

The National Reading Panel and ELLs: Phonemic Awareness

"To what degree can the findings of the Report the National Reading Panel ... be generalized to English-language learners?"**The Case of Phonemic Awareness**

This question assumes that the report of the NPR is correct. This report has not gone unchallenged. I review here one critique of the NRP report concerning their conclusions on the role of phonemic awareness (PA).

The NRP concluded that PA training "significantly improves children's reading and spelling abilities."

I recently performed a review of the research on PA training studies (Krashen, 2001a). In this review, I attempted to find studies that met two conditions: (1) they were really studies of "pure" PA, not of PA combined with phonics (sometimes referred to as PA instruction taught with letters). By definition, PA is an aural ability. Many studies, however, combine PA training with phonics. (2) students were tested on reading comprehension, not just on tests of PA or on tests of reading lists of words in isolation without meaningful context.

There were very few studies. After reviewing the research myself, asking colleagues on various listservs, and reviewing the voluminous report of the National Reading Panel, I was able to find only six published studies of pure PA training using tests of reading comprehension. These six studies contained a grand total of 11 comparisons of PA-trained children and non-trained children. Of the six studies, only three dealt with English-speaking children. Only one of these three was done in the United States. The three other studies were of Spanish-speaking children, Hebrew-speaking children and Norwegian-speaking children, languages that happen to be phonetically much more regular than English.

The overall results were unimpressive. The average effect size for all eleven comparisons was +.35, in favor of phonemic awareness, but there were a number of individual findings that should shake confidence in the value of PA training:

1. In one study (Weiner, 1994), the effect size was positive for one of two comparisons (.40) but negative for the other (-.41).
2. In three comparisons, effect sizes were very low, .13 or less (two from Defior and Tudela, 1994, one comparison from Hatcher, Helm and Ellis, 1994).
3. In four studies (six comparisons), the number of children who underwent PA training was very small: Bradley and Bryant, 1983, 13 children; Defior and Tudela, 1994, nine children, Wiener, 1994, five children, Kozminsky and Kozminsky, 1995, 15 children.
4. Only one study reported substantial effect sizes as well as statistically significant results in favor of those trained in phonemic awareness, a study done in Israel with Hebrew-speaking children, involving only 15 children who underwent PA training.

My summary is presented in table 1, from Krashen (2001a).

Table 1.**Effects of "Pure" PA Studies**

study	n	duration	control group	effect size/significance level		
				first test	delayed test	interval
Bradley & Bryant (1983)	13,26	2 yrs	conceptual training	.54/ns		
Bradley & Bryant (1983)	13,13		no training	.96/.05		
Hatcher, Helm & Ellis (1994)	30,31	20 wk	regular	.08/ns	.11/ns	9m
Defior & Tudela (1994)	9,12	6 m	manipulation	.05/ns	.00/ns	2m

The National Reading Panel and ELLs: Phonemic Awareness

Defior & Tudela (1994)	9,12		classification	.13/ns	.13/ns	
Weiner (1994): low achievers	5,13	6 wk	regular instruction	-.41/ns		
Weiner (1994): middle achievers	5,13		regular instruction	.40/ns		
Lie (1991): positional	45,51	4 m	neutral activities	.21/ns	.33/ns	1.5 yrs
Lie (1991): sequential	51,51		neutral activities	.62/.05	.41/.10	
Kozminsky & Kozminsky (1995)	51,15	8 m	general enrichment	.59/.05	.61/.05	3 yrs
Kozminsky & Kozminsky (1995)	15,15		unseen	.50/.05	.79/.05	

“First test” given immediately after training, except for Kozminsky and Kozminsky (1 year delay) and Lie (one semester delay). Interval: interval between end of training and administration of delayed test.

manipulation: cutting, coloring, etc.

positional: training on initial, final, medial sounds

sequential: training on sounds as they appear in sequential order

“unseen”: investigators did not inspect comparison group treatment

n = sample size of experimental group/control group

from: Krashen (2001a)

In other words, I found no studies using English that were clearly and strongly supportive of PA training. I found only one study that was clearly and strongly supportive of PA training, and it was done with Hebrew with very few subjects.

