

If You Teach Them To Write They Will Read

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Abstract

There is a reading crisis in the U.S. where many teachers do not know how to teach children to read. “You learn to read from kinder to 3rd grade, so that you can read to learn from 4th grade on.” Unfortunately sixty five percent (65%) of all US fourth graders cannot read at grade level. (The Annie E. Casey Foundation: *National KIDS COUNT*. 2015). Research makes it clear that most children require direct instruction in order to learn to read. (“National Reading Panel” Chapters 2 & 3. 2000) Over a period of 40 years, the writer has prepared more than 2,500 Montessori Teachers in Canada, U.S.A., Mexico, Costa Rica, Panama, Ecuador, Brazil, France and Switzerland. His alumni have opened 25 Montessori schools in Costa Rica and more than 100 Montessori schools in Mexico. The author and his alumni have used the teaching strategies described in this monograph to teach thousands of children to write and read successfully. This study also challenges the *Conventional Wisdom* that “books are in print so we must teach children to print.” The writer’s research demonstrates that *Conventional Wisdom* is wrong and he challenges the reader to consider the benefits of teaching children to master longhand cursive writing instead of print, because it facilitates both the process and the quality of writing and reading.

Keywords: Phonemic awareness, writing to read

Introduction

There is a reading crisis at all levels in the United States. Thousands of preschool programs offer no reading instruction of any kind to children from 3 to 5 years of age, a time in their lives during which they have a sensitive period for the development of literacy skills. Many universities are notably inept at preparing teachers that can teach children to read. Sixty five percent (65%) of U.S. fourth graders cannot read at grade level. In Georgia

that number is sixty six (66%). That is one of the reasons that Georgia ranks 47th out of 50 states in Education.

The *Annie E. Casey Foundation* produced a research study entitled “Early Warning! – Why Reading by the End of Third Grade Matters” (2010). The Annie E. Casey Foundation’s (“National KIDS COUNT”, 2015) indicates that 4th Graders in Georgia now have the following reading skills:

Location	Achievement Level	Data Type	2007	2009	2011	2013	2015
Georgia	Below basic	Percent	34%	37%	34%	33%	32%
	At or above basic	Percent	66%	63%	66%	67%	68%
	Below proficient	Percent	72%	71%	68%	66%	66%
	At or above proficient	Percent	28%	29%	32%	34%	34%

According to the National Assessment of Educational Progress Report, fewer than one third of eighth graders read at a proficient level (“NAEP -*The Nation’s Report Card*”, 2015). Today millions of students are leaving school unprepared for college, for work, or for the many demands of adulthood.

According to *Business* magazine, in the United States, an estimated 15 million functionally illiterate adults held jobs at the beginning of the 21st century. The American Council of Life Insurers (2016) reported that 75% of the Fortune 500 companies provide some level of remedial training for their workers. All over the U.S.A. 30 million (14% of adults) are unable to perform simple and everyday literacy activities (“National Assessment of Adult Literacy–Demographics–Overall”, 2003)

The Scientific Continuum

When I visit public school Kindergarten classrooms, I find teachers presenting one capital letter per week for 26 weeks and at the end no child can read and no child can write. If we want to teach **all** of the children to read, then first we must teach them to write. I know, this idea may seem counterintuitive, because most teachers in both public schools and in university classrooms are doing the exact opposite, but please hear me out.

The idea that I would like to share with you here is that my research clearly demonstrates that learning to read is achieved most easily when you respect the *Scientific Continuum* that contains the logical order and

sequence of steps that will inevitably lead to reading. Here is the conceptual framework for that continuum.

First, tell me how many letters you can write at one time. You can only write **one** letter at a time, right? But, when you read you have to read **many** letters at the same time! Writing one letter at a time is **easy** but reading many letters at one time is **hard!**

The *Scientific Continuum* which identifies the most effective way to teach reading says the same thing: we need to learn to write first, because it is easy and we need to develop the skills to read second, because it is hard. In any event, I should think that logic should lead us to come to the same conclusion, don't you? It is better to **proceed from easy to hard**. So, let's teach writing first and then teach reading second, not the other way around. Now take a look at the rest of the requirements of the *Scientific Continuum*.

First We Write, Then We Read

1. Writing comes first because writing one letter at a time is a **simple task**.

Reading comes second because recognizing many letters at one time is a **complex task**.

The *Scientific Continuum* requires us to **go from the simple to the complex**, from writing to reading, not the other way around.

2. Writing comes first because writing one letter at a time is **analysis**.

Reading comes second because reading many letters together is **synthesis**. Here again, the *Scientific Continuum* requires us to go **from analysis to synthesis**, from writing to reading, not the other way around!

3. Writing comes first because you can **only write what you know**.

Reading comes second because you **read what you don't know**.

You *literally cannot* write what you don't know (no pun intended). When we have taught children phonemic awareness, and they know both the sounds and the symbols of the letters, they can write them down one at a time and say their sounds. They can also write the name of a known object such as "cat" by sounding out the letter sounds in that word as they write down the corresponding letters: **c, a, t one at a time**. Even a three year old child can do that with the moveable alphabet. But a child cannot write down the letters of a word that s/he doesn't know and has never heard, **and neither can you**.

