel-Consonant-e Syllable (vce)	 one vowel, then a consonant, then an e the first vowel has a long sound the e is silent example: hope, mine, bedtime 	
Open Syllable (v/cv), (vc/v)	- one vowel - ends with the vowel - vowel has a long sound example: me, so, flu, why	
R-Controlled Syllable	- one vowel, followed by an r - vowel sound is neither short or long - vowel sound is controlled by the r example: /ar/ as in "car," /or/ as in "Ford," /er/, /ir/, /ur/ all sound alike as in "her," "bird," "church"	
The Consonant-LE Syllable	 has three letters: a consonant, an "l," and an "e" the e is silent the consonant and the "l" are blended together example: little, grumble, table 	
The Double-Vowel Syllable	 two vowels side-by-side making one sound usually the first vowel is long, and the second is silent example: maid, may, leaf, seen, pie, goat 	
Credit: Wilson Reading System	II.	

I have found that the Wilson Reading System Sound Tapping technique is a particularly effective way to teach decoding. In this technique, each sound in a word is represented by one tap. Students tap the first sound with their index finger and thumb, the second sound with their middle finger and thumb, the third sound with their ring finger and thumb, etc. If the student runs out of fingers, he or she returns to the index finger. Digraphs - two letters that make one sound (/sh/, /ch/, /th/, /ck/, /ph/) - are represented with one tap. Example: bed = 3 sounds, 3 taps; shed = 3 sounds, 3 taps; stint = 5 sounds, 5 taps. This technique helps students to hear all the sounds in a word.

"Sight Word" Recognition

Since many of the words that appear most frequently in print are phonetically irregular, even beginning readers must learn to recognize some words by sight. Students with reading disabilities have typically relied almost entirely on their ability to memorize words. In most cases, however, their strategies for remembering the way words look in print have proved ineffective. I have experienced some success in teaching sight words using the Visual-Auditory-Kinesthetic-Tactile (V-A-K-T) method that is part of the Orton- Gillingham program. The VAKT method, which emphasizes memorization through visualization, involves asking the student to say the name of each letter in a word and to trace each letter with his or her finger in the air before covering the word and attempting to spell it on paper. The VAKT method may be used to help students with both the reading and spelling of phonetically irregular words. To avoid unnecessary frustration, it is best to tell beginning readers which words they should decode and which words they must recognize by sight.

Spelling

Spelling is an effective way to reinforce both word analysis skills and automatic word recognition. Research consistently indicates that fluent, skilled readers (both children and adults) make use of spelling patterns when they read and, conversely, reading itself reinforces a knowledge of spelling patterns (Adams, 1995). Spelling for practicing word analysis skills and spelling for promoting word recognition (usually of phonetically irregular words), however, involve different tasks and call for different teaching techniques. The VAKT method, described earlier, is a process for teaching learners how to spell phonetically irregular words. When dictating phonetically regular words, include only those words that include letter sounds and spelling rules that have been taught directly.

An especially effective technique for the spelling of phonetically regular words is the LiPS technique. This involves asking students to put down a poker chip for each sound they hear. After identifying the correct

number of sounds in the word, students locate the vowel sound and place a different-colored chip over the chip that represents the vowel sound. Only after they have identified the sounds and isolated the vowel sound are students asked to select the letter symbols that represent the sounds in the word. This places a lighter burden on short-term and working memory.

For beginning-level readers who are native speakers of English, it is important to include nonsense words as part of dictation practice. Nonsense words require the student to use word attack strategies as opposed to sight recognition.

Oral Reading

Oral reading builds accuracy and fluency, both of which contribute to improved reading comprehension. It is also the most practical way for me to monitor a student's progress. It gives a student an opportunity to practice applying word attack and word recognition skills in context. Because reading for fluency and reading for accuracy involve different objectives and require different materials, I find it useful to teach and evaluate them as two separate activities.

Oral reading for accuracy gives students an opportunity to use the word analysis skills they have been taught directly, so I choose reading selections from controlled texts. During accuracy reading, the emphasis is on using word analysis knowledge to decode unfamiliar words. The goal of fluency reading, on the other hand, is to encourage students to read smoothly and with expression. When asking my students to do fluency reading, I do not interrupt the flow of the reading to discuss the content of the text or to analyze a particular spelling pattern. If the student makes a mistake, I provide the word. Because it is difficult to find materials that are easy enough for a beginning reader to read fluently, I often address fluency in the context of rereading material students have first read for accuracy. The Wilson Reading System describes a technique for promoting fluency called penciling that I have found particularly useful. I encourage the student to read more than one word in a breath by scooping a series of words together with a pencil. First, I model how the sentence should be read. For example: "The man with the hat is big." Eventually, students are able to pencil the sentences for themselves but, at the beginning, I scoop words into phrases for them.

When working on oral reading for either accuracy or fluency, I divide the class up according to ability. I assign my teaching volunteers to work with the higher-level groups. Periodically, I pair stronger readers to act as student teachers with their less skilled classmates.

Before being paired with a less skilled reader, however, student teachers receive explicit instruction in providing decoding clues and handling errors. I find this activity effective for two reasons. First, by teaching someone else, the more skilled student teachers consolidate their own knowledge and become cognizant of their own relative progress. Second, the more-skilled readers become a source of inspiration and support for the less-skilled readers in the class.

