



**Building a Teacher's Toolbox**  
**Volume 1, Issue 4**  
**July 3, 2009**

**Prepared by:**  
**Robin C. Letendre, M. Ed.**  
**Reading Specialist**  
**Learning Disabilities**  
**Consultant**

In the last issue of "Building a Teacher's Toolbox", you were given articles on dyslexia. I did more "digging", and found more articles on dyslexia, but in regards to adults. I hope that you enjoy these articles and find them interesting. Again, as I always say, what is in the articles regarding strategies and techniques pertain to all students and not just those with dyslexia. Any strategy or technique that can help all students learn is a benefit to the entire class.

**Article 1-phonics instruction for adults with dyslexia**  
**Pages 2-4**

**Article 2 –dyslexia and learning difficulties**  
**Pages 5-10**

**Article 3-Advanced reading skills for adults with dyslexia**  
**Pages 11-16**

**Article 4-Strategies for the classroom**  
**Pages 17-18**

**Article 5-Brain scans of dyslexic adults show improvement with alternative strategies**  
**Pages 20-22**

**Ice Breaker**  
**Page 23**

After this newsletter, I will be sending out newsletters geared more towards "getting your tool box" ready for September. It will include activities and lesson plans that you might be able to use in your classroom.

Have a wonderful and safe Fourth of July!



## **Adults with dyslexia can improve with phonics-based instruction**

28 Oct 2004

New research shows that phonics-based instruction can actually change brain activity in adults with dyslexia, resulting in significant improvements in reading. The findings from a collaborative study by Wake Forest University Baptist Medical Center and Georgetown University Medical Center were reported today in the journal *Neuron*.

"With about 112 hours of phonic-based instruction, adults with dyslexia had significant improvements in reading and changes in brain activity while reading," said Lynn Flowers, Ph.D., senior researcher, from Wake Forest Baptist. "We know that dyslexia is not something children outgrow, and our findings suggest that it's never too late for instruction to overcome this disability."

This was the first independent research study of whether phonics-based instruction is effective in adults with dyslexia and the first to measure whether the instruction would result in changes in brain activation. Dyslexia, or difficulty learning to read, has been associated with underactivity in areas of the brain that process language and "decode" words into groups of letters that are associated with meaningful sound patterns.

The research involved 19 adults with dyslexia and 19 typical readers without dyslexia. The mean age of participants, who were mostly from the Winston-Salem area, was 42.5.

Dyslexia is the most common learning disability and affects about 10 percent of the population. "A huge number of adults have this problem, so it's important to know whether something can be done to treat it," said Flowers, an assistant professor of neurology. "Adults with dyslexia can suffer significant financial and emotional consequences."

The researchers used functional magnetic resonance imaging (fMRI) - which shows brain activation during a task - to verify whether adults with dyslexia process language differently from typical readers. The testing - performed while participants completed a phonics task - showed that several areas of the brain, predominantly on the left side, were less active in participants with dyslexia. These areas are associated with processing phonetic sounds and recognizing familiar objects.

"This verified our findings and those of others and confirms that dyslexia is biologically based," said Flowers.

The researchers then tested to see if instruction in phonics would improve reading ability and produce changes in brain activation. Half of the participants with dyslexia received phonics-based instruction 15 hours a week for eight weeks. Before the instruction began,

they completed pen-and-paper tests to measure their reading ability and underwent fMRI. After the instruction, they completed a second round of written and fMRI testing.

The written tests showed that participants who received instruction made gains of between six and 23 percent in text reading, phonetic awareness and the ability to "decode" the written word. fMRI testing revealed that the improvements in reading corresponded to increased activity in areas of the brain associated with phonetic processing, being able to associate a symbol with a sound and being able to recognize whether a string of letters represents a word.

Flowers said the gains in reading ability were significant enough to make a difference in the everyday lives of participants.

"One woman who had never read a book now sets her alarm clock early to get up and read before going to work," she said.

Flowers said phonics-based instruction was chosen for the research because it has proven successful in children. She said the researchers are currently working to see if a less intensive program will have the same benefits.

She recommends that adult dyslexics who want to get reading instruction select a phonics-based program that focuses on the structure of language and how language works. It should also involve multiple senses, including how a letter looks, sounds and feels.

Flowers' co-authors were Guinevere Eden, D. Phil., Karen Jones, Katherine Cappell, Lynn Gareau, Thomas Zeffiro, M.D., Ph.D., Nichole Dietz, Ph.D, and John Agnew, Ph.D., from Georgetown, and Frank B. Wood, Ph.D., from Wake Forest Baptist.

Media Contacts: Karen Richardson, [krchrdsn@wfubmc.edu](mailto:krchrdsn@wfubmc.edu), or Shannon Koontz, [shkoontz@wfubmc.edu](mailto:shkoontz@wfubmc.edu), at 336-716-4587.

