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ABSTRACT

It is upon a positive literature-based foundation that educators must build excellent curriculum and teaching strategies. It is the job of educators to be trained to integrate the concepts of whole language and direct phonetic instruction so children have the advantage of both schools of thought, to be aware of how children learn most efficiently, and to masterfully teach. Educators must take back their profession. They must teach teachers to become reading and spelling experts, they must commit to the education of preschool children, and they must help parents learn how to work with their children, readying them for the language arts. Some solutions to problems with traditional approaches to reading and spelling instruction are (1) teach the sounds and shapes of the entire alphabet in the daily presentation, postponing letter names and capital letters; (2) teach lowercase letters first; (3) use pictures that relate to the sounds of letters; (4) attach motor movement directly related to the picture/letter, establishing the sounds to the letters; (5) teach spelling as a vital part of the school curriculum; (6) give children books they can read; and (7) do not let reading and spelling errors go uncorrected. (RS)

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CREATING BRAIN-EFFICIENT CURRICULUM

An analysis of the changes necessary to create a methodology and curriculum that enhances student achievement in reading and spelling.

By Charlene A. Wrighton • June 2, 1995

The hottest educational issue of the past 10 years has not been whole language versus phonics. It runs much deeper than that, primarily because whole language and phonics **can** be taught concurrently. What, then, is the disparity that has widened the chasm within the educational system? In order to fully understand, we must analyze the issues carefully.

It began with this premise: children have a language base, thus reading should be predicated on a child's natural language usage. Therefore, reading books that do not sound like the natural language of a child should be avoided. (Good-bye basals, hello literature.) As children are involved in print-rich literature, they will automatically pick up the phonemic patterns of speech, so phonemic awareness does not need to be taught directly. (Good-bye phonics, hello sight vocabulary.) In connection with this, if children are listening to print-rich literature and are writing authentic student text, children will naturally pick up the spelling patterns in the written word. (Good-bye spelling, hello high frequency words.)

The only thing that was forgotten in this decade of "natural education" was the child's brain and how it processes information. It does not like random information and stores it poorly.

The educational field seems to allow more pendulum swings than any other profession. Perhaps it is our constant search for new ideas that leads us to drop one teaching method or program to follow another. With the whole language movement, we have virtually thrown the baby out with the bath, rather than artfully combining all the wonderful aspects of whole language and phonetic awareness. (It really wasn't "whole" without phonics.) You don't negate a child's language base and self discovery because you've highlighted and taught a certain phoneme in your lesson plans.

It is easy to see that the whole language movement has had a positive impact on several areas in curriculum development: it forced us to become more imaginative as teachers, to integrate the curriculum and to provide children with authentic reading and writing opportunities, rather than "busy" work. It also helped us to move away from inane little stories and, instead, brought wonderful books, rich with vocabulary and artwork into the children's experiences.

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It is upon this positive literature-based foundation that we must build excellent curriculum and teaching strategies. Our job, then, is to: 1) be trained to integrate the concepts of whole language and direct phonetic instruction so children have the advantage of both schools of thought, 2) be aware of how children learn most efficiently, and implement effective teaching in the classroom 3) masterfully teach, reaching young minds so that they fully understand all concepts taught, not neglecting one skill for another.

Jeanne Chall said it so well, "Both the direct instruction and whole language models are concerned with enhancing student achievement in reading. Both are equally concerned that the students develop a love of reading. Both want children to read good literature as well as expository texts. Both combine reading and writing. Both want all students to achieve their potential, and both want to reduce the number of students who fail. Whole language proponents tend to view learning to read as a natural process, developing in ways similar to language. Therefore, like language, most whole language proponents say it is not necessary to teach reading directly. Direct instruction models, on the other hand, view reading as needing to be taught, and taught systematically. Indeed, an often used rationale for the need to teach reading is that all people on earth speak a language while, according to UNESCO, nearly a billion are illiterate, mainly because they do not attend schools where reading is taught and learned."[1]

This is where we need to start:

1. We must take back our profession. We are educational experts and know (or should know) how children learn best. If something does not feel right, we must be strong enough in our convictions and training to speak up. Never again should teachers see themselves as only facilitators or implementers!