If I ask you to write the English noun *lucky* in German, you will not be able to write it if you don't know German. Even if I give you a hint that it sounds and looks a lot like the English word, you will not come up with *Glücklich*, unless you know the word and know that the word has an umlaut over the *ü*, that the "k" sound requires both "c" and "k" and, that all German

nouns are capitalized. It is very clear then that **we can only write what we know!**

Reading comes second because **you read what you don't know**. When you receive a letter or pick up a book, a newspaper or a magazine, you have no idea what message it contains until you read it. We write what we know and we read what we don't know. The *Scientific Continuum* requires us to go **from the known to the unknown**, from writing to reading, not the other way around!

In our Montessori classrooms we teach 3 year old children to recognize the initial sound of each letter with a research based set of Key Words: *cup* – “*c*”, *apple* – “*a*”, *mitten* – “*m*” etc. Then we teach them to recognize the final and medial sounds of the letters in many short, three letter words with the *I Spy Game*. Soon we show our 3 and 4 year old children how to trace the sandpaper letters so that they learn to recognize the symbols for those letter sounds. They remember those letter symbols more easily because they already know a key word that tells them the sound of that letter.

Young children do not yet have the skill to use a pencil for writing, however, once they know the sounds and symbols of the letters, our 3 and 4 year old children are able to write words they know with the movable alphabet. Dr. Montessori designed a Cursive Movable Alphabet made up of red vowel letters and blue consonant letters stacked in separate compartments in a box. Vowels are red because they are the loudest part of speech and consonants are blue because, as the word indicates, they “sound along” with the vowels. (Montessori, 1912, p. 261)When we present writing to a child, we first give him some familiar objects for three letter words that have a short vowel in the middle. We have lots of short vowel words in English for that purpose: *cat, bed, pin, top, cup, hat, mat*, etc.

We invite the child to say the name of the object: *cat*, and then to say the sound of each letter in the word as she picks up the corresponding letters from the movable alphabet box. We show the child how to place the selected letters in her hand, because she is symbolically putting them together into a word. Then she places the letters in random order on the felt below the line. She points to the object and says *cat* again and then sounds out the letters as she places them in order one at a time on the line.

The child makes sure that the cursive letters all **walk on the line and hold hands**, as she has been shown. One of the many benefits of cursive writing is that there are no spaces between the letters in a word. The purpose of this activity is to empower the child to perform the *analysis* of writing many words that she knows even before she is able to use a pencil. She is writing, not reading. To help her focus on writing, we NEVER say the word *cat* after all the letters have been placed on the line in this exercise, because

that would be reading. At this stage the child is developing the analytical skill of writing one letter at a time!

One day **the CHILD himself discovers the synthesis of reading!** Quite suddenly the child becomes aware that the letters he has just set down together, the three letters that are *holding hands on the line: cat*, are the word itself and he has just recognized it. That is a wonderful, empowering moment in the child's life. It is better than all the holidays and birthdays put together. No one has "taught" this child to read. **He has discovered reading "all by himself!"** He often happily tells everyone that he can read, and he wants to write and read all of the words he knows.

There is a sense in which Montessori teachers do not teach children to read, as guides, they simply "show the way" so that each child will discover reading for himself or for herself. All of the children in a Montessori classroom learn to read because the Montessori Guide has diligently followed the research based, *Scientific Continuum*, which has prepared her students to discover the synthesis of reading for themselves.

Once their reading skills are established, children are soon reading the many classroom language materials as well as the words on signs, in books and magazines. Children especially enjoy sounding out and reading very long, unknown words like *antidisestablishmentarianism* and the delightful 34 letter word *supercalifragilisticexpialidocious*, sung by Julie Andrews and Dick Van Dyke in Disney's 1964 Musical Film: *Mary Poppins*. As they increase their ability to read unknown material with understanding, they will acquire the ability to read hundreds of "sight words" at a glance. Many will also develop the skill of reading whole sentences and scanning entire paragraphs quickly for meaning as they progress through the grades.

Thus, when we teach children to write and to read, the *Scientific Continuum* requires us:

- **to present what is easy first and what is hard second**
- **to go from the simple to the complex**
- **to go from analysis to synthesis**
- **to go from the known to the unknown**

The research based *Scientific Continuum* requires us to teach writing first because it will lead to the discovery of reading, not the other way around. The logic is clear: **If you teach children to write they will read!**

The Scientific Analysis of Writing

The scientific analysis of the writing process reveals that it is composed of three factors.

1. The Alphabetic Factor -- *The ability to associate the sounds of letters to the letter signs used to compose words in the written language.* In

the Montessori classroom, children develop *phonemic awareness* by learning the sounds of the letters with Key-Word objects and cards. Then, when they are presented the letter symbols with the **Sandpaper Letters**, the Key-Word serves as a mnemonic device to help them recall the sound of each letter. As the child traces the rough texture of the letter sign on the Sandpaper Letter board, the teacher will give him the sound of that letter and will remind him of the Key-Word associated with that letter.