Comprehension

For readers at the 0-3rd grade level, I teach higher-level comprehension skills using materials other than those the students can read themselves. In my class, critical thinking usually takes place in the context of a classroom debate. Topics I have found particularly conducive to a heated discussion include "Why do you think it is or is not appropriate to hit your children when they misbehave?" and "Why do you think there is so much crime in this country?"

Using photographs is also effective in building higher-level comprehension skills. I ask questions such as "What do you think the people in the photograph are feeling?" "How can you tell?" or "What do you think may have happened to make them feel that way?" Open-ended questions encourage students to make inferences, draw conclusions, and express opinions.

Conclusion

Progress can be excruciatingly slow for beginning-level adult readers. The volunteers who work in my class are struck by the lack of novelty in my classes. Each class follows the same routine (see the Typical Lesson Plan) and a significant amount of class time is spent reviewing previously taught skills and rereading texts. For beginning-level readers, and especially for those with reading disabilities, a predictable routine helps to alleviate anxiety. Students get upset when the class does not follow its expected course. The volunteers are also surprised that students do not feel insulted or embarrassed working with the letters of the alphabet and reading texts that may appear babyish. On the contrary, after years of only using a hit or miss approach, my students are extremely relieved to discover that reading involves patterns of letters with predictable sounds.

One student describes his early experience with reading: "When I was in grade school, I would listen to the other kids read aloud and I had no idea how they knew that those letters said those words. When it was my turn, all I could do was guess. Now it makes sense! It's like I found the key."

The challenge of teaching reading to beginning-level adults can be daunting. In my opinion, however, teaching at the beginning level is also the most rewarding. It is extremely moving to witness an adult who, after years of struggling with the sounds of individual letters, is able to read a letter from a family member or a note that his or her child brings home from school.

References

Adams, M.J. (1990). Beginning to Read: Thinking and Learning About Print. Cambridge, MA: MIT Press.

Adams, M.J. (1995). "Resolving the "great debate." American Educator, 19(2).

Blackman, J., Bruck, M., Herbert, M., & Seidenberg, M. (1984). "Acquisition and use of spelling-sound correspondences in reading." *Journal of Experimental Child Psychology*, 38, 114-133.

Chall, J.S. (1967). Learning to Read: The Great Debate. New York: McGraw-Hill.

Chall, J.S. (1983). Stages of Reading Development. New York: McGraw-Hill.

Curtis, M.E. (1980). "Development of components of reading skill." *Journal of Educational Psychology*, 72, 656-669.

Ehri, L.C. (1992). "Reconceptualizing the development of sight word reading and its relationship to encoding." In P. Gough, L. Ehri, & R. Treiman (eds.), *Reading Acquisition* (pp. 107-144). Hillsdale, NJ: Erlbaum Associates.

Snow, C., & Strucker, J. (2000). "Lessons from preventing reading difficulties in young children for adult learning and literacy." In J. Comings, B. Garner, & C. Smith (eds.), *Annual Review for Adult Learning and Literacy*, Vol. 1, 25-69. San Francisco: Jossey-Bass, Inc.

Stanovich, K.E. (1986). "Matthew effects in reading: Some consequences of individual differences in acquisition of literacy." *Reading Research Quarterly*, 21, 360-407.

Torgesen, J. (1998). "Catch them before they fall; Identification and assessment to prevent reading failure in young children." *American Educator*, 32-39.

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Reading

(To be read by participants before the session.)

Using a Multisensory Approach to Help Struggling Adult Learners

by Gladys Geertz *Focus on Basics*, Vol. 5, Issue A, August 2001, pp. 16-20

I have been a teacher for about 25 years. When I taught elementary school, it seemed that most kids learned to read almost by osmosis. Even the students of some truly lackadaisical teachers usually learned to read. But what about the children who didn't? I spent many hours working on ways to help these special children, sometimes finding a technique that helped, other times passing a child on to the next grade in hope that another teacher would find the key. What happened to these kids? They are the adults I work with every day at the Anchorage Literacy Project (ALP) in Anchorage, AK. Because no one ever found the answer, eventually many of them became frustrated and dropped out of school. Some of them graduated, but they still could not read.

About eight years ago, I observed the Slingerland technique being used with children in Slingerland classrooms in the Anchorage schools, and with adults at ALP. The Slingerland technique uses multisensory teaching techniques from Orton-Gillingham that were adapted for the classroom by Beth Slingerland (Slingerland, 1996). Orton-Gillingham developed their teaching techniques working one-on-one with dyslexic children and those with specific language disabilities. A colleague and I developed a program that uses these techniques in classroom settings with adult, low-level reading students. What differentiates our method from the Slingerland method is that we move through a lesson more quickly, teaching more concepts in a day than would be taught in an elementary school class.

Our Program

The ALP multisensory classes consist mostly of students who have gone through the school system in the United States. Some are dropouts; others are high school graduates. They range in age from 18 to 75 years. Our classes are limited to 15 students, but some classes have only four or five. All of our teachers are trained in the Slingerland method, and as of this writing, we have three instructors in the multisensory program who teach a total of nine multisensory classes. Two are spelling classes, three are a combination of reading and spelling, and four are reading classes at various levels, ranging

from first to approximately 10th grade level. Each class meets three days a week for an hour and a half per class. Our quarter lasts 10 weeks.