One cannot conclude on the basis of this evidence, as many have, that PA training is essential, or even very important. Evidence supporting the PA hysteria that appears to have gripped the schools should be made of much sterner stuff.

The NRP Responds

The National Reading Panel devoted about sixty pages to reviewing the research on PA, and members of the panel published another version of their report in the *Reading Research Quarterly* (Ehri, Nunes, Willows, Shuster, Yaghouh-Zadeh, and Shanahan, 2001). They did not mention my 2001 paper, but this is understandable, because when their paper was written my article was probably not available to them. They did, however, attempt to represent my position, stating that I held that PA training helps in decoding nonsense words, but has no effect on tests of reading comprehension. The only citation given of my work was an e mail message posted on a listserv. I wrote the *Reading Research Quarterly*, asking if I could publish a letter with a fuller explanation of my position. The *Quarterly* agreed to do this, but added that the NRP researchers would have a chance to reply.

In my letter, I briefly reviewed some of the points presented above, focusing on the fact that I found only 11 comparisons, with some reporting very low effect sizes, many involving languages other than English, some with very few subjects, and only one presenting statistically significant results for both conditions of the study.

The NRP responded in the same issue (Ehri, Shanahan, and Nunes, 2002). A careful reading of their response shows no real disagreement with my conclusions.

1. They claimed that I relied only on statistical significance and ignored the use of meta-analysis. Clearly, Ehri et. al. had not yet read my paper in *Perceptual and Motor Skills* in which I performed a meta-

The National Reading Panel and ELLs: Phonemic Awareness

analysis. In fact, their overall results were identical to mine, with an average effect size of .35. My point was that this overall average, itself not very impressive, hides some embarrassing details.

2. Ehri et. al. reported that for the studies involving English-speaking subjects, the average effect size was +.28, which they note falls short of statistical significance. They conclude that this "supports Krashen's claim" but add that "more comparisons would yield a firmer conclusion" (p. 129). Of course I agree.
3. Ehri et. al. claim that when PA is combined with phonics, the results are stronger. But when tests of reading comprehension are used, this is not the case. They report that for seven comparisons of the effect of PA plus phonics training on reading comprehension, the overall effect size was .28. This figure is statistically significant, but it is small. In fact, it is also nearly identical to the effect size reported for the impact of phonics on tests of reading comprehension (Ehri et. al., 2001), $d = .27$, and even this relationship drops to .12 for children beyond grade 1 (Garan, 2002).

Most important, the NRP scholars did not contest the claim that so few studies have been done even testing the impact of PA training on reading comprehension. Once again: There are only eleven comparisons, and only five comparisons deal with English-speaking children.

Comparing PA Results with Recreational Reading Results

The NPR found that students in in-school recreational reading programs programs did better on tests of reading comprehension than comparison children in four comparisons, and there was no difference in 10.³ They concluded from this that the evidence does not support in-school reading "in a clear and convincing manner" (National Reading Panel, 2000, 3.3). Although this conclusion was not based on a meta-analysis with effect size calculations, it is obvious that the PA results are nearly identical: PA trained children read significantly better in four comparisons and there was no difference in seven. Nevertheless, NRP was convinced that PA training is "highly effective" (National Reading Panel, 2000, 2-3).

Additional Evidence: Low PA Can Read OK

Not only does the PA training evidence fail to provide strong support, there are other reasons to suspect that PA is not a crucial element in learning to read: Children without PA or with very low PA often learn to read quite well. Bradley and Bryant (1985) reported that of a group of 316 children, 25 performed especially poorly on a test of PA (one standard deviation below their expected score, based on a test of verbal skills) at ages four and five. Of these, only seven turned out to be poor readers (scoring one standard deviation below their expected reading score, based on IQ) three years later. Thus, 72% of those with low PA were not delayed in learning to read. Stuart-Hamilton (1986) found that 20 five year old children who demonstrated zero phonemic awareness performed adequately on a word identification task, and were judged by their teachers to be making near-normal progress in learning to read. (For other studies, see Krashen, 2001b).