2. The Orthographic Factor -- *The ability to identify all of the sounds in a spoken word and to collect the symbols which represent them in the correct order.* The next step in developing the skill of writing is to show the child how to collect the letters for a word s/he knows in the correct order from the **Movable Alphabet**. The Movable Alphabet makes it possible for 3 and 4 year-old children to write the words they know, even though they have not yet developed the skills required to use a pencil or a pen.

3. The Manual Factor -- *The ability to hold and use writing instruments.* Finally, Montessori Guides use **Metal Insets** of Geometric figures to help the child develop the skills s/he needs to use the implements of writing. She demonstrate how to use colored pencils to trace around the metal frames (counterclockwise from 12 o'clock) and around the metal insets (clockwise from 7 o'clock). Then she demonstrates how to fill in the single and combined geometric figures that the child has traced with contiguous short strokes with colored pencils.

Teach Them to Write Cursive, Not Print

I know, I know, this is another counterintuitive statement that you probably do not think should even be considered because *Conventional Wisdom* states that books and magazines are in print and computers and tablets are in print, so we must teach print. Anyway, we are told that we can't teach cursive because every teacher in every public school classroom in the U.S. teaches print not cursive, and many schools no longer even teach cursive writing in the second grade, as they used to.

It is probably also the opinion of the vast majority of parents that we should only teach print and that anyone who suggests otherwise ought to have his head examined. So, since the *Conventional Wisdom* of our times, the school systems, the teachers, and the majority of the citizens of the U.S. all think that we should only teach print and not cursive, then, we should only teach print, right?

Wrong! The historical record is full of long periods of time during which the entire world believed something that was completely false. For over one thousand years the conviction that the sun rotated around the earth was the *Conventional Wisdom* of the times. This universally held belief was presented by Aristotle, refined by Ptolemy and assimilated into a religious

dogma by Thomas Aquinas so that during the Inquisition, everyone was required to believe it. Finally, a few brave souls discovered evidence that the *Conventional Wisdom* of the times was totally wrong -- and not at all wise.

Let me share with you the scientific discoveries which make clear that the *Conventional Wisdom of our time*, which says that we must teach only print, is also totally wrong and not wise.

Manuscript Writing

For centuries very few people could read. The reading material that was available was laboriously produced by highly skilled calligraphers. The Scribes and Monks used highly stylized, frozen letters, meticulously copied from other texts onto papyrus or sheets of parchment. Their goal was to reproduce the letters exactly like they had been drawn in the document they were copying. Each letter of the alphabet was copied **exactly the same way every time** so that the reader would have no trouble recognizing it wherever it was used.

For several centuries, a highly skilled but very small number of men (yes, mostly men) were the scribes and recorders of the written word. The work of these calligraphers was called a “manuscript” because it was the product of a man's **hand** (*manus*) in a “written” (*scriptum*) form. Originally, the word “manuscript” meant “hand written,” because for centuries texts written by skilled calligraphers were the only kind of writing that there was. Today, the art of “manuscript” writing is still limited to a few highly skilled **calligraphers**.

When Gutenberg invented the printing press, it soon replaced the writing of books by hand. However, the word “manuscript” continued to identify the letters used to print books and **the word “manuscript” is still used to identify print style writing by children in U.S. schools today!**

Amazingly, “manuscript” or “print” writing, the skillful drawing of separate, identical letters, is now the form of writing that is being taught in American schools **to our youngest children: who have the least developed coordination skills**. American Education has taken the most difficult and stylized form of writing -- that form of writing which for centuries was only reproduced by the most highly skilled calligraphers -- and has determined that **this form of writing should be taught to our youngest children!**

Longhand Writing

A century before the invention of the printing press, the need for a convenient means of *personal communication* ushered in a **new form of writing** in Europe. By the 14th century men of science and letters, and especially of the Church, were writing to each other. The scientists and Vatican scholars used a slim, *connected form of writing that was much*

easier to produce. In fact, this was the first true form of “handwriting” because it did not need to be carefully **drawn** like the frozen, separate letters used by calligraphers in their medieval manuscripts.

After the printing press was invented, a printer in **Florence, Italy**, liked the looks of longhand, cursive handwriting so much that he created a new font that looked like it. Because the first book that he published with that font was about Italy, from that day to this, the new font he created, which resembles cursive longhand, has been known as *italic*.

We now call the connected form of handwriting: *cursive* or *longhand* or *running hand*. The dictionary describes it as *a rapid handwriting in which letters are set down in full and cursorily connected within words without lifting the writing implement from the paper*. The handwriting created by the scientists of the 14th century evolved into the beautiful, cursive *longhand* that has been used in Europe and America to effectively teach writing and reading for more than 500 years. It was *longhand writing* which made it possible for more and more people finally **to learn first how to write and then, how to read**.

Cursive longhand took the pen out of the hand of the professional calligrapher and placed it into the hand of the common man, and finally, into the hand of the child! By the 18th Century, every educated person could write in cursive longhand. Witness the beautiful handwriting of Thomas Jefferson in the Bill of Rights and the Declaration of Independence of 1787, as well as in the Federalist Papers and other documents written by Alexander Hamilton, James Madison and John Jay.