Our classes are not open entry. We continue to accept new students for the first two weeks, but then we close the classes because it is too difficult for new students to catch up. The class atmosphere is casual, but the instructor is in charge. We have found that most adults relish humor and the feeling of camaraderie. Each group tends to become close-knit, and we foster group development.

We have expanded and modified the Slingerland techniques for use with adults with and without language disabilities. The modifications are minor; for example, we do not use tracing procedures (going over the same letter many times) as much with our students. Since our students are adults, and many of them are familiar with the letters, we require them to trace a letter three times, instead of the 10 or 20 that may be required in elementary school. We also proceed more quickly to paper and pencil tasks, rather than spending a lot of time using the pocket chart or board. We also introduce three or four letters during each class session; an elementary teacher may only introduce one or two letters a day. At the beginning of our basic classes, we discuss our teaching procedures with the students, explaining that because they have missed some of the educational experiences necessary for learning, we are starting over.

A Success-Oriented Program

The multisensory approach is a success-oriented program. We only expect students to know what they have been taught. We *provide* instruction, *guide* the students through a successful learning experience, and then *reinforce* this successful learning experience. We make sure that all students leave the classroom feeling that they have experienced success.

We begin with a single unit of sight, sound, or thought, and then proceed to the complex combinations of these units. We start with sight and sound association, following the same routine day after day, and adding a few consonant letters and then, slowly, the vowels. We usually begin with the short /i/ vowel sound, and the consonant sounds of /n/, /t/, and /p/, using the sequence in *Angling For Words* by Carolyn G. Bowen (1983). (Teachers could conceivably introduce letters in any sequence, but it is practical to start with high-frequency letters and those that correspond to a selected text.) We spell and read words from these letters, and then we move on. The time involved in teaching the letter sounds depends on the needs of the particular group of students.

Once the sounds are learned, students move on to the more complex tasks of reading and spelling words, putting these words into sentences, and then mastering paragraphs. With these basic skills, students are able to handle more complex reading and writing material.

A Sample Multisensory Lesson

How does a typical multisensory lesson unfold? People tend to learn through different or unique stimuli. Some of us learn better visually, some auditorily, and others kinesthetically. I have found that most people probably learn best by using two of these modalities. The multisensory technique makes use of all these modalities and combines them into one simultaneous procedure. It requires learners to see, hear, speak, and do at the same time. We follow a set pattern of seven steps in every lesson. This strict adherence to structure provides a consistent, expectable routine that frees students to concentrate on learning.

From the first day of class, we begin class with **oral language skills**, because the spoken word is much more comfortable than the written word to a low-level reader. First, we, the teacher and the learners, talk, using complete sentences. We encourage each student to participate. Some oral language questions concern the students personally: "How long does it take you to get to class?" "How do you get to class?" "What is your favorite restaurant and why?" "What is your favorite holiday and why?" "How will this class help you?" "If someone gave you a thousand dollars, how would you spend it?"

In the second segment of the lesson, we introduce the **sound - symbol relationship**. We introduce a letter while writing it in the air: kinesthetic movement. If the students need instruction in writing the letter, we also do the writing procedure. Most early readers print; therefore, we teach them cursive writing. The left to right directionality of cursive makes it easier to write neatly, helps fluency, increases speed in writing, and gives our students the skill that most adults have: writing in cursive, which we expect our students to do also

In the writing procedure, we write the letter on the board, using three lines – a head line; a belt, or middle, line; and a foot line – while communicating to the students exactly how the letter is made and that some letters are tall and go to the head line, some fall below the foot line, and some are crossed or dotted. We then make the letter in the air, while explaining exactly how it to make it. Next, the students make the letter in the air, very large, using their pointers and index fingers as their writing tools.

Typical Lesson Plan Components

- Using oral language skills
- Learning a sound-symbol relationship, and using cards to review the sound-symbol relationship
- Decoding
- Vocabulary enrichment
- Phrase reading
- Structured reading
- Story reading using comprehension skills

After making the letter in the air, each student receives a 12 X 18 inch sheet of newsprint, which has been folded to create lines. We write a cursive letter in crayon on this newsprint. Now the students can trace the letter with their fingers, "feeling" it and saying it. We trace the letter at least three times with our fingers, three times with the blunt end of a pencil from which the eraser has been removed, and three times with the pencil point. Learners then move on to the next box on the paper, tracing with no crayon letter as a guide, using their fingers, then the blunt end of the pencil, and then the pencil point. Then on to the next box using the same procedure. This is the Slingerland technique used for teaching writing. It involves seeing, saying, feeling, and doing simultaneously. We repeat it every day for every lesson.

After saying the name of the letter and writing the letter in the air, we show the class a picture of a **key word** beginning with that letter, such as turtle for /t/. Next, the sound of /t/ is made as it is heard in the key word turtle. After the instructor demonstrates the procedure, the class follows the procedure as a group, then each student does it. "Write the letter in the air, say the keyword, say the sound of the letter." They have felt the letter, spoken the letter, heard the name of the letter and letter sound, and said the letter sound.

After we have introduced the sound-symbol relationship for a specific number of letters, we review this sound-symbol relationship by displaying flash cards of the letters. This is a review with emphasis on both enabling the learners to feel success and allowing the teacher to ascertain whether everyone has learned the relationship. The students write the letter in the air, speak the name of the letter, hear the name of the letter and the sound of the letter, and then say the sound of the letter. Every lesson has a review of letters using this sound-symbol relationship.