TV Editor/Producer Note: Wake Forest Baptist can arrange live interviews from an on-campus studio via a fiber-to-satellite uplink. Please call 336-716-4434 with questions or to set up an interview with one of our experts.

About Wake Forest University Baptist Medical Center: Wake Forest Baptist is an academic health system comprised of North Carolina Baptist Hospital and Wake Forest University Health Sciences, which operates the university's School of Medicine. The system comprises 1,282 acute care, psychiatric, rehabilitation and long-term care beds and is consistently ranked as one of "America's Best Hospitals" by U.S. News & World Report.

Contact: Karen Richardson  
[krchrdsn@wfubmc.edu](mailto:krchrdsn@wfubmc.edu)  
336-716-4587

[Wake Forest University Baptist Medical Center](#)

---

Article URL: <http://www.medicalnewstoday.com/articles/15542.php>

**Main News Category:** Dyslexia

<http://www.medicalnewstoday.com/printerfriendlynews.php?newsid=15542>

## Dyslexia and related specific learning difficulties

Dyslexia is most commonly described as a difficulty with processing written language. It is independent of intelligence and affects at least 10 per cent of the population, 4 per cent severely. It is often the case that dyslexic adults were not identified at school and therefore may not know they are dyslexic. Many of these undiagnosed dyslexic adults will be found in basic skills classes or needing basic skills support for academic or vocational courses or for work. Handwriting difficulties may be known as 'dysgraphia'. There are also difficulties such as 'dyspraxia' (poor motor co-ordination or 'clumsiness') and 'dyscalculia' (difficulties with calculation/maths), which are part of the dyslexic syndrome, but in some cases may function as a primary disability.

It is important to keep in mind that learners with sensory disabilities and learning difficulties may also have dyslexic difficulties. Others may experience similar difficulties to dyslexic people. Those who are partially hearing, for example, may have similar problems to those with auditory processing difficulties, as they attempt to rely on incomplete auditory information when reading and spelling.

Dyslexic learners are likely to have some or several of the following difficulties to differing degrees:

- discriminating or 'holding' sounds, which results in problems decoding when reading, confusing or omitting sounds when spelling, word confusions or mispronunciations
- recognizing letters or familiar words when reading, or remembering the visual image of a word, the sequence of letters in spelling or numbers and signs in maths
- a poor short-term or 'working' memory, or difficulty storing and retrieving linguistic information - this can affect their ability to remember language-based information such as instructions or copying from the board
- poor motor integration, resulting in difficulties controlling a pen when writing, omitting or repeating letters when spelling
- directional confusions
- problems with sequencing and organization
- a poor sense of time
- getting lost easily
- difficulty achieving 'automaticity' or fluency of skills.

### *Impact on learning basic skills*

The kinds, patterns and levels of difficulty will vary according to the type(s) of difficulty and the degree of impact within individual learning contexts. Dyslexia affects the acquisition of basic skills in many ways; indeed, it is often partly defined as a difficulty in acquiring basic skills. Dyslexic learners may have a history of persistent problems in learning to read, write and/or spell, and sometimes with maths.

Dyslexic learners may commonly have experience of failure to learn by traditional methods, and they will frequently have an experience of remedial classes that may have reinforced their failure to learn. Because of this, it is especially important to identify and understand their difficulties and use approaches that suit their learning style and give them an experience of success.

Dyslexic learners may have a range of difficulties that will affect their learning in different ways. For instance, those with auditory processing difficulties may be able to develop a good sight vocabulary for reading but will be unable to learn or use phonics effectively. They may be unable to work out new words through phonics. They often rely heavily on context as a compensatory strategy. Spelling will be especially difficult for learners with auditory processing problems, as they are unable to discriminate, segment and manipulate sounds efficiently. They are often unable to attempt a word unless they have a visual image of it.

Other dyslexic adults may primarily experience visual processing difficulties, which may lead them to experience visual disturbances. For some, these take the form of problems in perceiving print accurately. Print may appear to wobble, jump, blur, float out of sequence or drop off the page, causing acute visual stress and difficulties in forming stable images of words and letters. Most dyslexic adults will have difficulties with word recognition when reading; this means that they frequently do not recognize familiar, even very familiar, words. Because of this, they will rely on 'sounding out' words. These readers may find it especially hard to read irregular words, such as 'quay,' 'ache' or 'debt', which cannot be sounded out. They may have most difficulty at sentence and text level, because they put so much attention into working out the words that they lose comprehension and may not be able to make use of semantic and syntactic cues to help them read. They may also easily lose their place or skip a line without realizing it.

A poor visual memory for words and letter sequences means that these learners often spell phonetically and are unable to tell when a word 'looks right'. They may also have directional confusions that affect their ability to tell the time on an analogue watch.