At the beginning of the 20th Century, Dr. Maria Montessori taught every child in her *Casa dei Bambini*, in the San Lorenzo district of Rome, to write and to read with beautiful cursive longhand letters! The museum in the Apartment where Maria Montessori was born, in the village of Chiaravalle near Mantova on the Adriatic coast of Italy, still has a set of the graceful cursive capital letters that Dr. Montessori herself cut out so carefully, as well as sets of the cursive sandpaper letters and movable alphabets that she used to teach children to write and read.

Any of you, who like me, grew up in the first half of the 20th Century and was educated in Europe or Africa or North or South America, learned to write with cursive letters. The Palmer Method of cursive writing was most prevalent in the United State for half a century. It was routinely used in most schools to teach writing as well as to practice writing until one was highly skilled in doing so. Even though we learned to write cursive longhand, we had no difficulty learning how to read the printed word in books.

In the middle of the 20th Century educators in both the U.S. and France began considering the *Conventional Wisdom* that we should teach

print instead of cursive, **because books were in print.** Unfortunately, **no careful research was conducted in the U.S. to challenge that idea.**

Experiments in the U.S. and France

In the nineteen forties and fifties American and French educators sought to “improve education.” Both countries began to teach children to print in school. Within two years, French educators evaluated the results and discovered that it had been a horrendous mistake, so **they changed back to teaching cursive writing in the French schools!**

Most American Educators **still have not discovered the damage this process has caused!** The insistence that all young children in U.S. schools must learn to draw identical print letters, like calligraphers, instead of using the natural, flowing longhand form of writing, that was so successful in promoting literacy in Europe, Africa and North and South America for over 500 years, has contributed dramatically to the exponential increase in the number of school children that do not learn to read by third grade. As a consequence, they are unable to learn by reading from fourth grade on, and they begin dropping out of school in middle school and high school. Many of those children grow up unable to continue their education, unable to get an a job and when they get into trouble they end up in overcrowded jails across the U.S. The U.S. has the highest number of its citizens in jail than any other country.

The Paradoxes of Science Show a Better Way

In 1543 a Polish mathematician named **Nicolaus Copernicus** published a scientific treatise entitled ***De Revolutionibus***, in which he demonstrated mathematically that it was the earth which revolves around the sun and not the other way around, as everyone on earth had believed from time immemorial. The great Dutch Scientist, **Erasmus**, stated that it was the most important study he had ever read. Some 60 years later a copy of that treatise fell into the hands of Galileo Galilei, an Italian optical instrument maker who invented the first telescope.

By his own account in 1610, Galileo stated that he had tested his telescope ***100 times on 100,000 stars*** and he was convinced that his observations proved that Copernicus' discovery of a heliocentric solar system was correct. Galileo had already been an object of great controversy in Italy, because he had asserted that all objects fall at the same rate of speed, even if they are of different weights. He proved it by dropping objects of different weights simultaneously from the Leaning Tower of Piza. My family and I had the fun of replicating that experiment when we visited Piza in 1980. We proved again that Galileo was right!

When Galileo also stated that the earth rotated around the sun, the Jesuits tried him for heresy in 1633. He was 70 years old and infirm. Threatened with torture, he recanted all of his works and died a prisoner of the Inquisition.

By demonstrating that all objects fall at the same rate, regardless of their weight, and by observing that the earth rotates around the sun, **Galileo became a Crusader for the Paradoxes of Science against the Tyranny of *Conventional Wisdom!***

Research Now Gives Us a New Scientific Paradox

This New Scientific paradox again challenges us to do the exact opposite of what *Conventional Wisdom* currently demands that we do.

1. It flies in the face of the most widespread teaching methods used in the United States.
2. It is contrary to what many parents and most U.S. teachers consider to be “common sense.”
3. But please do not pre-judge this New Scientific Paradox.
4. Do your very best to set aside your own prejudices and disbelief.
5. If, like Galileo, you take the time to look carefully at this new scientific paradox through the telescope of research and the lens of understanding, you may also be convinced to become a **Crusader for the Paradoxes of Science against the Tyranny of *Conventional Wisdom!***

The New Scientific Paradox

Thirty years of research in the development of language and literacy skills with young children has provided us with new insights (Meadows.1979). I have worked with children who spoke English, Spanish, French, Chinese, Japanese, Vietnamese, Korean, Farsi and the Mexican Indian dialects of Nahuatl and Otomí. Research with all of these children produced three clearly defined principles:

1. **Children learn to read more easily if we teach them to write first!**
2. **Children learn to write and read more easily if we teach them to write cursive longhand first!**
3. **Children can transfer their ability to read cursive writing easily to the reading of print, without ever having to write printed letters!**

Research Shows that Cursive Writing is Easier for Perceptual Reasons

1. There are almost no straight lines in nature. As a species, our eyes have not seen and our brains have not perceived straight lines for very many

years. Our brains do not recognize straight lines as easily as they do the graceful curving lines of cursive letters.