The third lesson segment involves the **decoding of words**. We decode, or sound out, a list of words every day. We develop these lists by using words that incorporate the sounds taught in the second segment of the lesson. We do not include words that contain sounds that we have not taught. So, for example, if we have only taught the sounds for short /i/, consonants /t/, /n/, /p/, then we can spell or decode only words containing those sounds, such as tip, nip, nit, it, tin, pin. To encourage students to sound out words rather than memorize or sight read them, we often use nonsense words such as "nin," or "ip." The more vowel and consonant sounds the students learn, the more words we can use. We begin with one-syllable words, progress to two syllables, three syllables, and so forth. We usually decode 20 to 25 words in a lesson, of which one-third are nonsense. To decode a word, the student underlines the vowels, divides the word into syllables, shows what each vowel "says" by writing above each vowel a diacritical mark, pronounces the word, and then defines it. We teach this entire procedure, one step at a time, with each step modeled by the teacher.

The fourth segment, after we decode several words, is learning **vocabulary**. From conversing with our students, and from answering their questions about words, we know that many of them have limited vocabulary skills. When introducing a story, we teach the definitions of new words and the learners put them into sentences. One of the reading series that we use with low-level readers is *Early Reading Comprehension in Varied Subject Matter* (Ervin, 1999), which has four levels. Written for the older elementary school child, the series seems to be successful with adults. New vocabulary in this story includes "shrubs," "snug," and "den." We also use the Kim Marshall (1999) series for readers above the fourth grade level, which is targeted for adults. Newspapers or *Reader's Digest* are other sources of informational stories. Our students tend to find nonfiction more interesting than fiction.

The fifth lesson segment is **phrase reading**, or reading by ideas. We put five to eight phrases on a chart, read a phrase, and the students repeat it. All phrases are read once with the teacher modeling and the students repeating. After that, the students and instructor discuss any new vocabulary, hyphenated words, or grammar. Then a student approaches the chart at the front of the classroom. We say a phrase, the student underlines the phrase with a yard stick, reads it aloud, and the other students repeat the phrase. All the phrases on the chart are read a second time using this procedure. Then a different student comes to the chart and we pose questions formatted as "Find the phrase that .." The student finds the phrase that answers the question, underlines it, and reads it aloud. The other students read the phrase aloud. We do all the phrases in the same way. A fourth student comes to the chart. That student begins at the bottom phrase, reads it, and the other students repeat it. The student at the chart reads from the bottom to the top of the chart, focusing

on comprehension. During this phase, we build comprehension skills, lengthen eye-span, make functional use of word attack skills, make predictions, and build cognitive skills.

Procedure for Phrase Reading

The teacher puts the following on a chart:

a very lazy cat in the shrubs cold and snowy He would moan and eat them

The teacher might ask the learners to:

- "Find the phrase that tells where"
- "Find the phrase that has a word that means the opposite of warm"
- "Find the phrase that begins with an article"
- "Find the phrase that is the **beginning** of a sentence"
- "Find the phrase that begins with a conjunction"

Taken from Early Reading Comprehension, Book A, "The Lazy Cat" Paragraph 1, by J. Ervin.

The sixth segment, after phrase reading, is **structured reading**. The first paragraph of the story is read aloud using structured reading: a student reads a certain number of words (a phrase) specified by the teacher. The phrase may answer a where, what, why, how, or when question. We say to one student: "Read the first three words that tell why." The student reads the first three words. We ask another student to: "Read the next four words that tell who." The student reads the next four words. We choose another student: "Read the next two words that tell where." The student reads the next two words. This phrase reading is done throughout the first sentence. When the first sentence is finished, we pick a student to read the entire sentence using phrasing. The objective is to get students to read by ideas or thoughts, not by words.

Each sentence is read in sequence using the same method. Eventually, the first paragraph - and only that paragraph - is read using phrase reading designed by the teacher.

Structured Reading

Students read directly from the book using the phrases the instructor indicates to them:

Toby was a wild cat who lived in a city park. He was a very lazy cat. He also liked to eat. Even when it was cold and snowy, he knew how to get his meals without ever leaving where he slept. He would stay in his snug den in the shrubs.

Instructor says:	Read the first five words that tell who .		
Student 1 says:	Toby was a wild cat		
Instructor says:	Read the next two words telling what .		
Student 2 says:	who lived.		
Instructor says:	Read the next four words that tell where .		
Student 3 says:	in a city park.		
Instructor says:	Read the complete sentence using that same phrasing.		
Student 4 says:	Toby was a wild cat (pause) who lived (pause) in the city park.		
Instructor says:	Read the next two words that tell you what .		

The procedure continues until the end of the paragraph. To conclude, a student reads the entire paragraph using good phrasing.

Taken from Early Reading Comprehension, Book A, "The Lazy Cat" Paragraph 1, by J. Ervin.