Visual processing difficulties often, but not always, go hand in hand with poor eye-hand co-ordination or general difficulties in integrating the motor, or movement, function.

Learners with motor integration problems may have difficulties following a line of print or keeping track of the letters in a multi-syllabic word. They may also have problems pronouncing multi-syllabic words. They will have difficulties, sometimes severe, with handwriting and organization. The lack of automaticity in forming letters when handwriting can often result in great difficulties in expressing themselves fluently. They have to concentrate so much on forming the letters that they may forget what they intend to say, or find it so slow that they become discouraged and write very little.

Many dyslexic learners will have some combination of auditory, visual and/or motor processing difficulties. Learners working at Entry Level will often have problems with all three, which intensifies their struggle to learn to read and write. Difficulties in developing

automaticity further increases problems, as spellings learned, for example, are lost when concentrating on writing.

Some learners may have other related difficulties, such as severe language problems ('deep' dyslexia/dysphasia) or more severe motor problems (dyspraxia) or other cognitive difficulties. The more complex the range of difficulties, the more difficult it will be for them to learn. Both teacher and learner must acknowledge this so that both understand why learning requires so much extra effort and why it is important to learn in a different way.

### *Screening and diagnostic assessment*

Unlike most learners with other disabilities and learning difficulties, dyslexic adults may not have had their dyslexia identified. In addition, they have usually been labeled negatively at school, which often affects their self-esteem and confidence in their ability to learn. Consequently, the identification and understanding of their dyslexia is important for their learning.

Some common indicators of dyslexia include:

- a history of difficulties learning to read, even with extra help
- continuing problems with reading, e.g. decoding new words, misreading, missing out words or lines, finding the print blurs or 'dances'
- persistent difficulties with spelling, spellings that are far from the expected spelling, erratic spelling, being unable to remember spellings when trying to learn them in the same way and at the same pace as their peers
- miscopying, lots of crossings out, messy or laborious handwriting
- difficulties learning the alphabet, months of the year, times tables, other rote learning
- problems remembering or 'mishearing' instructions, messages, numbers, facts
- difficulties telling the time on a clock face, knowing how long things take
- problems planning and organizing, putting things in sequence, missing out steps.

Once a learner is identified as having several indicators of dyslexia, it is important to arrange a full diagnostic assessment. The purposes of this assessment, and what will come out of it, need to be made clear to the learner, who needs to be a full and willing participant in the process. A diagnostic assessment may be done by an educational or occupational psychologist or by a specialist trained teacher. However, it is very important that the person conducting the assessment is experienced in working with adults. It is recommended that all basic skills provision is delivered by a specialist trained teacher or with access to a specialist capable of diagnosing dyslexia and advising on teaching strategies.

Methods for diagnosing dyslexia in adults vary and the appropriateness and validity of many tests is contentious. It is most important to ensure that the diagnosis is constructive in helping the learners to make sense of past failure and understand both their difficulties

and strengths more clearly. The diagnosis will then provide the basis for a successful learning experience and appropriate support in achieving stated goals.

### *The dyslexic learning style*

Dyslexic people can often perform a range of complex tasks, such as solving complicated problems in electronics or design, yet cannot do the seemingly simple: learn to read and spell, order and organize writing, copy from the board, remember instructions, tell the time or find their way around. One way to look at this pattern of strengths and weaknesses is as a cognitive or learning 'style'. Many dyslexic people themselves experience their dyslexia as a difference - in how they think or learn.

Because of their language processing and short-term memory difficulties, dyslexic learners rely heavily on meaning and understanding, which means:

- a highly personalized approach to learning
- a need to have the learning process and conventions made explicit
- a need to understand how and why in order to learn.

Many, but not necessarily all, of the following learning styles 'fit' most dyslexic learners: They:

- think holistically ('all at once') rather than step by step
- need to see the whole 'picture' first before they can learn the steps or details
- are poor at remembering sequences but good at remembering patterns
- are good at seeing how lots of things are connected, how things work
- are poor at memorizing but remember well when they really understand something
- learn by experience, not from being told
- are often 'concrete', tactile learners
- are not good at learning or applying rules or generalizations - they learn from the particular to the general
- need to make personal connections to remember things
- learn to read and write by having a personal interest in the subject matter
- learn better with the help of color, humor, stories, images
- can, in maths, often get concepts but have trouble with calculation processes and the language of maths.

### *Technology and dyslexia*

Computers can minimize spelling and handwriting problems for dyslexic learners, allowing them to express themselves more freely in writing and thus significantly improve the quality of their writing. They can also help enormously with planning and organizing difficulties, reducing the frustration of writing.

For many learners, a keyboard makes a sufficient enough difference, as learners do not have to form the letters. Specialist keyboards and mice are also available, as are larger, colored key-tops that can be stuck onto the keys of any keyboard. Make sure that

background color, color and type of font, and spacing between letters are adjustable to suit individual needs. Arial, Comic Sans MS and Tahoma fonts are commonly preferred.