2. Many print letters are composed of straight lines connected to perfect circles. This makes it harder for the visual sensory integration centers in the brains of young children to decipher them.

3. Many children are slow to develop certain perceptual skills and so take even longer to be able to decipher the straight lines and perfect circles of printed letters.

4. Children with **Specific Developmental Learning Disabilities** have an especially hard time recognizing and reproducing the straight lines and perfect circles of printed letters. For over 60 years, these children have been subjects of careful research by the **Luke Waites Early Learning Center** at the Scottish Rite Crippled Children's Hospital in Dallas, Texas. Studies by Dr. Lucius Waites, a Board Certified Neurologist and Ailet Cox, a Language Therapist and their staff at the Dallas Early Learning Center, have demonstrated that **cursive writing and reading** is much easier for dyslexic children to perceive, to decode and to master.

5. This writer's own research and implementation of these principles has shown the very same results with thousands of normal children in nine countries. They have learned to write and read more easily and effectively with cursive letters than they have with print.

6. Cursive letters provide more visual clues than print letters which makes them much easier to identify.

7. Printed letters sometimes have "serifs," those extra little lines at the top and bottom of the letters like the ones in this manuscript, which make them easier to identify. The print letters that children are taught to write have no serifs. They are like the letters now being used in this paragraph. They are much more difficult to distinguish one from the other. For instance, the "d," "b," "p" and "q" are all the same letter just turned four different ways. These letters are especially difficult for dyslexic children to distinguish one from the other. To many children, printed letters look like a jumble of circles and sticks: "o l l d o o l o l o p o l o" which mean nothing.

8. The longhand d,b,p,q letters look entirely different and cannot be confused with each other.

9. Printed letters are all separate. Children cannot always tell if the next space is between two words or just between two letters. For them a line of text can look like this:

C a n y o u r e a d t h i s s e n t e n c e a s e a s i l y a s t h e r e s t o f t h i s t e x t ?

10. Cursive letters go hand in hand.

Spaces only appear between the words so that there is no confusion regarding where each word begins and where it ends.

Research Shows that Cursive Writing is Easier for Physical Reasons

1. Drawing straight lines and perfect circles is extremely difficult for a child with minimal sensory and motor skills to achieve.
2. It is hard to draw perfect vertical lines because the weight of the arm makes one draw a curved line instead of a straight line.
3. Perfect circles are even harder to draw because they require an imposed, sequence of movements across the midline, unlike any natural movements the child might normally make.
4. Being required to make lines and circles come together tangentially increases the difficulty exponentially.
5. Each time you pick up the pencil from the paper, in order to draw another part of a letter or a separate print letter you increase the potential for error.
6. All but 7 printed letters require precise, stylized movements that must be drawn instead of written.
7. Cursive letters are easier because they are made with one continuous movement which can be corrected and refined as you go.
8. Printed letters start at many different positions.
9. Cursive letters all start on the line with an approach stroke that moves upward and to the right. This is the easiest and most natural movement to make and to control.
10. Children have trouble with left to right orientation. The approach strokes of cursive letters help establish left to right orientation because cursive letters all start **from the left and continue toward the right**.

Brain Research Shows that Cursive Writing Provides Multiple Benefits

1. Brain imaging studies show that when you write a print letter, **only the *pattern recognition area*** on the right side of your brain lights up. Whereas, when you write a cursive letter, **all the parts of your brain that are used for reading light up!** “Brain imaging studies reveal that multiple areas of brain become co-activated during the learning of cursive writing ... as opposed to typing or just visual practice.”

(Klemm, William R. in “Psychology Today”, March 14, 2013)

2. A University of Indiana study found that the brain’s “reading circuit” of linked regions that are activated during reading, was also activated during hand writing, but *not* during typing. This lab has also demonstrated that writing letters in meaningful context, as opposed to just writing them as drawing objects, produced much more robust activation of many areas in both hemispheres. Reported by James and Engelhardt: *The effects of handwriting experience on functional brain development in pre-literate children* in Trends in Neuroscience and Education (James & Engelhardt. 2013)

Cursive Writing Enhances Creativity and Improves the Quality of what is Written!

1. MRI studies show that the ability to write cursive longhand quickly and well improves the quality of composition because the brain of a person with good handwriting skills activates more areas associated with cognition, language, and executive function than those with poor handwriting skills. “Lacking fluency in handwriting causes difficulty in composition, as thoughts cannot get on the page fast enough.” (Doverspike, Jennifer in “The Federalist”, 2013)

2. Cursive writing helps you integrate knowledge -- “Cursive writing helps train the brain to integrate visual, and tactile information, and fine motor dexterity. School systems, driven by ill-informed ideologues and federal mandate, are becoming obsessed with testing knowledge at the expense of training kids to develop better capacity for acquiring knowledge.” (Klemm, William R. in “Psychology Today”, March 14, 2013)

Like Galileo, let us also Challenge the Tyranny of Conventional Wisdom

Conventional Wisdom Says: "You can teach a child the alphabet but you should not attempt to teach a child to read and write until he is five or six."