In lesson segment seven, each student gets a turn to **read orally**. Each student reads aloud a different paragraph in the story. This enables us to hear the learners' decoding, expression, and fluency. We discuss every paragraph, always pressing for good comprehension. After answering some specific questions about the last one or two paragraphs, the learners read them silently. Then the class discusses the last two paragraphs and someone reads them aloud

Challenges

Finding appropriate reading materials for adult students reading at a low level is extremely difficult. Several publishers print books at a fourth-grade reading level and above; materials for adults reading at lower reading levels lower are scarce. Another major challenge is time. Every day we struggle to include all seven steps in our 90-minute class. We may modify the lesson by making steps shorter, decoding fewer words, or reading half the story and assigning the rest for homework, but we do not continue the lesson the next day. Repetition of the seven-step sequence provides useful structure, freeing learners to focus on content rather than methodology.

Results

Since I have started using this multisensory approach, I have witnessed success. During the winter and spring 2000 instructional sessions, for example, our learners improved their skills in word reading and word attach at a statistically significant level as measured by the WRAT3 (word reading) and the Woodcock Johnson-Revised (word attack) tests. But more than statistics, the successes come from the students. They are now willing to pick up a newspaper and they can laugh and joke about their reading, because they have experienced some success. They tell us that the structure and continuity of the instruction as well as the interactive teaching methods were particularly helpful. They have discovered that they are not the only people in the world with reading difficulties and know that, with time and diligence, they can achieve their educational goals.

References

Bowen, C. (1983). *Angling For Words*. Novato, CA: Academic Therapy Publications.

Ervin, J. (1999). *Early Reading Comprehension in Varied Subject Matter*. Cambridge, MA: Educators Publishing Service, Inc.

Marshall, K. (1999). *The Kim Marshall Series, Reading Book 1*. Cambridge, MA: Educators Publishing Service, Inc.

Slingerland, Beth H. (1996) A Multi-Sensory Approach to Language Arts for Specific Language Disability Children Books 1, 2, 3. Cambridge, MA: Educators Publishing Service, Inc.

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Reading

(To be read by participants *before* the session.)

The Neurobiology of Reading and Dyslexia

by Sally E. Shaywitz, M.D., and Bennett A. Shaywitz, M.D. *Focus on Basics*, Vol. 5, Issue A, August 2001, pp. 11-15

Developmental dyslexia is characterized by an unexpected difficulty in reading experienced by children and adults who otherwise possess the intelligence and motivation considered necessary for accurate and fluent reading. It represents one of the most common problems affecting children and adults; in the United States, the prevalence of dyslexia is estimated to range from five to 17 percent of school-aged children, with as many as 40 percent of the entire population reading below grade level. Dyslexia (or specific reading disability) is the most common and most carefully studied of the learning disabilities, affecting 80 percent of all individuals identified as learning disabled. This article reviews recent advances in the neurobiology of dyslexia and their implications for teaching adults with dyslexia.

Epidemiology of Dyslexia

Like hypertension and obesity, dyslexia fits a dimensional model: within the population, reading and reading disability occur along a continuum, with reading disability representing the lower tail of a normal distribution of reading ability. Good evidence based on sample surveys of randomly selected populations of children now indicate that dyslexia affects boys and girls equally (Figure 1); the long-held belief that only boys suffer from dyslexia reflected sampling bias in school-identified samples.

Dyslexia is a persistent, chronic condition; it does not represent a transient "developmental lag" (Figure 2). Over time, poor readers and good readers tend to maintain their relative positions along the spectrum of reading ability.

Causes

Dyslexia is both familial and heritable: both environmental and genetic influences affect the expression of dyslexia. This observation provides opportunities for early identification of affected siblings and often for delayed but helpful identification of affected adults. Thus 23 to 65 percent of children who have a parent with dyslexia, 40 percent of siblings of dyslexics, and 27 to

49 percent of parents of dyslexics may have the disorder. Studies implicate loci on chromosomes 6 and 15 and, more recently, on chromosome 2 in the causation of dyslexia.

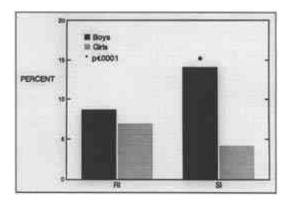


Figure 1. Prevalence of reading disability in research-identified (RI) and school-identified (SI) boys and girls. Schools identify about four times as many boys as girls, reflecting primarily externalizing behavioral characteristics that are more likely to bring boys to a teacher's attention. This skewed prevalence rate reflects referral bias. When actual reading scores are used to identify children, there is no significant difference in the prevalence of dyslexia between boys and girls (based on data in Shaywitz et al., 1990).

The Cognitive Basis of Dyslexia

The phonologic deficit hypothesis—There is now a strong consensus among investigators in the field that the central difficulty in dyslexia reflects a deficit within the language system, although other systems and processes may also contribute to the difficulty. The language system is conceptualized as a hierarchical series of components: at higher levels are neural systems engaged in processing, for example, semantics, syntax, and discourse; at the lowest level is the phonologic module dedicated to processing the distinctive sound elements that constitute language. The functional unit of the phonologic module is the phoneme, defined as the smallest discernible segment of speech; for example, the word "bat" consists of three phonemes: /b/ /ae/ /t/ (buh, aah, tuh). To speak a word, the speaker retrieves the word's phonemic constituents from his or her internal lexicon, assembles the phonemes, and then utters the word. Conversely, to read a word, the reader must first segment that word into its underlying phonologic elements. The awareness that all words can be decomposed into these basic elements of language (phonemes) allows the reader to decipher the reading code. In order to read, a child has to develop the insight that spoken words can be pulled apart into phonemes and that the letters in a written word represent these sounds. This so-called phonemic awareness is largely missing in dyslexic children and adults. Results from large and well-studied populations with reading disability confirm that in young school-aged children, as well as in adolescents, a deficit in phonology

represents the most robust and specific correlate of reading disability. Such findings form the basis for the most successful and evidence-based interventions designed to improve reading. While children and adults with a phonologic deficit represent the vast majority of subjects with dyslexia, other subtypes may account for some cases of dyslexia. Examples include dyslexia resulting from deficits in naming-speed in addition to phonological deficits, the so called double-deficit hypothesis.

