ON READING, WRITING, AND COMPUTERS:

A Conversation with John Henry Martin

With a simplified alphabet and interactive computer programming, John Henry Martin has developed a system by which children learn to read and write far better than usual. In this interview with Executive Editor Ron Brandt he explains his approach, which could revolutionize the teaching of English language arts.

Q You're using the computer to teach young children to read. How is your program different from the way reading is taught in most schools?

Martin: Well, I'm not teaching children how to read; I'm teaching them to write. And I'm teaching them to write because I've found that is a better introductory process for learning to read. It has greater validity than a direct frontal assault on decoding.

I teach children to understand that the sounds they make when they speak can be made visible; that words made visible are writing.

Q: Isn't writing—the production of language—much more difficult than simply reading someone else's writing?

Martin: On the contrary. It's the reverse. Because when I speak or write I am expressing *my* thoughts and ideas, which are important to me. Of course, to send you a message I have to encode it, and unless you know the code at the other end of the line, you can't decode—you can't read it.

The trouble with decoding English as distinct from encoding it is that the coding system is so garbled. To the original Celtic was added a 400-year layer of Latin, then 600 years of a Germanic dialect, followed by French, because of the Norman conquest. English sounded very much as it does now in Shakespeare's time, but its erratic spelling wasn't standardized for another 150 years. And in its standardization, the sounds of English —40 or 42 sounds—are represented 500 different ways in print.

Q: Is that why reading is difficult?

Martin: For some children—too many—it's a nightmare. For example, we put an *r* in front of *ough* and say it's "rough." We take the *r* off and put a *t* at the end and say it's "ought." We put a *th* in front of it and say it's "though." We put in an *r* and call it "through."

We say we're teaching children decoding, but there is no orderly way to teach decoding of English given the semi-rational nature of it.

Another example: we're fond of teaching children that when four-letter words end in *e*, the middle vowel takes its name as in "līve"—or is it "lĭve?" How about "cove?" That fits the rule doesn't it? But what do we do about "love?" And "move?" And "gone?" And "some?" "Come?"

One study of primary readers showed that a third of those four-letter words didn't conform to the so-called rule of the final *e*.

Q: How is your approach different?

Martin: We teach children to write words at first the way they sound. For example, the *oo* as in "school" is double *o*. But as soon as they recognize that a word in a book spells *oo* differently, as in "threw," we suggest that they shift to the book way. Now there's a very important difference between the two processes. The conventional process of teaching children to try to decode according to rigid rules tells them subliminally that they're stupid when the rules won't work, that the textbook spelling is

John Henry Martin lives in Stuart, Florida.

right, and their difficulties are due to their limitations. Our process says that some of the spelling in books is a little crazy but the child is not.

Q: That's the same principle as the Initial Teaching Alphabet, isn't it?

Martin: Yes, but it differs from ITA in two ways. First, as I've said, we begin with *writing*. Second, our phonetic alphabet is a very simplified version of the dictionary pronunciation key. No adult has any problem with it because it's very familiar. For example, the phoneme *oi* is spelled *oi* as in "oil," "toil," and "boil." So our children write "boy" as "boi," but only for a little while, because they quickly recognize that in books, it's "boy." At first they write the preposition "to" as "too," but I've seldom seen a child write it that way twice.

Q: And they quickly make this switch without any prompting?

Martin: Yes. But until they do, they can spell "you" as *yoo, yu,* or *you* Any of those spellings are acceptable. If a teacher can't decode a child's phonemic alphabetic writing, he or she will say to the child, "I can't read that; what is it that you wrote?"

Q: But what happens to children's spelling proficiency when you teach them to write this way?

Martin: We've tested our children and found that their median standardized spelling scores in first grade were 3.5 and higher. If you ask why their spelling is so much better when they learn to write phonemically, I can only guess that it's because we focus their attention on the rationality and irrationality of words. They can accept the arbitrariness of *ew* with an *s* in front of it being "sew," if we don't convince them they're stupid not to understand it. They find joy in their ability to write the English language.

Q: What does the computer have to do with this?

Martin: Well, for one, classroom teaching is mass education. We know the importance to the tutorial relationship between teacher and learner, but we can't have 50 million teachers for 50 million children. With the computer as tutor—as interacting agent with the learning person—we come closer to the ideal teacher than ever before.