Research Has Demonstrated: that children pass through important sensitive periods for the acquisition of language and literacy skills long before they are six

After she became acquainted with the work of the Dutch Biologist, Hugo DeVries, Dr. Maria Montessori's scientific observation of children lead her to discover the *Sensitive Periods of Development*, which contemporary brain studies have also confirmed. ! (Montessori, 1972)

Montessori’s research shows that:

1. The primary sensitive period for the acquisition of oral language is from birth to 3 years of age, which coincides with a period of massive growth of the child’s brain.

2. The sensitive periods for the refinement of small motor prehensile skills that are used in writing, and the further development of oral language skills, occur between 2.5 and 5 years of age, during another important period of brain growth.

3. The sensitive period for the development of phonological awareness (sound recognition), sound/symbol association (analysis) and reading (synthesis) which are required for a child to learn to write and read successfully also occur between 3 and 6 years of age!

Conventional Wisdom Says -- "If you are taught to write cursive you won't be able to read books."

Research has Demonstrated – That millions of people all over the world have learned to read completely different alphabets by association

When I was three years old my parents enrolled me in a German school in Puebla, Mexico where I had a Montessori Teacher. By the time I was four I had learned to write and read in German with the *Sütterlin script*, a form of German cursive longhand that was modeled on the elegant style of writing used in the old German Chancery in Berlin. It was taught in German schools both at home and abroad from 1915 to 1941. It looks like this:

*Allen Menschen sind frei und gleich an Würde und Rechten
geboren. Sie sind mit Vernunft und Gewissen begabt und
sollen einander im Geist der Brüderlichkeit begegnen.*

I was then able to transfer those reading skills to the reading of books that were printed in the **Fraktur Alphabet**, which was used for printing German books from the 16th century until 1940. In the past it was called *Deutsche Schrift* (German writing). Fraktur was also used for a number of other languages, including Finnish, Czech, Swedish, Danish and Norwegian. It looks like this:

**Alle Menschen sind frei und gleich an Würde und Rechten geboren.
Sie sind mit Vernunft und Gewissen begabt und sollen einander im
Geist der Brüderlichkeit begegnen.**

This text is a translation of Article 1 of the “Universal Declaration of Human Rights” which reads:

*All human beings are born free and equal in dignity and rights.
They are endowed with reason and conscience and should act towards one
another in a spirit of brotherhood.*

Because I could already speak Spanish and English, within a year of learning to write and read in German, I was able to transfer my German literacy skills to the writing and reading of Spanish and English with the Roman alphabet **without any instruction!**

Some may consider this to be unusual but it is not. Literally millions of children, who have learned to write and read with other forms of writing such as the Cyrillic, Greek, Persian, Arabic, Hebrew, Korean, Vietnamese and other alphabets, have been able to transfer those skills to writing and reading with the Roman alphabet, in their own or other languages, with relative ease. This is the reason that children who are literate in another language before immigrating to the U.S. progress more rapidly in the learning of English than younger children who are not yet literate. Even children who learn to write with the Japanese Hiragana syllabic symbols and those who have learned to read and write Chinese logographs are able to

transfer those skills to writing and reading the Roman alphabet in other languages.

Conventional Wisdom Says: The best way for children to learn to read and write is to teach them both simultaneously, because each one will help the child learn the other.

Research Has Demonstrated That children acquire literacy skills much more easily and successfully when each element of the process is presented separately. Montessori calls this: *isolating the difficulty*. Contemporary research has also confirmed Montessori's observation that the skill of reading for most children begins with what today is called *phonological awareness*.

1. Children who will become good readers will first develop the ability to hear and identify individual sounds within words **before** they need to learn anything about the names of the letters and their symbols!
2. Children who are presented a specific set of **Key Words**, which provide the sound of each letter at the beginning of the word, find it much easier to remember and identify the sounds of the letters. (Montessori, 1912, p. 262)

Our research shows that the following Key Word order is the most effective: c-a-m; l-e-d; t-i-s;

g-o-n; p-u-r; b-k-f; v-x-y; w-j-q; h-a-z: because that order is based upon the frequency of the use of the letters in the language, not upon alphabetic order, which you can only use after you learn to read.

3. Once they can identify the various sounds which make up each word, children can learn more easily to associate the sounds they know with the specific letter symbols that represent them. This can be confusing in English and other languages in which many letters have more than one sound. In English the same vowel symbols stand for both short and long vowel sounds. For that reason we teach children to write and read words with short vowel sounds first. They learn to read by writing words with short vowels first and then we are able to introduce them to the sounds of long vowels. They have to know how to read first, because in English it is the very spelling of the words that tell us that a long vowel must be used.

Conventional Wisdom Says: all you have to do is to read to children and show them books and expose them to lots of print so that they will develop reading skills through *emergent literacy*.

Research Has Demonstrated That children who are read to by their parents and grow up in a print rich environment do develop an awareness of the importance of literacy and become interested in reading. Some, but not all of these children are able to discover the secret of literacy on their own. However, millions of children from literacy poor environments will not become readers through what is called *emergent literacy*.