Others, however, will need voice-recognition (speech) and reading software. These are especially useful for learners with severe reading and/or writing difficulties and for learners frustrated from long experience of failure.

As well as giving the experience and pleasure of 'reading' to those who have never had it, reading software can be effectively combined with voice recognition technology, enabling a technological version of scribing/language experience which gives the learner more autonomy. Learners need to 'train' the software, but this can be done through introducing their own words and reading their own writing. Voice-recognition technology can also help in developing writing skills, such as written expression, sentence structure, punctuation and proof-reading. Learners may need to try to see whether they need discrete or continuous speech software.

Other useful hardware includes spell checkers, dictionaries and thesauruses, many of which have a speech facility.

Cassette recorders can be a great help with comprehension for those with poor word recognition (see [guidance on Comprehension strategies](#) in reading section). They can also be used to record important information, to record ideas when planning writing, or as a learning resource (e.g. for learning tables).

A 'Reading pen' is especially useful for those with auditory processing problems. It scans and pronounces individual words and sentences and defines words.

There is software available that adds speech output and has word-prediction and spell-check facilities. Word prediction helps develop language, as it is based on units of meaning. Other software can be used for mind mapping, drafting and making notes. The non-linear nature of mind maps is particularly helpful to those with a holistic, non-sequential learning style.

#### *Approaches to consider when working with dyslexic learners*

- avoid repeating approaches that have not worked in the past. Use approaches that match learners' learning style. Do not keep trying phonics or 'look and say' if these methods have previously failed.
- teach basic skills in a context. Use learners' own written work and materials from a vocational area the learner is studying or working in, or subject content that is of particular interest to the learner (e.g. car repair, recipes, stories, environment or family history).
- help learners understand their learning styles, their strengths and weaknesses, and how their dyslexia affects their learning.
- find teaching methods, approaches and materials that suit their learning styles, such as using highlighters and scissors and paste to manipulate written materials.

- encourage learners to find their own strategies so that they become independent in their learning. For example, talk to learners about how they get around certain difficulties, or offer them memorizing techniques. Look at mnemonics (a visual approach to learning), auditory strategies and learning by doing.
- recognize that processing difficulties will not be overcome by practice, so avoid persisting with ineffective approaches such as trying to get the learner to 'hear' the sounds.
- when addressing weaknesses, such as poor comprehension in someone with poor (visual) word recognition, 'scaffold' the skill to be learned and look for compensating strategies such as the use of tapes. See guidance on [Comprehension strategies](#) and [Scaffolding approach](#).
- see technology not only as a tool for supporting the development of basic skills, but also as a potential 'way in' to developing the skill, or an alternative means of access. Some people may never master the skills for spelling, and it is important that they should have access to literacy that is independent of spelling.
- encourage learners to make visual representations of information, such as mind maps - they will then be able to recall this more easily.
- when preparing handouts, pay attention to how easy they are to read and consider using more accessible, sans serif, fonts.
- use color and imagery to highlight key points or important details.
- offer a range of lined colored paper for learners to write on (this may have to be photocopied or specially ordered). If learners have a color that is best for them, ensure all handouts are printed on it for them.
- Emphasize over-learning to help get learning into long-term memory.
- teach spelling through an individualized spelling program.
- Use multi-sensory approaches to develop strengths and support weaknesses.

[http://www.dcsf.gov.uk/curriculum\\_literacy/access/dyslexia/](http://www.dcsf.gov.uk/curriculum_literacy/access/dyslexia/)

## **Advanced reading skills for dyslexic adults**

*Ginny Stacey*

Support Tutor for Dyslexic Students, Oxford Brookes University [gstacey@brookes.ac.uk](mailto:gstacey@brookes.ac.uk)

### *Abstract*

Dyslexic people continue to have reading problems once they have gained some proficiency with phonics, single word recognition and comprehension. There are different reading techniques, such as scanning or skim reading, which would be useful. Then one needs to be able to read for a variety of purposes and match the reading technique to the purpose. One needs to be able to recognize keywords and ideas, and to organize the new material, either on paper or in memory, in a way that facilitates easy access. Reading remains a barrier or hard work whether for study, everyday living or pleasure. This paper will look at techniques that can be used by dyslexic people to make it easier to gain information from the written word; the use of right brain thinking to assist understanding and note taking will be considered; it will be argued that understanding syntax can assist reading complex text. Photo Reading will also be discussed as an example of using a very different method for accessing meaning from words. Much of the heavy work experienced by dyslexic adults can be removed from reading and it is well worth knowing how.

