Literacy Education: Need We Start Early?

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Most people are convinced that children will have a powerful head start in reading if they are introduced to sounds and letters well before they start school. The conclusions of this paper are these: For the development of English literacy, early explicit teaching fails, but later, absorption in interesting and comprehensible reading works very well.

Early Literacy: Phonemic Awareness

Phonemic awareness (PA) is the ability to divide a word into its component sounds, i.e. the ability to take the word 'pit', and divide it into 'pe' 'i' and 'te'. It is thus an aural ability. It is frequently claimed that phonemic awareness is a prerequisite to learning to read, and children must be "trained" in phonemic awareness in kindergarten and grade 1, and even in preschool. Research and observations have however cast doubts on this claim, and suggest that phonemic awareness, beyond the most basic level, is the result of reading, not a cause.

No Evidence that PA Training Improves Reading Comprehension

Children who receive training in phonemic awareness improve on tests of phonemic awareness, but there is no evidence to suggest that PA training benefits reading comprehension, i.e. performance in tests in which children have to understand what they read. A review of research literature (Krashen, 2001a) produced only six studies and eleven comparisons in which researchers attempt to see if PA training has an impact on reading comprehension. Only three of the six studies dealt with English-speaking children. These studies revealed low, zero and even negative scores for the impact of PA training on comprehension, and in some studies the number of children who underwent the training was very small. There was only one study that reported substantial impact as well as statistically significant results in favor of those trained in phonemic awareness. This study was conducted in Israel with only 15 Hebrew-speaking children, who underwent PA training (Kozminsky and Kozminsky, 1995).

Another review (Krashen and Hastings, 2011) concluded that there is no evidence that PA training improves reading comprehension in a second language.

Low PA reads OK

It has been widely observed that many children with low or even no phonemic awareness learn to read quite well. Also, many children judged to have low phonemic awareness when young, develop good reading abilities later in life, and some adults who are excellent readers do poorly on tests of phonemic awareness (Krashen, 2001b).

A clear example of this is provided by Campbell and Butterworth (1985). Their subject, R.E., was a university student who "reads at least as well as her fellow undergraduates" (p. 436). This university student graduated from London University with second-class honors in psychology, and performed above average on standardized tests of reading. She had great difficulty in reading nonsense words, and while she knew the names of all the letters, she had difficulty with the

sounds corresponding to the letters. She also performed poorly on tests of phonemic awareness and phonemic segmentation. Campbell and Butterworth concluded:

> "Since R.E.'s word reading and spelling are good, strong claims based on the necessity of a relationship between phonemic segmentation and manipulation skills, on the one hand, and the development of skilled reading and writing, on the other, must be weakened" (p. 460).

For additional examples, see Krashen (2001b).

These results cast a doubt on the claim that phonemic awareness is a prerequisite to learning to read.

PA the result of reading

Phonemic awareness beyond the initial levels appears to be the result of reading, not the cause. This conclusion is consistent with the observation that all but the most rudimentary aspects of phonemic awareness emerge at about the age children learn to read (Krashen, 2003). To test this hypothesis, I conducted an informal research project. I asked a number of people to perform the classic PA task of stripping the initial consonant from a word such as "pit." Of course, everybody got this right without a problem. Then I asked them to do the same with the word "split." After some hesitation, most people got it right. I then asked them how they did it. Universally, people reported that they spelled the word in their mind, removed the /p/ sound, and pronounced the remainder. This confirmed that the ability to do complex PA tasks is dependent on the ability to read.

What all this suggests is that PA need not be taught. It is not essential for learning to read, and those who develop it do so from reading itself.

Phonics

Phonics is the study of the rules relating sounds to spelling, i.e. the fact that the letter "b" is generally pronounced as in the first sound in "bomb", but is sometimes silent, as the last "b" in "bomb".

There are several possibilities about the role of consciously learned phonics in reading—intensive systematic phonics, basic phonics and zero phonics.