Research shows that literacy does not “emerge” on its own, like the biological emergence of the child’s abilities to crawl, walk and run. For many children, especially those from lower socioeconomic levels where vocabulary development tends to be limited, the development of literacy skills is best accomplished through age appropriate motor activities and sensorial preparation, **and through research based, direct instruction!**

Research shows that teachers who use the following strategies with children from 2.5 to 5 years of age are the most successful in teaching children to write and read.

1. They provide plentiful **practical life** materials and activities which help children develop the motor skills and refined control of movement they will use in writing.
2. They provide plentiful **sensorial** activities for the development of the child’s visual, proprioception and vestibular senses which help prepare the visual integration centers in the child’s brain to perceive finely delineated figures like letters and numerals.
3. They introduce children to the sounds of letters by identifying them with a specific set of "Key Word" objects and illustrated cards. (*Op. cit.*) The initial sound of each word gives the child the precise sound of a particular letter, for instance: **cup “c”, apple “a”, mitten “m”**. The key word is always said first because it is the word which gives the child the sound of the letter being presented or reviewed. In this way children develop phonemic awareness of all of the letter sounds as the first step toward sound/symbol association and writing.
4. They use the "I spy game" with many objects to help children hear all the letter sounds within words.
5. They provide children with multi-sensory opportunities to associate letter sounds with their symbols by tracing the letters and saying their corresponding sounds with the Sandpaper Letters. They also help them associate the sound with the symbol, by reminding them of the “key word” for that sound which they already know.
6. They help children **analyze** all the sounds in a word by using the Moveable Alphabet to string letters together to form known three and four letter words with a short vowel in the middle. This allows younger children to “write” the sounds down even before they are physically capable of writing with a pencil or pen.
7. They prepare the child’s hand to use the instrument for writing through activities with sensorial materials and by tracing geometric figures with the metal insets and then refining their skill by filling in the figures with lines and with small controlled strokes with various colored pencils.
8. The child has the opportunity to **discover the synthesis of reading spontaneously** by putting letters together with the Moveable Alphabet. The

child looks at the picture of a cat and puts down the three letters for “cat,” sounding them out by saying “c” “a” “t”. Suddenly, one day the child himself discovers that together those three letters say *cat!* He can now read what he has written and will soon be reading everything else.

9. Research shows that if you present the analysis of writing first it will lead naturally to the spontaneous discovery of the synthesis of reading. Writing leads to reading because *you write what you know* but *you read what you don't know*. To be successful, we must proceed from the known to the unknown, not the other way around as many do. By effectively presenting writing to children first, they will inevitably proceed to the discovery of reading!

10. Some teachers, who are still trying to teach reading by using whole words alone, are not as successful because the whole word does not lead to the development of the analytical decoding skills that the child will need to decipher words s/he does not know. The *whole word* approach provides **no** opportunity for the development of the essential skills produced by the analysis of writing, thus, it will never lead to the spontaneous discovery of the synthesis of reading.

Conventional Wisdom Says -- Teach the names of the letters at the same time as you teach the sounds of the letters and do both in alphabetic order.

Research Has Demonstrated –That the child does not need to know the names of the letters until much later. The child will not need alphabetic order until s/he is prepared to use the dictionary and the phone book, **after s/he has learned to read**. Most children learn alphabetic order from the song anyway so teachers do not need to spend time trying to “teach” it.

Conventional Wisdom Says -- People who read fast know many "sight words" therefore use the "look say" global approach. Teach the whole word at one time with flash cards and books that repeat the same words over and over. Don't waste time on phonics.

Research Has Demonstrated That

1. When the U.S. reading teachers abandoned alphabetic phonics and the alphabetic code in the late 1930's, in order to use the “look-say” approach of guessing and memorizing the meanings of tens of thousands of words in print, they imposed an immensely more difficult task upon every child.

2. Even the Chinese, who must commit many logographs to memory, know how to break them down into their component parts. They also know how to construct logographs by combining the symbol of a root word with other logographic symbols to form other words.

3. Many children who have been exposed to the “Flash-Card/Look-Say” approach can in fact read many words quickly, however, when they encounter a new word, they do not possess the decoding skills with which to

sound it out so as to be able to pronounce it correctly in order to discover if they know it or not!

4. A child may have learned to read "**STOP**" on a flash card, but he will not be able to read "**POTS**" or "**TOPS**" or "**SPOT**" or "**POST**" four other words that are composed of the very same letters, unless he has learned the phonetic code.

WE MUST TEACH THE ALPHABETIC CODE WITH PHONICS

Most English words are spelled by the alphabetic code. It is composed of fewer than 200 letters and letter groups which stand for one or more of 45 basic sounds used in speaking English. Romalda Spalding, a renowned reading specialist, identifies 26 single letters plus 44 fixed combinations of two, three and four letters which together produce the 70 phonograms that we use to write the English language. (Spalding, 1957)

If we ever hope to reduce the tremendous illiteracy rate in the United States, American teachers must again teach children the sounds of the English language, so that they will be able to learn to write and read and spell words correctly like Thomas Jefferson and Benjamin Franklin and their contemporaries did so effectively!