Also, some adults who are excellent readers do very poorly on tests of PA. Campbell and Butterworth (1985)'s subject R.E. was a university student who "reads as least as well as her fellow undergraduates" (p. 436); she graduated 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 making the sounds corresponding to the letters. She also performed poorly on tests of phonemic awareness and phonemic segmentation, using orthographic instead of phonological strategies (for example, when counting the number of sounds in a word, she was influenced by the number of letters). Campbell and Butterworth conclude that "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). Additional studies of this kind are available in Krashen (2001b).

PA Can Develop Without Training

The National Reading Panel and ELLs: Phonemic Awareness

There are good reasons to suspect that PA can develop quite nicely without training: comparison groups in nearly all PA training studies show gains in PA (Ehri et. al., 2001, p. 276), and several longitudinal studies show growth in PA without training (e.g. Fox and Routh, 1975).

PA: The Result of Reading

PA beyond the initial levels appears to be the result of reading, not the cause. This conclusion is consistent with studies showing low levels of PA among adult illiterates (Morais, Bertelson, Cary and Algeria, 1986, Lukatela, Carello, Shankweiler, and Liberman, 1995). Evidence suggesting that reading experience alone, and not phonics instruction, may be the cause comes from Foorman et. al. (1993) who reported no difference in growth in PA during grade one between classes with more or less direct teaching of letter-sound correspondences, and Murray, Stahl, and Ivey (1996), in which gains in PA were seen from storybook reading alone.

I have informal evidence to add to this: I have asked audiences to perform the classic PA task of stripping the initial consonant from a word like "pit." Of course, everybody gets this right with no problem. Then I ask them to do the same with "split." After some hesitation, most people get it right. I then ask them how they did it. Universally, people report that they spelled the word in their mind's eye, removed the /p/ sound, and pronounced the remainder. This confirms that the ability to do complex PA activities is dependent on the ability to read.

The Unbearable Coolness of Phonemic Awareness

Why then is there so much enthusiasm for PA training? Besides the obvious advantages to those who create PA programs, I suspect that a major reason is the fact that PA appears to fit so well into a bottom-up skill-building model of reading, one in which readers must first learn sound-spelling correspondences (phonics) in order to learn to read. If this is true, it makes intuitive sense that learning to isolate sounds is a prerequisite to phonics. There is, however, another possibility, that we learn to read by reading, by making sense of what is on the page. We learn to read without nonsense, to paraphrase Frank Smith, not by first learning to read nonsense. While some knowledge of phonics can occasionally help make texts more comprehensible, most of our knowledge of phonics, and our ability to perform complex PA tasks, emerges as a result of reading. Unfortunately, for many people, the skill-building hypothesis is not a hypothesis at all, it is an axiom. It is obviously true and is beyond question. PA training fits into the skill-building view very nicely, and is thus irresistible, despite the weak evidence in training studies and the additional evidence showing that PA is clearly not a prerequisite for learning to read.

Conclusions

The NRP's conclusions on PA cannot be taken as ex cathedra pronouncements. There is limited evidence that PA training has a strong impact on reading ability in the native language. It is thus premature to discuss implications to "English-language learners."

Note

1. I disagreed with this conclusion (Krashen, 2001c). The NRP missed quite a few studies and misreported some of the ones they included. I found that those who participated in in-school reading programs were as good as or better than comparisons on tests of reading comprehension in 51 comparisons out of 54.