---

Introduction: Dyslexia and the need to learn differently Dyslexic children are usually first identified because they are having difficulty with spelling and/or reading. They can learn the necessary skills when they are taught to read in dyslexic friendly ways: multi-sensory, systematically, with emphasis on phonological processing. The early stages of acquiring literacy skills are well documented and researched and there are many programs for teaching and learning. The emphasis is usually on the adaptations needed to make learning possible; the expectation is that the skills can be learnt.

Spelling and single word reading are only the beginning skills of using written language. The next stages of literacy are comprehension and fluency of written expression. As dyslexic children master the initial stages, problems at the next stage become visible. Some children have computers, including laptops, to help them. Fortunate children encounter teachers or other adults who can help them with these new skills. Much of the time, the personal help is in the form of doing the work for the child. Sometimes the help teaches the skills in dyslexic friendly ways so that the child can use them for him/herself.

By the time most dyslexic people get to university, the basic skills are in place, even if they remain unreliable and vulnerable. Many students have also learnt strategies for coping with the other tasks that came their way at school and home. Mature students often have a wide experience of success in jobs that don't depend on their doing a lot of

reading. Usually they report that essay writing was always a problem. Some can read novels with enjoyment and some will still avoid picking up a book. Most agree they have difficulty staying awake while reading.

Whatever the achieved competence a student brings to university or college, the amount of reading required can only be done with a new level of skills that are adequate to the expected pace of learning at higher education. As with the very basic skills, these need to be learnt in dyslexic friendly ways, if dyslexic students are to become independent people who can manage their dyslexia and produce work that matches their potential.

This paper discusses approaches to advanced reading that can make a considerable difference to the efficiency of dyslexic students' reading: preparation for reading, some tools for advanced reading, and a different way of reading: PhotoReading. It also includes a way of working with dyslexic students so that they can gain the skills for themselves.

### **Preparation: Mind Set**

Mind set (Russell, 1979) is a process through which the mind is energized to be receptive specifically to the new information that a student is going to study. By deliberately re-activating ideas and experience already lodged in the mind, thinking relevant to the new information is in place as the period of study starts. This thinking is able to process the information properly and to make appropriate links to whatever is already known by that mind. At the end of the process, the mind is set ready to work on the subject about to be studied and comprehension is available as the work starts.

Without mind set a dyslexic student is likely to work very hard to decipher the words but comprehension is lacking. Students can find that their eyes have effectively moved over the page and the information on the page has not entered the brain in a systematic way that can be re-called at a later date. Students can find they have to re-read sections many times before the sense starts to grow. Some students feel they understand parts but that they cannot hold on to the big picture.

Mind set can be applied before lectures, before a period of reading or internet work and many other situations not just those related to study. Used on a regular basis, it can be an initial stage of revision for exams and it can reduce the labor of revision.

The process of mind set need only take a couple of minutes. Any way of thinking and recalling ideas will work. Mind maps are useful, but so are flow charts, diagrams, pictures, a meditative style recapture of a field trip. 'Teaching for the Two-Sided Mind' (Williams, 1986) and 'Approaches to Supporting Dyslexic Students' (Stacey, in print) have many alternative techniques for learning and any of these can be used for mind set. A series of questions are productive too: What do I know? What was the last lecture about? What can I remember from the last chapter? What am I interested in? Even "How can I be interested in this subject?", will produce thinking about the subject that is then available to process the new information efficiently. For subjects that have a lot of jargon

words, mind set can be achieved by recalling the meaning of the words, their spelling and pronunciation.

The aim of mind set is to stimulate coherent thoughts about the subject to be studied so that the new information will be processed usefully by the mind. Reading that follows mind set has a great deal of the hard work taken out of it.

### **Tools For Orthodox Advanced Reading**

#### *Keywords*

A prevalent instinct of dyslexic students is to write down every word in lectures or from a book because they are so afraid of leaving out the wrong ones. Difficulties in note taking are magnified as a result of this instinct. The ability to recognize the keywords of an idea would lead to more efficient note taking. In teaching dyslexic students about keywords, I have found various other skills come to the surface.

Since many dyslexic students learn by experience or by seeing, I use the passage about keywords from *The Brain Book* (Russell, 1979). The passage is less than a page long; it has three paragraphs; it contains an explanation, an example, some characteristics and research. The students have copies and there's an overhead.

First, I read the passage aloud and we discuss their reactions. The passage is not difficult. Most of the students report they have the feeling that all the words are necessary. We then go through sentence by sentence and decide which words are necessary for capturing the concept of keywords. The words selected are underlined on the overhead. By the time the whole passage is checked, not many words have been selected as keywords and some have been rejected as repeats from earlier in the passage. The power of keywords is made real for the students because they have taken part in the decisions and the result is visible in front of them.

#### *Meta-ideas*

At the same time as looking for the keywords, the students often discuss why the words are included or excluded. I provoke the discussion if it doesn't happen. It brings to the fore the meta-ideas level of processing information.