   Research shows us again and again that the teacher is a major variable in how well a child learns to read and spell.[2] We must fully research the premises behind each new educational philosophy, and cognitively assess the long term effects it will have on students' academic progress.

2. Our schools must adopt methods and strategies that handily teach children how to read and spell through a curriculum that presents the richness of literature, creative and informative writing, critical thinking and phonetic analysis at the same time. There must be harmony and continuity of thought in order for changes to be implemented at all levels of the school system.

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[1] Jeanne Chall, Point/Counterpoint: Whole Language Versus Direct Instruction Models, *Reading Today*, Dec. 1992/Jan. 1993, pg. 8

[2] Jeanne Chall, *Learning to Read the Great Debate*, McGraw-Hill Inc., 1967, pg. 350

3. We must teach teachers to become reading and spelling experts. College requirements must be restructured, adding many specific classes in both these areas. They need to learn how to teach children phonetic skills to decode and encode text with books that are readable, in addition to exposing them to the joy and enrichment of fine literature. Teachers must learn the various sounds of every phoneme in the English language in order to teach it, as well as how to tie it into the reading and writing curriculum.

   a. Teachers must understand the nature of language acquisition. Children are in a language acquisition mode both before and after birth and language development is crucial to their reading and writing success. Speaking to them, asking and answering questions and reading to them is essential to their future literacy. So important are hearing and perception in this endeavor that if language is delayed, so is literacy.

      Guessing what the words are and struggling to find meaning within context is not an efficient way to read. Give them the phonetic code to the language. The sounds that they have heard from birth can be decoded and later, written down.

   b. Teachers must be taught how to reach EVERY child in the classroom, not allowing any child to slip through the cracks. All teachers must have the tools, materials, strategies and training similar to special education training. We no longer have the option of homogeneous classrooms. Our classrooms are cultural, social, economic and academic melting-pots, especially with more and more full-inclusion taking place. Our teachers must be highly skilled in pacing the academic work load, creating lesson plans that reach 100% of the children, regardless of language or ability.

   c. Teachers need to fully understand how a child's brain functions. From birth to around seven or eight years of age, a child must, approach text using right hemisphere strategies. Research founded by D.J. Bakker found that, *"The principal components of the potentials, while analyzed in relation to a number of independent variables, revealed significant associations between reading proficiency and right hemispheric activity at early ages, to shift to significant associations between reading proficiency and left*

hemispheric activity at later ages." [3] Based on this research we must reach young learners through methods that easily teach the concepts needed for literacy. Traditional approaches passed down from generation to generation have often put up educational road blocks, unwittingly, for the child, because of their abstract nature.

Since the alphabet is made up of symbols, which are abstract and left-brained, how do we reconcile this with four, five and six year olds whose brains are not yet ready for assimilating this type of information? To make matters worse, we expect a kindergarten child to not only know the letter names (a), but we expect them to recognize them by sight, know the sounds they make (a), and know their upper and lowercase counterparts, (A, a). This is just too much information for most five year old children to handle.

4. We must commit to the education of pre-school children.[4] Continuity is needed with feeder pre-schools, Head Start and K-3 grades throughout the school district. We can do this by encouraging feeder pre-schools and Head Start Programs to tie into the local school district curriculum and to participate in staff and curriculum development. In the long run, you will see fewer children in special education and Chapter One programs and other federal and state funded categorical programs.

5. We must help parents to learn how to work both playfully and non-stressfully with their children, readying them for the language arts process. If pre-school children enter kindergarten with essential pre-reading, spelling and writing skills, the kindergarten teacher could then continue readying them for the academics needed as well as to prepare them for first grade.