Intensive, Systematic Phonics

"Phonics instruction is systematic when all of the major letter-sound correspondences are taught and covered in a clearly defined sequence ..." (Ehri, 2004, p. 180). According to intensive systematic phonics, we learn to read by first learning the rules ("all the major rules") of phonics, that is, learning how letters are pronounced ("sounding out"), and by practicing these rules while reading out loud ("decoding to sound"). Also, our knowledge of phonics must be deliberately taught and consciously learned, and intensive instruction is "essential" (Ehri, 2004).

Basic Phonics

Basic phonics includes straight-forward rules, the ones that work well and that students can remember. According to basic phonics, we learn to read by actually reading and understanding

what is on the page. In fact most of our knowledge of phonics is the result of reading; the more complex rules of phonics are subconsciously acquired through reading (Smith, 2003).

A conscious knowledge of some basic rules can help children learn to read by making texts more comprehensible. Smith (2003) demonstrates how this can happen: In the sentence, "The man was riding on the h____.", the child is unable to read the final word. Given the context and knowledge of the sound 'h' makes, the child can make an intelligent guess as to what the final word is. This may not work every time (some readers might think the missing word was "Harley"), but the knowledge of phonics can restrict the possibilities of what the unknown words may be.

Zero Phonics

This view claims that direct teaching of phonics is not necessary or even helpful. I am not aware of anyone who holds the opinion that no phonics should ever be taught.

Complexity of Phonics

An argument against intensive systematic phonics is that many rules are very complex and do not work very well. As Smith (2003) notes, a considerable number of phonics rules are "unreliable…there are too many alternatives and exceptions…300 ways in which letters and sounds can be related" (p. 41). His most famous example is the fact that each of these uses of "ho" has a different pronunciation: hot, hoot, hook, hour, honest, house, hope, honey, and hoist. Smith notes that even if a reader knows the rules, the words cannot be read accurately from left to right, letter by letter. The reader needs to look ahead. Smith also notes that different phonics programs teach different rules, a stunning counterargument to the claim that teaching complex rules is necessary.

The Limited Impact: The Garan Effect

The National Reading Panel (NICHD, 2000) concluded that experimental research supports intensive systematic phonics. Garan (2001, 2002), in an examination of this report, noted that the impact of intensive phonics is strong on tests in which children read lists of words in isolation, but it is miniscule on tests in which children have to understand what they read. Thus, intensive phonics instruction only helps children to develop the ability to pronounce words in isolation. Garan's results agree with the results of many other studies that show that intensive phonics instruction has a positive impact on tests of decoding but not on tests of comprehension (Krashen, 2009).

Reading experience results in both reading ability and the ability to do well on tests of "decoding". Children who have been given the opportunity to do a great deal of interesting, comprehensible reading and have been given less decoding instruction, perform as well as or better than children in decoding-emphasis classes on decoding tests. Moreover, they typically score higher on tests that assess what really counts in reading—comprehension (Morrow, O'Conner and Smith, 1990; Eldridge, 1991; Klesius, Griffith, and Zielonka, 1991).

Which Rules?

If the basic phonics position is correct, what are the rules that are teachable and useful? Experienced professionals agree that the rules for pronouncing most initial consonants and a few

other rules can be learned and applied to the text by small children, but some rules will be impossible for six year olds (and most adults). An example of one such rule recommended by Johnson (2001) is: "the a-e combination is pronounced with the long vowel and the final e silent (except when the final syllable is unaccented, then the vowel is pronounced with a short -i sound, as in 'palace,' or the combination is 'are,' with words such as 'have' and 'dance' as exceptions").

The Great Misunderstanding

There is a strong support among the public and the media for "phonics" instruction. What is not clear however is whether the support is for intensive systematic phonics, or basic phonics. Whole language advocates are regularly accused of supporting the zero phonics position, but they actually support basic phonics, maintaining that basic phonics is one way to help make texts more comprehensible. Public opinion might be quite close to the whole language view.