The students decide which parts of the passage are giving them information that will be useful, which are helping with initial understanding and therefore won't need to be remembered or noted. They are thinking about their own purposes in approaching the concept and how those could change with circumstances. Students doing psychology or education might have to write an essay explaining or justifying the concept in an academic way; such students would need to remember the research evidence. Those simply wanting to practice and use the concept of keywords will need fewer of the keywords in the passage.

Again, the overhead is used. The passage is annotated with the appropriate meta-ideas. At the end, one can see that each part has a reason to be there: definition, uses, example, explanation of the example, research, results.... Reading or listening that is looking for the meta-ideas keeps a student engaged in the reading process much more effectively than un-informed reading.

When applying meta-ideas to their own subjects, students may need to identify the pattern that occurs in their own subjects. Different disciplines have different sets. Once found, the meta-ideas produce a framework for any subject which can be used from the initial acquisition of knowledge to the final output, be that exams, essays, dissertations or reports at work.

### *Awareness of Purpose*

As discussed above, the awareness of purpose enabled the students to see that more or less of the paragraphs were useful and would be needed in notes depending on the purpose of the reader. In this case, the majority of students would only need to record a limited amount of the passage. Awareness of purpose can often restrict the level to which a passage or section is necessary to a student. It is very disheartening to put long hours into reading only to find that there was no benefit at the end. Being very conscious of the usefulness of material goes some way to prevent this waste of time. Having an essay plan in mind while reading can be effective in keeping the reading purposeful.

### *Syntax*

The first sentence of the passage on keywords is two and a half lines long and contains a list of four characteristics of keywords, each involving several words; it has 14 words between one verb and its subject. It is quite hard to understand. One encounters such writing frequently. When the context is already known, the mind can sort out the meaning of such sentences, providing enough words can be stored in the short-term memory. People with good verbal short-term memories can store a lot of words, so their minds will subliminally work out the meaning of sentences like the first one in the keyword passage. Few dyslexic students have a short-term memory that can help; they need to learn how to use syntax for reading sentences like this one. Again they need to find a way that suits them individually. I have found the approach and level of material in 'Grammar Made Easy' works well with students.

### **PhotoReading**

PhotoReading is quite a different method of access to the printed word. It centers round being able to mentally 'photograph' pages of a book or article and then activating the information that has entered the mind. It uses several processes that I have found useful or have observed at work in my mind before, so it didn't feel too strange.

There is a very systematic preparation to the process. During this part, one is using mind set, as above, and altered states of consciousness. The PhotoReading is done straight after

the preparation. You learn to work with a whole field of view and not just the few words in the centre of focus. During the PhotoReading, you slightly defocus the eyes and you use a repeated word phrase to stop the language centers from working. You view each opening of the book as a whole without moving the eyes, and you turn the pages over every few seconds. Having done that, you wait for anything between 20 minutes and 24 hours to let your mind work subliminally on the material. Then you bring back the information to the conscious mind by moving fast through the book and using it as a trigger for recall. The final process is a very rapid read, but this isn't often necessary.

The initial stage including the PhotoReading usually takes 20 - 30 minutes. The hardest part (for a dyslexic with organizational hassles) can be timetabling the break. The later stage varies in length depending on the use one has for the material.

I have used this method myself on various occasions. I've taught it to a very intelligent man who has very poor phonological skills, and to groups of undergraduates. I haven't used it in a researched way.

My own use of this technique has been such a relief. For example, I needed to use a book of 218 pages on psychometrics for a particular purpose. Normally it would take a long time to read such a book. With PhotoReading, I had got everything I needed for the job in hand and I had planned the complex proposal within one and half hours.

Watching the man with the poor phonological skills using PhotoReading was delightful. At the stage after the break when one uses the article or book to activate, he was running his fingers down the columns and telling me what the different sections were about. By comparison with his usual struggles, this processing was extraordinary.

It is difficult to follow up the undergraduates because they come to groups to learn the process and then go off to use it. I don't have time to follow up their progress. During the learning process, I know that the preparation stage is teaching them much better strategies for reading. With the framework they acquire, their reading will improve even if PhotoReading itself isn't a skill they gain. Some experience difficulty in maintaining the focus that is needed, but others seem to be able to use the process as easily as I can. The process makes use of the de-focusing effect which, for some dyslexics, interferes with the standard method of reading. It's quite a relief when a disadvantage suddenly becomes useful.

One would like to do controlled research when introducing a new technique such as PhotoReading, but the benefits of the initial systematic work can be used by all and, with even this much progress, one of the major sources of work overload for dyslexic students is reduced.

### **Conclusion: Tools for Reading**

Reading remains a problem for dyslexic people at university level. There are advanced skills needed for university reading. They will have to be learnt in dyslexic friendly ways,

just as dyslexic children were given special programs at the start of their struggles with literacy.