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[3] I. Flehmig & L. Stern (Eds), *Child Development and Behaviour*, New York: Fisher Ver-lag, 1986, pg. 355

[4] Anderson, Hieert, Scott, Wilkinson, *Becoming a Nation of Readers*, U.S. Dept. of Education, 1985. Beck, I.L., 1973. pg. 29

Some Problems with the Traditional Approach:

1. Too much information is given: When we say to the child, "This is a capital "A," this is the lowercase "a," the letter name is "a" and the usual sound it makes is "a," the child becomes confused and does not fully understand, because the information holds little, if any, meaning. Now multiply these tasks by the 26 letters of the alphabet and the child becomes overwhelmed.
2. Not enough information is given: When we fragment the alphabet, children do not see the alphabet as a whole entity. Unless they see the complete alphabetic picture, they will not understand its purpose. If they do not understand, they cannot utilize the information in reading or writing.
3. Children are expected to learn from abstractions: We give children abstract symbols which they should understand and relate to a specific sound. Additional obstacles are found with similar letter shapes: show a child a "b" and a "d." Can you imagine visually distinguishing this at five years old? Try these: "p" and "q." Or, try to distinguish auditorily the difference between the sounds of "e" and "i."

Some Solutions to the Problems:

Commit to a curriculum that provides strategies that present the alphabet and the formation of words with a brain-efficient, right hemispheric method.

1. Teach, first, the sounds and shapes of the entire alphabet in the daily presentation, postponing letter names and capital letters. Traditionally the alphabet is presented by showing a letter a week to kindergartners, it being divided into 26 weeks. When the alphabet is fragmented in this way, the brain cannot perceive a whole picture. What, then, happens to the child who is out with the chicken pox for two weeks (two letters unlearned), or a cold or the flu? How is their understanding of the alphabet affected?

   According to many researchers, *knowing letter names is the best predictor of beginning reading achievement.*[5] I would like to propose, again, in the interest of brain-efficient teaching, that we treat the letter names as secondary in importance to learning the sounds of the letters. Since we

[5] Marilyn Jager Adams, *Beginning to Read: Thinking and Learning about Print*, Center for the Study of Reading, 1990, pg. 30

do not read with them, letter names provide no useful purpose for the early reader. Therefore, it should follow that the sounds need to be taught first.

Example: A child raises a hand to ask the teacher how to spell the word cat. The teacher responds, verbally, with the letter names: "c-a-t." The "c" in the verbal spelling does not sound like the hard sound of "c" in this word. The "a" in the spelling does not sound like the "a" in the word cat, and the "t" doesn't sound exactly like the pronounced "t." Rather than hit the bull's eye of target teaching, we have just created an educational roadblock. We have just missed a great educational moment. The above statement would better be read, "knowing the *sounds of the letters* is the best predictor of beginning reading achievement."

2. Teach lowercase letters first. We have been taught, societally, that teaching the uppercase letters first to the child is proper. We have justified it by saying it is easier for a child to form an uppercase letter than it is to form a lowercase letter. This is just not so. Some capital letters (E for instance), take more strokes than its lowercase counterpart. Each time a young writer has to pick up a pencil to locate another point on the letter for formation, the child looses his or her place. There are more pencil pick-ups with uppercase letters than lowercase letters. The reasons for teaching lowercase letters first are these:

   a. Books are mainly written with lowercase letters. When Mom is reading *The Napping House* by Don and Audrey Woods with her child snuggled in her lap, the letters are in lowercase. If the child has been taught the capital letters first, the child is denied the opportunity of fully participating in the text. If the child, though, has been taught the sounds and shapes of the lowercase letters, then the child can recognize more of the letters while mom and dad are reading. The opportunity to fully participate gives him/her the confidence to explore text in other areas.

   b. First and second grade teachers have to spend much of their time breaking the children's habit of writing with capital letters. Teach them correctly the first time around!

   c. Teaching both lowercase and uppercase (two totally different forms multiplied by 26) is overwhelming to the child. It is desired that a child not only exit kindergarten with a full understanding of the

sounds and shapes of the alphabet, but have capital letter and letter name mastery as well. Our premise is "Build the essential foundation of sound/shape first, then add the ancillary concepts, such as capital letters and letter names."