The computer differs from other communication technologies because it puts them all together. The computer can talk; it can show still pictures or moving pictures. It's capable of very complicated graphics portraying the assembling of ideas, the ordering of things, the form of things.

Having described its remarkableness, I must point out that it is also very stupid. Because it will do only exactly what you tell it to do. If you don't tell it to do anything, it drops dead.

Q: A lot of people think the computer has great potential in education, but I've heard that much of the available programming is poor.

Martin: For a time it was fashionable to talk about computer-managed instruction. That means keeping track of a child's progress on a workbook page transferred to the computer screen. This reduces the computer to a very expensive substitute for dog-earing the workbook. That is prostitution of a valuable piece of pedagogy because it doesn't do anything about the content of the learning act itself.

If you're going to use the computer, you need to exploit its power. You can put workbook pages on it and call it drill and practice. You can say how many rights and wrongs and you can say if children have this number "rights" they can go ahead, and if they get this number "wrongs" they get looped over to a repetitious drill. You can call that computer-assisted learning, but I say you're playing scales with a symphony orchestra.

Q: In what way is your use of the computer different?

Martin: I hope I won't be misunderstood if I continue the metaphor. Composers of symphonic music write in at least two dimensions. If they were composing for a piano or violin, they would write essentially in a single dimension from left to right, as if they were writing ordinary English prose—but in this case they're using a notation system to indicate chords and sounds of music for many instruments.

When they compose symphonic music, they typically start with the concert master's role: in the left hand margin they write "violin." Then they write for the other strings—the viola, cello, base viol. They move on to the woodwinds, the brasses, the percussion. To see who's playing at the same time, you read vertically from the top down.

Writing computer courseware is much akin to the composer's task. On one side I have a learner—with ears, eyes, a mouth that speaks, hands that can write, and a brain that thinks. On the other side I have a complex instrument that can talk, show pictures, show words, show letters, show graphics. I can invite responses, sort those responses, reject or accept them, and make variations appropriate to the learner. In writing for the computer, I must use imaginatively the sound-making and visual-making capabilities of both the learner and the instrument in an interactive situation. And this I've succeeded in doing.

Q: What makes you think you've succeeded?

Martin: We subject every notion, every practice, every part of every lesson to children. We make a special effort to try it with children who learn poorly, on the grounds that if it works for them, it'll work for others. Two or three times a week we run postmortems in our laboratory at which we examine what happened with our latest idea—based on close, intensive observation of one child at a time. Did we see a physical, bodily response? If so we may say, "Aha, that works!"

What we test with one child, we then test—using the same kind of intensive observation—with others. We try it with boys and girls, Blacks and Whites, Spanish language children, bright children. Then we recapitulate, saying, "The idea started this way. It worked, but it worked better when we did that, even better when we did this, but not so well when we did that." We fit it together with the care of a new puzzle piece being fashioned for an invisible jigsaw puzzle whose completed shape we only sense.

Then, for ultimate validation, we use group testing. There's a major problem with that, however. I'm teaching children to write, but after 75 years of testing, we have no standardized test of children's writing. So all we can do is test their reading. There's a presumption of a high cor-

relation, but we don't really know. So I have an inferential measure on writing. All I can say is that median scores of children who've been in our program these past three years range from the 78th to the 90th percentiles in reading.

Q: How much of this is due to your program and how much to other reading instruction they receive?

Martin: At the demonstration school at Nova University, they set up a group using only our writing program and no basal reader, along with a control group that had only the basal reader. The Nova University president insisted on including a large percentage of Head Start children, so although it was a private university school, it had a remarkably diverse population. We had three different treatments, because children here in Stuart get a mixed diet of 30 minutes of our writing program daily plus 180 minutes of their regular basal reader program.

The controls at Nova demonstrated that to get average results from an average group of children, you should put them in the hands of a very competent teacher who works them very hard using a standard basal reader. At the end of the year, those students tested slightly above the 50th percentile. The group in Stuart—some 100 children who received the mixed diet—tested at the 80th percentile. The group at Nova that had only the writing program tested at the 92nd percentile.

Q: Are you suggesting you agree with Bloom that nearly all students can learn what the school intends to teach? And that the system you're developing is part of the answer?