Late Starters

In contrast, professional literature contains a significant amount of evidence showing that starting late can also result in successful reading.

Countries That Start Later

Elley (1992) noted that "… countries which begin instruction in reading at age seven have largely caught up with the 5- and 6-year old starters in reading ability by age nine" (p. 37). Table 1 presents reading test scores for 9-year olds across four countries in which reading instruction began at age 7. Clearly, students who were introduced to reading after age 7 had average reading scores above the norm by age 9.

	Score	Rank	Economic Development**	Books in Home*
Finland	569	1	5	135
Sweden	539	3	2	174
Norway	524	7	3	157
Iceland	518	8	4	118

Table 1: Reading Scores at Age Nine for Countries in which Reading Instruction began at Age Seven. From: Elley (1994)

*Books: average number of books in the home

**Economic Development: calculated from GNP, expenditures for education, life expectancy and other variables

Mean reading score for all 32 countries = 500

It is interesting to note that Finland, Sweden, Norway and Iceland rank among the highest in the world in economic development. All four reported that their communities have a plentiful supply of books in homes and school libraries, and that public libraries and bookstores were also available to students. Elley's findings suggest that a late start is not a problem when children have access to reading materials.

McQuillan (in Krashen and McQuillan, 2007) reported a number of cases of children who started reading late, but who had no trouble "catching up", including home-schooled and dyslexic children, but who learned to read very well.

Home-Schooled Children

Mason (1993a) reports that her daughter, K.M., "could not/did not want to read" at eight and a half. Having tried earlier to push her to learn math, and finding that the pressure made her "hate arithmetic," Mason decided not to intervene when it came to reading. Around K.M.'s ninth birthday, "she began to read, and two months later she could read at the level of her literate friends. Then she extended her reading, and now (age 15) she reads the way very literate adults do" (p. 28).

Mason (1993b) describes the case of her son, D.M.. The summer D.M. turned 10, he could only read a word or two. By fall, according to his mother, D.M. began "to read store signs and notices with a vengeance…(One night) sometime past midnight, he read his way through a fat Spiderman annual his older brother Luke gave him for his birthday" (p. 11). D.M. also began reading the sports page of the local newspaper. One day, Mason took D.M. to the local science museum, where he read aloud "long paragraphs of technical writing discussing 'atmospheric conditions' and 'helium gases in the stratosphere'" (p. 11).

H.K. (Kerman, 1993) was reading at a "bare Cat in the Hat level" at the age of 10 and a half. Her mother reports:

> "During the course of the next year, she did learn the basics about reading, although I shall never know how, since she refused instruction as much as always. We continued to read out loud to her, and she rarely read to herself. My main consolation was that she loved books and didn't think badly of herself. At the age of 14, she started to read Scott O'Dell's books. The first one took her two months to read. Two months later, she was reading full-length adult fantasy novels … She reads voraciously now at the age of 16" (p. 27).

These cases have several features in common—little or no formal instruction was required, the parents put no pressure on the child to read, and all of the children made rapid progress once they began reading material they were genuinely interested in of their own volition. Finally, all the children had the advantage of having access to a lot of reading material.

Recovered Dyslexics

Another set of cases of readers who started late but caught up through voluntary reading comes from Fink (1995/6). Fink studied 12 people who were considered dyslexic when they were young, who all became "skilled readers". Out of the 12 people, 9 published creative scholarly works and one was a Nobel laureate. Eleven out of these people reported that they finally learned to read between the ages of 10 and 12 (p. 273), and one did not learn to read until the 12th grade.

According to Fink, these readers had a lot in common:

> "As children, each had a passionate personal interest, a burning desire to know more about a discipline that required reading. Spurred by this passionate interest, all read voraciously, seeking and reading everything they could get their hands on about a single intriguing topic" (pp. 274-275).