References:

The National Reading Panel and ELLs: Phonemic Awareness

- Bradley, L. & Bryant, P. (1985). *Rhyme and reason in reading and spelling*. Ann Arbor, MI: The University of Michigan Press.
- Bradley, L. & Bryant, P. (1983). Categorizing sounds and learning to read - a causal connection. *Nature*, 301, 419-421.
- Campbell, R. & Butterworth, B. (1985). Phonological dyslexia and dysgraphia in a highly literate subject: A developmental case with associated deficits and phonemic processing and awareness. *The Quarterly Journal of Experimental Psychology*, 37A, 435-475.
- Defior, S. & Tudela, P. (1994). Effect of phonological training on reading and writing acquisition. *Reading and Writing*, 6, 299-320.
- Ehri, L., Nunes, S., Willows, D., Schuster, B., Yaghoub-Zadeh, Z., and Shanahan, T. (2001). Phonemic awareness instruction helps children learn to read: Evidence from the National Reading Panel's meta-analysis. *Reading Research Quarterly*, 36, 250-287.
- Ehri, L., Nunes, S., Stahl, S., and Willows, D. (2001). Systematic phonics instruction helps students learn to read: Evidence from the National Reading Panel's meta-analysis. *Review of Educational Research*, 71(3), 393-447.
- Ehri, L., Shanahan, T., and Nunes, S. (2002). Response to Krashen. *Reading Research Quarterly*, 37(2), 128-129.
- Foorman, B., Jenkins, L., & Francis, D. (1993). Links among segmenting, spelling, and reading words in first and second grades. *Reading and Writing*, 5, 1-15.
- Fox, B. & Routh, D. (1975). Analyzing spoken language into words, syllables, and phonemes: A developmental study. *Journal of Psycholinguistic Research*, 4(4), 331-342.
- Hatcher, P., Helm, C. & Ellis, A. (1994). Ameliorating early reading failure by integrating the teaching of reading and phonological skills: The phonological linkage hypothesis. *Child Development*, 65, 41-57.
- Kozminsky, L. & Kozminsky, E. (1995). The effects of early phonological awareness training on reading success. *Learning and Instruction*, 5, 187-201.
- Krashen, S. (2001a). Does "pure" phonemic awareness training affect reading comprehension? *Perceptual and Motor Skills*, 93, 356-358.
- Krashen, S. (2001b). Low PA can read OK. *Practically Primary*, 6(3), 17-20.
- Krashen, S. (2001c). More smoke and mirrors: A critique of the National Reading Panel report on fluency. *Phi Delta Kappan*, 83, 119-123.
- Krashen, S. (2002). Phonemic awareness training necessary? *Reading Research Quarterly*, 37(2), 128 (letter).
- Lukatela, K., Carello, C., Shankweiler, D., & Liberman, I. (1995). Phonological awareness in illiterates: Observations from Serbo-Croatian. *Applied Psycholinguistics*, 16, 463-487.
- Lie, A. (1991) Effects of a training program for stimulating skills in word analysis in first grade children. *Reading Research Quarterly*, 26(3), 234-250.
- Morais, J., Bertelson, P., Cary, L. & Alegria, J. (1986). Literacy training and speech segmentation. *Cognition*, 24, 45-64.

The National Reading Panel and ELLs: Phonemic Awareness

Murray, B., Stahl, S. & Ivey, M.G. (1996). Developing phoneme awareness through alphabet books. *Reading and Writing*, 8, 307-322.

National Reading Panel. (2000). *Teaching children to read: an evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Washington: National Institute of Child Health and Human Development.

Stuart-Hamilton, I. (1986). The role of phonemic awareness in the reading style of beginning readers. *British Journal of Educational Psychology*, 56, 271-285.

Weiner, S. (1994). Effects of phonemic awareness training on low- and middle-achieving first graders' phonemic awareness and reading ability. *Journal of Reading Behavior*, 26(3): 277-300.

Yatvin, J. 2002. Babes in the woods: The wanderings of the National Reading Panel. In R. Allington (Ed.) *Big Brother in the National Reading Curriculum: How Ideology Trumped Evidence*. Portsmouth, NH: Heinemann. pp. 125-136.