Conclusion:

THE PARADOX OF SCIENCE TEACHES US

That we must teach Writing First Because:

1. We write what we know.
2. We read what we don't know.
3. Therefore, we must move logically from the known to the unknown.

That we must teach Cursive Writing Because:

1. If you teach print you increase the difficulty of both writing and reading enormously.
2. Children who were taught to write print found it much more difficult to master cursive longhand in second grade, when it was previously taught. The sensitive period for writing was long past and they already knew how to write print, so they did not have a strong motivation to learn to write cursive longhand.
3. If you offer cursive longhand first, you facilitate and enhance both the writing and reading acquisition process, because it is much easier for young children to achieve.
4. Children who learn to write and read cursive learn to read print by association in a week or less.
5. The Printed Word is all around us. Just about everywhere you look, there the printed word is! It produces enormous motivation for children to

learn to write and read it. Research shows that cursive writers develop the skill to print spontaneously. They do not have to be taught!

6. Print writing never produces the ability to write and read cursive longhand spontaneously.

A TWO YEAR SCIENTIFIC EXPERIMENT HAS PROVEN THE PARADOX

This writer conducted a two year experiment with four groups of children 3, 4 and 5 years of age in Montessori classrooms. All programs were developmentally based and children had ample opportunities to develop both motor and sensorial skills through the use of scientifically designed Montessori materials before attempting the development of writing and reading skills.

Group "A" was taught to write and read Cursive Longhand the first year and then learned to read Print by association the second year.

Group "B" was taught to write and read Cursive Longhand the first year and then was taught to write and read Print the second year.

Group "C" was taught to write and read Print the first year and then was taught to write and read Cursive Longhand the second year.

Group "D" was taught to write and read Print the first year and then learned to read Cursive by association the second year.

All four groups were monitored with regard to the rate at which they acquired writing and reading skills over the two-year period. They were also compared to each other with regard to the level of skill each group was developing in both writing and reading by both teacher observation and testing over the two year period. The results of the study are outlined below.

GROUP	WROTE	READ	LEARNED BY ASSOCIATION	SKILL LEVEL
A	Cursive	Cursive	Read Print	1
B	1 Cursive 2 Print	1 Cursive 2 Print		2
C	1 Print 2 Cursive	1 Print 2 Cursive		3
D	Print	Print	Read Cursive	4

Children in **Group A**, who learned to write and read Cursive Longhand and learned to read Print by association progressed at a faster rate and developed more effective writing and reading skills than children in all other categories!

Children in **Group B**, who learned to write and read Cursive in the first year, progressed at the same rate as their peers in Group A during that year. However, when they switched to writing and reading Print in the

second year, group B children soon fell behind the children in Group A, who only learned to read print by association.

Children in **Group C**, who started with Print progressed at the same slow rate as the children in Group D until they began to write and read Cursive in the second year. During the second year, the introduction of writing and reading Cursive allowed them to develop more effective writing and reading skills than children in Group D.

Children in **Group D**, who were taught to write and read in Print during both years and only learned to read Cursive by association developed much less effective writing and reading skills than the other three groups.

This research demonstrates that we have been using the least effective process to teach literacy skills to children in the U.S. for more than 50 years!

HERE IS WHY “JOHNNY CAN’T READ” IN U.S. PUBLIC SCHOOLS

1. His prehensile skills are not prepared adequately before he is required to use a pencil.
2. He does not receive sensorial preparation to enhance and refine the perception skills he will need to write and read.
3. He is not taught key words that identify letter sounds to develop phonemic awareness.
4. He is not taught to master sound/symbol association before attempting the synthesis of reading.
5. He is taught letter names at the same time as letter sounds, which is confusing.
6. He is often taught only one capital letter a week in Kindergarten so he enters first grade without knowing how to read.
7. He does not receive adequate instruction on how to write in Kindergarten so his writing is either atrocious or nonexistent when he enters first grade.
8. The first real attempts to teach him to read are inept or too late, often after he is six years old.
9. Teachers confuse him by attempting to teach him reading and writing simultaneously.
10. His teachers do not isolate each difficulty.
11. His teachers usually begin by trying to teach him reading before writing instead of going from the known (writing) to the unknown (reading.)
12. His teachers try to teach him the most difficult form of calligraphy -- the drawing of separate identical print letters first, often starting with capital letters which are only used at the beginning of a sentence and

for proper nouns. Two or three years later, they try to teach him the natural cursive form of writing, **long after the sensitive period for the development of writing skills has passed.**

13. Many University Faculty members who “teach reading” have themselves never taught a child to read. Many of them can theorize about how children are said to learn to read, however, they themselves do not really know how to teach a child to read.
12. Many curricula and the accompanying sets of texts that are selected officially by school district administrators, in response to pressure from publishers, require the teacher to use the least effective approach to teaching literacy skills to children.

NOW YOU KNOW WHY “JOHNNY STILL CAN’T READ!”

This serious national problem will not be solved until, like Galileo, many more teachers become Crusaders for the Paradoxes of Science against the Tyranny of *Conventional Wisdom*.

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