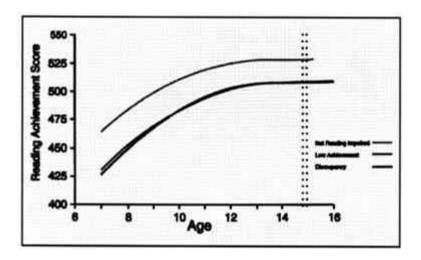


Figure 2. Trajectory of reading skills over time in nonimpaired and dyslexic readers. Ordinate shows Rasch scores (W scores) from the Woodcock-Johnson reading test (Woodcock & Johnson, 1989) and abscissa shows age in years. Both dyslexic and nonimpaired readers improve their reading scores as they get older, but the gap between the dyslexic and nonimpaired readers remains. Thus dyslexia is a deficit and not a developmental lag (from Francis et al., 1996).

Implications of the phonologic model of dyslexia—Reading is comprised of two main processes: decoding and comprehension. In dyslexia, a deficit at the level of the phonologic module impairs the reader's ability to segment the written word into its underlying phonologic elements. As a result, the reader experiences difficulty, first in decoding the word and then in identifying it. The phonologic deficit is domain-specific; that is, it is independent of other, nonphonologic, abilities. In particular, the higher-order cognitive and linguistic functions involved in comprehension, such as general intelligence and reasoning, vocabulary, and syntax, are generally intact. This pattern - a deficit in phonologic analysis contrasted with intact higher-order cognitive abilities - offers an explanation for the paradox of otherwise intelligent people who experience great difficulty in reading.

According to the model, a circumscribed deficit in a lower-order linguistic (phonologic) function blocks access to higher-order processes and to the ability to draw meaning from text. The dyslexic reader cannot use his or

her higher-order linguistic skills to access the meaning until the printed word has first been decoded and identified. For example, readers who know the precise meaning of the spoken word "apparition" will not be able to use their knowledge of the meaning of the word until they can decode and identify the printed word on the page and will appear not to know the word's meaning.

The phonologic deficit in adolescence and adult life—Deficits in phonological coding continue to characterize dyslexic readers even in adolescence; performance on phonological processing measures contributes most to differentiating dyslexic from average readers, and average from superior readers as well. Children with dyslexia neither spontaneously remit nor do they demonstrate a lag mechanism for "catching up" in the development of reading skills. That is not to say that many dyslexic readers do not become quite proficient in reading a finite domain of words in their area of special interest, usually words that are important for their careers. Such individuals, while able to decode words in this domain, still exhibit evidence of their early reading problems when they have to read unfamiliar words, which they do accurately but not fluently and automatically. In adolescents, oral reading, the rate of reading, as well as facility with spelling may be most useful clinically in differentiating average from poor readers.

From a clinical perspective, these data indicate that as children approach adolescence, a manifestation of dyslexia may be a very slow reading rate. Children may learn to read words accurately, but they will not be fluent or automatic, reflecting the lingering effects of a phonologic deficit. Because they are able to read words accurately (albeit very slowly), dyslexic adolescents and young adults may mistakenly be assumed to have "outgrown" their dyslexia. These older dyslexic students may be similar to their unimpaired peers on untimed measures of word recognition, yet continue to suffer from the phonologic deficit that makes reading less automatic, more effortful, and slow. The provision of extra time is therefore an essential accommodation; it allows them the time to decode each word and to apply their unimpaired higher-order cognitive and linguistic skills to the surrounding context to get at the meaning of words that they cannot entirely or rapidly decode.

Neurobiological Influences

A range of neurobiological investigations using postmortem brain specimens and, more recently, brain morphometry and diffusion tensor magnetic resonance imaging (MRI) suggests that there are differences between dyslexic and nonimpaired readers in the back of the brain, specifically in the temporoparieto-occipital brain regions. Functional brain imaging studies also show a failure of left hemisphere posterior brain systems to function properly in adult dyslexic readers while they perform reading tasks.

In principle, functional brain imaging is quite simple. When an individual is asked to perform a discrete cognitive task, that task places processing demands on particular neural systems in the brain. To meet those demands requires activation of neural systems in specific brain regions and those changes in neural activity are, in turn, reflected by changes in cerebral blood flow. We use the term "functional imaging" for technologies that measure those changes in blood flow in specific brain regions while subjects are engaged in cognitive tasks.

Gender-Based Differences

In an early study of 19 neurologically normal right-handed men and 19 women, the subjects had to decide whether two pseudowords rhymed. (For example, do [LEAT] and [JETE] rhyme?) Nonword reading is perhaps the clearest indication of decoding ability because familiarity with the letter pattern cannot influence the individual's response. Of particular interest were differences in brain activation patterns in men compared to women. Figure 3 illustrates that activation during phonological processing in men was more lateralized to the left inferior frontal gyrus, known as Broca's area; in contrast, activation during this same task in women resulted in a more bilateral pattern of activation of this region.