The following paragraph will help explain how to teach the sounds and the shapes of the letters for alphabet mastery:

3. Because there is nothing inherent in the visual symbol that suggests its name or sound,[6] one must develop that "something" that causes the child to make the letter/sound connections. If a teacher uses pictures that relate to the sounds of the letters and uses the child's modalities to learn and remember the sounds, these techniques will provide a safety net for memory and retrieval. Without these connections there will be no understanding. Without understanding, there is no retention, usage or transference. Here is an example of right hemispheric, brain-efficient sequential teaching using pictorial mnemonics:

a.  bear  deer

b.   [7]

c. b d

These examples represent the transition from picture (a mnemonic), to picture/letter (still maintaining its mnemonic, concrete quality), transitioning to the abstract letter, which, in good time, is our end result. To re-state, a)

[6] Linnea C. Ehri, Nancy D. Deffner and Lee S. Wilce, *Pictorial Mnemonics for Phonics, Journal of Educational Psychology*, University of California, Davis. 1984, Vol. 76, No. 5, pg. 880

[7] Bradshaw, Clark and Wrighton, Zoo-phonics, A phono-visual, tactile, kinesthetic approach to Phonics, Reading and Spelling, 1985

this presentation of the alphabet begins with a right hemispheric presentation through the picture, b) keeps its right hemisphere presentation as it makes its transition to the abstract, (seen by the picture placed on top of the letter), c) then fully and successfully moves to a left hemispheric task, which is the letter.

Which is easier to remember for a five year old:

this:  or this:  ?"

The visual impact of the bear, which easily demonstrates the "buh" sound, cements the sound to the letter. Presenting letters in their abstract forms to young children delays memory, understanding and usage. Presenting the alphabet in a brain-efficient manner produces utilization because there is understanding.

"Many other studies confirm that paired-associate learning in children is much improved when learners create or are provided with concrete, meaningful, interactive and imaginable connectives that link the stimulus and response terms in memory."[8] But, this is not all. The following paragraph will demonstrate the most important component to memory success.

4. Attach a motor movement, (also a mnemonic, right brain stimulus), which is directly related to the picture/letter, establishing the sounds to the letters. The brain uses this device to cement the information into memory, then uses the same device to retrieve the information from the brain when needed for reading and spelling activities.

Let's go back to the bear: A child looks at the picture of the bear and associatively "sees" the shape, which is in the shape of the letter, (unbeknownst to the child as yet). The child is then taught a body gesture

[8] Linnea C. Ehri, Nancy D. Deffner and Lee S. Wilce, *Pictorial Mnemonics for Phonics, Journal of Educational Psychology*, University of California, Davis, 1984, Vol. 76, No. 5, pg. 881

by having him use his hand to reach into the air like a bear "paw" reaching for honey from the hive and bringing it to the mouth. Specifically: the child reaches up with his hand, pulls the hand down to this mouth as if eating honey, and says "buh." At this point all modalities (eyes, ears, mouth and limb) have been involved in the beginning reading and spelling process. It's commonly believed that when you hear something, you retain 10% of the information. If you see it and hear it, you retain 30%. If you see it, hear it and say it, you retain 40%. But, if you hear, see, say and DO it, (participate with the information), you retain 70-100% of the information. Teachers need to use a multi-modal approach to teach the reading and writing process, capitalizing on the childrens' natural tendency to wiggle. By using pictures in place of abstract symbols the brain is better able to retain the information within the memory bank. A body signal done simultaneously with the visual aide stimulates the muscles, nervous system and both hemispheres of the brain. The body movement becomes internal and automatic cueing the brain to utilize the information recorded visually, auditorily and kinesthetically.

In a short time, after all the body gestures (signals to the brain) and sounds have been mastered, the teacher presents the picture of an animal placed on top of a letter. The child now accepts the idea that the animal is in the shape of a letter, and that every time that child sees that animal/letter, she or he makes the "buh" sound. It will not be long before the child is seeing just the letter in text and will be able to make the sound as she or he does the body movement or signal.

Learning the alphabet in this fashion will take a matter of days or a few weeks as opposed to 26 weeks. Taught in its totality with every presentation, the child will become aware of the makeup of words. They will notice the letters in various textual forms (books, cereal boxes, road signs, headlines, etc.).