Once the skills have been learnt, one has to monitor one's alertness and notice signs that one has slipped back into inefficient processing. I have learnt to recognize going to sleep over work as a indication that dyslexia has probably kicked in again and that I'd better switch my thinking to something more effective.

The deliberate use of advanced reading skills bring an enormous sense of achievement to dyslexic students. It allows them the opportunity to tackle a major source of overwork with an expectation of efficiency and success.

**References:**

Dykes, Barbara (1992) *'Grammar Made Easy'*, Sydney: Hale & Iremonger

Russell, Peter (1979) *'The Brain Book'*, London: Routledge

Scheele, Paul (1997) *'PhotoReading'*, Wayzata, Minnesota: Learning Strategies Corporation

Stacey G., (in print) *Approaches to Supporting Dyslexic Students in Perspectives from United States, Canada, Great Britain and Israel* Conference Proceedings

Williams, Linda V. (1986) *'Teaching for the Two-Sided Mind'*, New York: Simon & Schuster, Inc.

[http://www.bdainternationalconference.org/2001/presentations/thu\\_s5\\_a\\_3.htm](http://www.bdainternationalconference.org/2001/presentations/thu_s5_a_3.htm)

## **Classroom Strategies, Physical Adjustments and Dyslexia**

---

There are a number of generic adjustments that apply to most teaching environments. These are considered to be part of good practice and are listed below:

### General Classroom Strategies

- ◇ Do not pace backwards and forwards.
- ◇ Provide reading lists in advance.
- ◇ Use OHP etiquette - place key points/phrases on OHP or white board / blackboard.
- ◇ Give both oral and written instructions.
- ◇ Provide new technical terms in advance.
- ◇ Lip reading and signing is tiring - consider frequent rest breaks.
- ◇ Use of white space - avoid continuous text.
- ◇ Prepare course materials early - to allow alternative formats to be produced in time.
- ◇ Repeat discussion questions while facing the class.
- ◇ Videos - provide a written summary of what the video shows in advance or transcript or have it sub-titled.

---

### Physical Adjustments

- ◇ Hearing aid loop system (fixed & portable)
- ◇ Functioning public address
- ◇ Wheelchair accessible power sockets (and data points) accessible to students
- ◇ Localized lighting so the speaker is never in darkness (also sign language interpreter)
- ◇ Sufficient capacity

---

### Adjustments for Tutorials

- ◇ Preferential seating (applies to a range of disabilities)
  - ◇ Allow taping
  - ◇ Supply relevant materials in advance of the lecture
  - ◇ Request students to keep level of background noise low
  - ◇ Face the front when speaking
- 

#### Dyslexia Friendly Teaching Strategies

- ◇ Multi-sensory strategies
- ◇ Activities to engage the whole brain
- ◇ Using visual images
- ◇ Use of color coding
- ◇ Offering materials in alternative formats
- ◇ Exploiting the power of I.T.
- ◇ Documents / text / web pages - use of clear print guidelines
- ◇ Offer clearly structured programs to learners

[http://www.maths.nottingham.ac.uk/common/resources/disability/011\\_ClassroomStrategies.htm](http://www.maths.nottingham.ac.uk/common/resources/disability/011_ClassroomStrategies.htm)



# Brain Scans Show Dyslexics Read Better with Alternative Strategies

By Abigail Marshall; © 2003 DDAI.

Scientists studying the brain have found that dyslexic adults who become capable readers use different neural pathways than non-dyslexics. This research shows that there are two independent systems for reading: one that is typical for the majority of readers, and another that is more effective for the dyslexic thinker.

## NIMH Study of Dyslexic Adults

Researchers Judith Rumsey and Barry Horwitz at the National Institute of Mental Health used positron emission tomography (PET) to compare regional cerebral blood flow (rCBF) among dyslexic and non-dyslexic men. The dyslexic subjects had childhood histories of dyslexia and continued to show some symptoms related to reading, but their overall reading ability varied. For some word recognition and comprehension tasks, the dyslexic men scored as well as or better than controls.

Research correlating brain activity with reading ability showed an intriguing inverse relationship between reading ability and cerebral blood flow patterns. For non-dyslexic controls, stronger activation of left hemispheric reading systems, including the left angular gyrus, corresponded to better reading skill. For dyslexic subjects, the opposite was true: the stronger the left-hemispheric pattern, the poorer the reader. In contrast, increased reading skill for dyslexics was correlated with greater reliance on the right hemispheric systems.

The researchers explained:

"The rCBF–reading test correlations identified a region in/near the left angular gyrus as significantly related to level of reading skill within both groups. These correlations were uniformly positive for the control group and uniformly negative for the dyslexic group, indicating diametrically opposed relationships in the two groups....within the control group higher rCBF was associated with better reading skill and that within the dyslexic group higher rCBF was associated with *worse* reading skill, or more severe dyslexia."