These findings provide the first clear evidence of gender-based differences in the functional organization of the brain for language. They support and extend a long-held hypothesis that language functions are more likely to be highly lateralized in males but are represented in both cerebral hemispheres in females.

Studies of dyslexic readers indicate a significant disruption in the neural systems for reading in dyslexic subjects as they try to decode pseudowords. Thus, as shown in Figure 4 during nonword rhyming in dyslexic readers, we found a disruption in several critical components of a posterior system involving the posterior superior temporal gyrus (Wernicke's area) and the angular gyrus, and a concomitant increase in activation in the inferior frontal gyrus.

These data indicate that dyslexic readers demonstrate a functional disruption in an extensive system in the posterior cortex encompassing both traditional visual and language regions as well as a portion of association cortex. The involvement of this latter region, centered about the angular gyrus, is of particular interest since this portion of association cortex is considered pivotal in carrying out those cross-modal integrations necessary for reading (i.e., mapping the visual percept of the print onto the phonologic structures of the language).

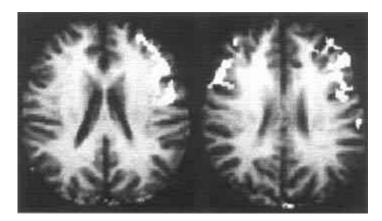


Figure 3. Gender-based differences in the brain during phonological processing. Composite fMRI images show the distribution of brain activation patterns in men (left) and women (right) during a nonword rhyming task. In men, activation is lateralized to the left inferior frontal regions; in women the same region is active bilaterally (data from Shaywitz et al., 1995).

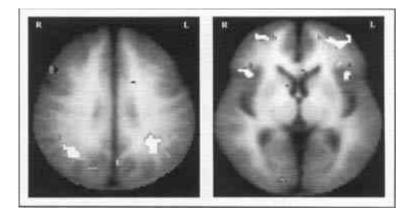


Figure 4. Composite fMRI activation maps in nonimpaired and dyslexic readers engaged in phonological processing during the nonword rhyme task show that nonimpaired readers activate a large region involving the angular gyrus (1), supramarginal gyrus, and posterior portions of the superior temporal gyrus. In contrast, dyslexic readers demonstrate a relative underactivation in this posterior region and an increased activation in the inferior gyrus (a) and middle front gyrus (b) bilaterally (data from Shaywitz et al., 1998).

Consistent with this study of developmental dyslexia, a large literature on acquired inability to read (alexia, for example, following a stroke) describes neuroanatomical lesions most prominently centered about the angular gyrus. It should not be surprising that both the acquired and the developmental disorders affecting reading have in common a disruption within the neural systems serving to link the visual representations of the letters to the phonologic (language) structures they represent. While reading difficulty is the primary symptom in both acquired alexia and developmental

dyslexia, associated symptoms and findings in the two disorders would be expected to differ somewhat, reflecting the differences between an acquired and a developmental disorder. In acquired alexia, a structural lesion resulting from an insult (e.g., stroke, tumor) disrupts a component of an already functioning neural system and the lesion may extend to involve other brain regions and systems. In developmental dyslexia, as a result of a constitutionally based functional disruption, the system never develops normally. The symptoms reflect the emanative effects of an early disruption to the phonologic system. In either case the disruption is within the same neuroanatomical system.

A Neural Model for Reading

These data from laboratories around the world indicate that a number of interrelated neural systems are used in reading: at least two in posterior brain regions as well as distinct and related systems in anterior regions (Figure 5).

In order to read, the beginning reader must break the reading code, that is, transform the visual features (the letters) of the word into the linguistic sounds (the phonemes) they represent and then access the meaning of the word. As early as 1891, Dejerine suggested that a portion of the posterior brain region (which includes the angular gyrus and supramarginal gyrus in the inferior parietal lobule, and the posterior aspect of the superior temporal gyrus) is critical for reading.

Rather than the smoothly functioning and integrated reading systems observed in nonimpaired readers, disruption of the posterior reading systems results in dyslexic readers attempting to compensate by shifting to other, ancillary, systems (e.g., anterior sites such as the inferior frontal gyrus and right posterior sites). The anterior sites, which are critical in articulation, may help dyslexic readers develop an awareness of the sound structure of the word by forming the word with their lips, tongue, and vocal apparatus and thus allow them to read, albeit more slowly and less efficiently than if the fast occipitotemporal word identification system were functioning. The posterior sites, for example the right occipitotemporal area, may be used by the dyslexic reader to facilitate visual pattern recognition, compensating for the impaired word analysis systems in the left posterior regions. The shift to ancillary neural systems in dyslexic readers may support accurate, but not fluent and automatic, word reading.

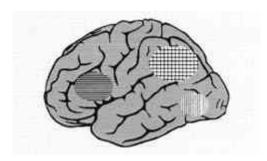


Figure 5. Neural systems for reading. Converging evidence indicates three important systems in reading, all primarily in the left hemisphere: 1) anterior system in the left inferior frontal region; 2) dorsal parietotemporal system involving angular gyrus, supramarginal gyrus, and posterior portions of the superior temporal gyrus; 3) ventral occipitotemporal system involving portions of the middle temporal gyrus and middle occipital gyrus. See text for details.