Research supports this methodology: "Rohwer (1966) investigated various kinds of associative mnemonics in young children and found that the best connective for remembering words were meaningful **"actor-action-**

object" relationships."[9] Bakker further supports it with this comment: *"the tactile-receptive systems of the hands provide for another access to the hemispheres ... The consistent results of the various investigations may warrant recommendation that the right hemisphere ... should be directly stimulated in order to improve (student's) accuracy and efficiency in reading and spelling."*[10]

5. Teach spelling as a vital part of the school curriculum. Because spelling/writing are a watermark of success, writing and spelling are the factors that separate the person from higher education or the profession of choice. A person may have all the talent, intelligence and/or creativity in the world, but without mastery of written language, this person is not able to accomplish his/her goals.

   a. Spelling can no longer be treated as an incidental activity. Many teachers in California express that they don't teach spelling. Often word lists (if given at all) are sent home for study.

   b. Spelling must be taught as a vital, consistent and integrated part of the reading curriculum. It should be supported by the literature used in the daily presentation. This gives a child a reason for studying spelling.

   c. Word families, rather than high frequency words, should be taught to first and second graders. Think about a first grade child trying to master words such as, "of," "said," "there," "was," "because," etc., in one week's spelling lesson. Teaching random information (abstract and left-brained) makes it difficult for students to assimilate this type of information for future use. Many can memorize a list for the spelling test on Friday, but on Monday, there is little transference when writing in journals. There is no meaning nor connection. Research states that children are pattern seekers and pattern makers.[11] After the child has mastered the alphabet and can identify the sounds in text, the next logical step is to combine the letters (still in the picture/letter form for right hemispheric strategies)

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[9] Linnea C. Ehri, Nancy D. Deffner and Lee S. Wilce, *Pictorial Mnemonics for Phonics, Journal of Educational Psychology*, University of California, Davis, 1984, Vol. 76, No. 5, pg. 881

[10] D.J. Bakker from, I. Flehmig & L. Stern (Eds), *Child Development and Learning Behaviour*, N.Y., 1986, pg. 358

[11] Frank B. May, *Reading As Communication: An Interactive Approach*, 1990, pg. 220

to form words. If the children see the pattern (remember, it will be introduced with the pictures and placed into memory with a body signal), memory will take place more easily.

It is crucial that children understand the purpose behind the phonemic analysis being presented. The teacher must tie the "a-z's" into all text (tying initial, medial, and ending sounds into literature, other textual experiences and classroom environment); and when broadening reading and writing skills, the teacher should tie the phonemes into the literature and other text.

6. Give children books that they can **read**. First and second graders must have reading books that they can read independently. Ask any first grade teacher and she or he will tell you that many of their emerging readers are not able learn how to read from literature books alone. The text is too difficult and unpredictable. These students need readers so that they can experience successful independent reading. It is necessary for students to be taught decoding so that they are able to sound out unfamiliar words that may already be in their oral vocabulary.

7. Reading and spelling errors must no longer go uncorrected. Teachers should allow room for young writers to write without fear of making mistakes. Inventive spelling was encouraged for this very reason and the results have been positive in that students are writing more freely. But, many interpreted it to mean that spelling need not be corrected or taught. But if spelling is taught, high frequency words have often been used as spelling lists. The brain does not easily store such random information. The same type of philosophy reigned in reading. It has been believed that children's reading should not be interrupted by the teacher to correct miscues. If the child continues to repeat the same mistake it becomes a problem. We must remember how the childs brain stores information. Mistakes left uncorrected are remembered.

Everything we do in teaching the primary-aged child has to be taught with efficiency. What is it costing the child and teacher in time? In frustration? In success? In failure? If I teach a lesson that is abstract and unobtainable to the brain for understanding, retention, mastery and transference, then I have just wasted everybody's time, especially the child's.

Every child must become a reader and having been in the classroom for the past twenty-five years as a teacher has given me the confidence to state that teaching children how to read and write is within our grasp.