The researchers observed a similar pattern in the right hemisphere, in an area near the right angular gyrus. In the right brain area, the dyslexic men had higher activation levels than controls during the word reading tasks, which correlated positively to improved reading ability. For the non-dyslexic control group, such activation pattern was negatively correlated to reading ability.

## **Comparison of Reading Outcomes among children followed since kindergarten**

A team of researchers led by [Sally Shaywitz at Yale University](#) has confirmed that dyslexic individuals who become good readers have a different pattern of brain use than either non-dyslexic readers, or dyslexics who still read poorly. The researchers used functional magnetic resonance imaging (fMRI) to evaluate brain activity among 20-year-old dyslexic men and women selected from a group that had been followed since kindergarten. All the dyslexic subjects had a history of severe reading impairment in early childhood. However, while some of the students continued to struggle with reading throughout their school years ("persistently poor readers"), others improved by their high school years, becoming accurate readers with strong comprehension skills ("accuracy improved readers").

Dyslexic subjects from both groups as well as non-dyslexic control subjects were asked to perform reading tasks involving phonological processing (non-word rhyming test) and ascertaining meaning (semantic category test). During the non-word rhyming test ["Do *leat* and *jete* rhyme?], both dyslexic groups showed less activation of the left posterior and temporal areas of the brain as compared to the control group. However, the dyslexics who were improved readers also had greater activation of right temporal areas and both right and left frontal areas.

For the semantic category test ["Are *corn* and *rice* in the same category?"] the persistently poor readers showed brain activity very similar to the non-dyslexic control group, despite the fact that their reading performance was significantly impaired. Like the control group, the persistently poor readers activate left posterior and temporal systems. In contrast, the improved dyslexic readers bypassed this area entirely.

This research suggests that for dyslexic readers, the left brain areas associated with phonetic decoding are ineffective. While a non-dyslexic reader finds such pathways an efficient route to reading, the dyslexic reader essentially becomes entangled in a neural traffic jam. In contrast, dyslexics who bypass these mental pathways, relying more on areas of the brain involved in nonverbal thought and in analytic thought, are able to become capable readers.

### **Impact of Findings for Education**

These brain imaging studies show that teaching methods that may work well for a large majority of schoolchildren may be counterproductive when used with dyslexic children. Teaching methods based on intensive or systematic drill in phonemic awareness or phonetic decoding strategies may actually be harmful to dyslexic children. Such teaching might simply emphasize reliance on mental

strategies that are as likely to diminish reading ability for dyslexic children as they are to improve it, increasing both the frustration and impairment level of dyslexic students.

## **Davis Theory and Methods**

[Davis Learning Strategies®](#) and [Davis Dyslexia Correction®](#) emphasize a creative, meaning-based strategy for acquisition of basic reading skills. Children (and adults) use clay to model the concepts that are associated with word meanings at the same time as modeling the letters of each word in clay. At the primary level, these methods provide a route to learning to read that seems easier for students with dyslexic tendencies than traditional instruction. Among older dyslexic children and adults, these methods routinely lead to very rapid progress in reading ability.

Scientists know from other studies that the right brain hemisphere is where the mind connects written words to their meanings, and that it is where creative and imaginative thought takes place. Modeling words in clay can help build the mental pathways that brain scan evidence shows to be crucial for reading development among dyslexic students.

## **References:**

1. Horwitz B, Rumsey JM, Donahue BC (1998), Functional connectivity of the angular gyrus and dyslexia. *Neurobiology*: 95: 8939-8944. [\[Abstract\]](#)
2. Rumsey, JM, Horwitz, B, et al (1999): A functional lesion in developmental dyslexia: left angular gyrus blood flow predicts severity. *Brain and Language*, 70: 187-204. [\[Abstract\]](#)
3. Shaywitz SE, Shaywitz BA, Fulbright R, et al (2003). Neural Systems for Compensation and Persistence: Young Adult Outcome of Childhood Reading Disability. *Biological Psychiatry* 54:25-33. [\[Abstract\]](#)

## **See also:**

- [Can Reading Problems from Dyslexia be Prevented?](#), by Sharon Pfeiffer. *The Dyslexic Reader* (1994-1995).

[http://www.dyslexia.com/science/different\\_pathways.htm](http://www.dyslexia.com/science/different_pathways.htm)

# **What's In Your Pocket / Purse**

## **Group Size**

**Small**

## **Materials**

## **Set Up**

## **Directions**

**Everyone selects one or two items from their pocket, purse, wallet or backpack that has some personal significance to them. They introduce themselves and do a show and tell for the selected item and why it is important to them.**

## **Debrief**

## **Alternatives**

**This is also called "show and tell"**

**<http://www.teampedia.net/wiki/index.php?title=Category:Icebreakers/Warmups>**