Delineation of the circuitry for reading in dyslexia may now allow strategies for specific interventions designed to facilitate the function of these ancillary systems, and a method to measure the efficacy of such interventions in a more focused and efficient way. Such studies are now underway.

For dyslexic readers, these brain activation patterns provide evidence of an imperfectly functioning system for segmenting words into their phonologic constituents; accordingly, this disruption is evident when dyslexic readers are asked to respond to increasing demands on their phonologic analysis. These findings now add neurobiological support for previous cognitive/behavioral data, pointing to the critical role of phonologic analysis, and its impairment, in dyslexia. The pattern of relative underactivation in posterior brain regions contrasted with relative overactivation in anterior regions may provide a neural signature for the phonologic difficulties characterizing dyslexia.

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References

Anderson, A., & Gore, J. (1997). "The physical basis of neuroimaging techniques." In M. Lewis and B. Peterson (eds.), *Child and Adolescent Psychiatric Clinics of North America* (vol. 6, pp. 213-264). Philadelphia: W. B. Saunders Co.

Bruck, M. (1992). "Persistence of dyslexics' phonological awareness deficits." *Developmental Psychology*, 28(5), 874-886.

Filipek, P. (1996). "Structural variations in measures in the developmental disorders." In R. Thatcher, G. Lyon, J. Rumsey, and N. Krasnegor (eds.), *Developmental Neuroimaging: Mapping the Development of Brain and Behavior* (pp. 169-186). San Diego, CA: Academic Press.

Frackowiak, R., Friston, K., et al. (1997). *Human Brain Function*. New York: Academic Press.

Francis, D. J., Shaywitz, S. E., et al. (1996). "Developmental lag versus deficit models of reading disability: A longitudinal, individual growth curves analysis." *Journal of Educational Psychology*, 88(1), 3-17.

Panel, R. o. t. N. R. (2000). Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and its Implications for Reading Instruction. Bethesda, MD: National Institute of Child Health and Human Development, National Institutes of Health.

Paulesu, E., Demonet, J. F., et al. (2001). "Dyslexia - cultural diversity and biological unity." *Science*, 291, 2165-2167.

Pennington, B. F., and Gilger, J. W. (1996). "How is dyslexia transmitted?" In C. H. Chase, G. D. Rosen, and G. F. Sherman (eds.), *Developmental Dyslexia. Neural, Cognitive, and Genetic Mechanisms* (pp. 41-61). Baltimore: York Press.

Shaywitz, B., Pugh, K. R., et al. (2000). "The neurobiology of reading and reading disability (dyslexia)." In M. Kamil, P. Mosenthal, P. Pearson, and R. Barr (eds.), *Handbook of Reading Research* (vol. III, pp. 229-249). Mahwah, NJ: Lawrence Erlbaum Associates.

Shaywitz, B., Shaywitz, S., et al. (1995). "Sex differences in the functional organization of the brain for language." *Nature*, 373, 607-609.

Shaywitz, S. (1998). "Current concepts: Dyslexia." *The New England Journal of Medicine*, 338(5), 307-312.

Shaywitz, S., & Shaywitz, B. (1999). "Dyslexia". In K. Swaiman and S. Ashwal (eds.), *Pediatric Neurology: Principles & Practice* (vol. 1, pp. 576-584). St. Louis, MO: Mosby.

Shaywitz, S., Shaywitz, B., et al. (In Press). "The neurobiology of dyslexia." *Clinical Neuroscience Research*.

Shaywitz, S., Shaywitz, B. et al. (In Press). "The neuropsychology of dyslexia." In S. Segalowitz and I. Rapin (eds.), *Handbook of Neuropsycholology*. Amsterdam: Elsevier.

Shaywitz, S.E. (1996). "Dyslexia." Scientific American, 275(5), 98-104.

Shaywitz, S., Fletcher, E., et al. (1999). "Persistence of dyslexia: The Connecticut Longitudinal Study at adolescence." *Pediatrics*, 104, 1351-1359.

Shaywitz, S., Lyon, E., et al. (In Press). "Dyslexia (specific reading disability)." In F. Burg, J. Ingelfinger, R. Polin, and A. Gershon (eds.), *Current Pediatric Therapy*. Philadelphia: W.B. Saunders.

Shaywitz, S., Shaywitz, B., et al. (1990). "Prevalence of reading disability in boys and girls: Results of the Connecticut Longitudinal Study." *Journal of the American Medical Association*, 264(8), 998-1002.

Shaywitz, S. E., Shaywitz, B. A., et al. (1998). "Functional disruption in the organization of the brain for reading in dyslexia." *Proceedings of the National Academy of Science of the United States of America*, 95, 2636-2641.

Snowling, M. (2000). *Dyslexia*. Oxford, UK: Blackwell Publishers, Inc. Torgesen, J. K. (1995). *Phonological Awareness: A Critical Factor in Dyslexia*, Orton Dyslexia Society.

Wagner, R., and Torgesen, J. (1987). "The nature of phonological processes and its causal role in the acquisition of reading skills." *Psychological Bulletin*, 101, 192-212.

Woodcock, R.W., and Johnson, M.B. (1989). Woodcock-Johnson Psycho-Educational Battery - Revised (WJ-R). Allen, TX: Developmental Learning Materials.

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Information About NCSALL

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