Cases of "Late Beginners" in Both Literacy and Creative Work who Make Profound Contributions

Michael Faraday is a good example of someone who had little schooling but developed high

levels of literacy (academic literacy) as well as subject matter knowledge. Faraday came from a poor family, left school before he was 13, and worked for seven years as an apprentice bookbinder. This meant he had access to a lot of books. His employer "was a sympathetic and helpful individual who did much to encourage his apprentices' interests" (Howe, 1999, p. 266). According to Howe, Faraday "read voraciously" and also attended lectures and classes on his own.

Clearly, Faraday never studied, and never prepared for examinations. He did a lot of extensive reading when he was a teenager, including *The Arabian Nights* and other novels. Howe speculates that Faraday's interest in science grew gradually, and became firm when he was around 18 (p. 88). Around the same time, deeply influenced by the work of Isaac Watts, Faraday began a rigorous self-study program. Watts emphasized critical and creative reactions to reading, "...it is the exercise of your own reason and judgment upon all you read that ... affords your understanding the truest improvement ..." (as cited in Howe, p. 93)

Working as an assistant to a famous chemist Humphrey Davy, Faraday took advantage of the facilities available to him and "plunged into research of his own" (Howe, p. 102) at age 21, and published his first paper at age 25. Faraday's stunning career after this consisted of a series of problems he attempted to solve, with great success.

The case of Michael Faraday is consistent with creativity researcher Simonton's conclusions: "omnivorous reading in childhood and adolescence correlates positively with ultimate adult success." (Simonton, 1988, p. 11). We must however, add a commitment to problem-solving.

Mary Sommerville "could scarcely read" at the age of ten, having grown up in Scotland in the late 1700's, a time during which girls were often not schooled. A year at a "fashionable" and very strict girls' school produced no effect, and she returned home and started pleasure reading, a habit her family disapproved of. By chance, at age 14, she heard about algebra and geometry, was fascinated by them, and managed to get a copy of Euclid's Elements of Geometry, which she studied with great interest every night.

> "Her mother was appalled and shamed by such aberrant behavior, and the servants were instructed to confiscate Mary's supply of candles so that she could not study at night. However, by this time Mary had gone through the first six books of Euclid…" (Osen, 1974, p. 56).

After years of independent study of math and some astronomy, Mary was able to dedicate herself to serious scientific work at the age of 27. She won an award for an original contribution to a problem published in a mathematics journal, and the editor became her mentor. The result was a stunning career in mathematics, astronomy and other areas. Mary Summerville remained productive until she was 89 years old.

Conclusions

The cases and research presented here are consistent with the following generalizations:

1. Early direct instruction is not effective.
2. Comprehensible, compelling reading works at all ages.

Early direct teaching of skills is based on the premise that in learning to read, skills such as phonemic awareness and phonics must come first; they are prerequisites to learning to read. There is, however, an impressive amount of evidence that shows that such "skills" are the result of reading, not the cause. This is supported by a large number of studies that indicate that self-selected reading results in greater development of many aspects of literacy (Krashen, 2004). It is also supported by cases presented earlier in this paper desribing that "late readers" who learned to read by self-selected reading, and who became quite literate, even though they ignored formal instruction or had little of it.

3. We can add as a corollary: Compelling problem-solving produces cognitive development at all ages, as evidenced by the cases of Michael Faraday and Mary Somerville, who never "learned their basics," and never studied for tests.

The True Basics

One point that was common to all the successful late starters described in this paper was that they all had an environment that provided the essentials—a good diet and adequate health care. All those who learned to read late, including Fink's recovered dyslexics, had access to books. Faraday had the good fortune to work for a helpful bookbinder, and Mary Sommerville had access to lighter reading and was eventually was able to get the texts she was interested in.

In conclusion, those who are interested in giving children an early start would be better off focusing on supplying the essentials. In the US, there appears to be more concern around early direct teaching rather than with providing the essentials—24% of children in the US live in poverty, which means inadequate diet, inadequate health care, and less access to books. American educational policy, however, is currently focusing on early direct teaching enforced through intensive testing, starting in preschool.

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