Martin: I'm not just suggesting it; I'm saying I have overwhelmingly conclusive *evidence* that Bloom is right.

Let me explain. At the school in Stuart where I've been working, I have nothing to do with whether a child is promoted or failed at the end of first grade. The number retained in grade in that school, by the way, has declined from 41 out of 126 to 19 out of 116. The year before last (1979), 19 children repeated first grade. On the metropolitan standardized achievement test given in the spring of 1980, 16 of those 19 got reading scores at or above *second* grade level.

Q: What about mentally retarded students?

Martin: The children we've worked with were not categorized as mentally retarded or learning disabled, but only because it takes the school

district until well into second grade to identify many of them. They're not categorized, but they're in there. The data I've given you included an unidentified number of these children.

Q: Your writing/reading program doesn't take much time out of the child's school day, does it? What would you do the rest of the time?

Martin: If you take the drudgery and frustration of ignorance out of school, then schools become beautiful places for children to grow up, to learn the joy of living, to learn the beauty of things in this world, to live with each other compassionately in warm and affectionate relations.

Q: But are you saying that children would learn to read and write successfully in only 30 minutes a day?

Martin: No, it takes more time than that. For our research purposes we had access to the children for that amount of time. When the Nova teacher used our program without a basal reader, she improvised and extended it but even so reported that she scarcely ever went over an hour a day. Another school might have children spend another 15 to 30 minutes in an afternoon session, for example. I can't tell what that would do—I don't know.

Q: What would the program be like as the children grew older?

Martin: For one thing, they would all learn to type. We encouraged the county to buy 20 typewriters and employed a teaching aide so the second grade children could get 30 minutes a day of ten-finger touch typing. The parents and the children were delighted and a good majority learned to type—in second grade—with sufficient utility to serve themselves.

Q: What about programming the computer to teach subjects other than reading and writing?

Martin: To use another metaphor, American education suffers from two diseases akin to what in the medical world are the common cold and cancer. The common cold is widespread but never fatal, while cancer, which is fortunately less common, is frequently fatal. Both are extraordinarily intractable at present levels of medical knowledge.

In education our cancer is illiteracy. Some 5 percent of our high school population, 60 percent of our prison population, and I'm told nearly 40 percent of our Army population cannot read. Illiteracy is economically fatal and psychologically very damaging to the affected individual.

The "common cold" of education is the inability to write a sentence or paragraph. It is ubiquitous and very costly in our society. Both these problems are very intractable to current educational methods.

Now I have developed a pedagogical design using high technology for treating both these problems with a higher degree of effectiveness than we've previously been able to accomplish. Our children write better than most third to fifth grade children. Many of them are writing at sixth, seventh, and eighth grade levels. Our kindergarten children write sentences describing pictures they've drawn: "A cat was reading a book," "A dinosaur was in the street," "My father and I played miniature golf"—I'm quoting from their stories. Children, Black and White, many from low-income homes, write about a farmer "shivering" or a cat that got at the hamster in the cage and was "ferocious." We're getting them to understand that "Anything you can think and say, you can write."

What I'm saying is that designing programs to teach reading and writing is the most complex curriculum problem we have. If I can do that, then composing computer curriculums for biology, history, and science should follow without major difficulty. It's complex, but in terms of what has already been accomplished, it's simply the next step.

Q: When that is done, what will be the effect on schools?

Martin: I don't know. It's certainly going to transform them. I think curriculum people should begin working with social scientists to address the question of what constitutes schooling when much of the drudgery of teaching can be taken over by an efficient piece of technology. There's much in human learning that never will be put into a machine. As a matter of fact, it's been said that the things we can test are the least important ones to learn—and that's true of computer learning.

This is not to say that learning to read and write, learning biology and mathematics, is unimportant, but that maybe we should look at schools as socializing institutions for humanization of the race. The computer may strip the school of its drudgery and inefficiency, elevating it to a beautiful sustaining function within our society.

We are a nation of many races and older nationalities with diverse religions, with people of vast wealth and poverty, and an alarming rate of violent crime. We have much to learn that will never fit into a computer but must fit into our hearts and minds. A computer will not make good citizens but it can help make them literate. ■

Phonics Versus Look/Say: A Specious Argument

JOHN HENRY MARTIN

For 50 years there has been controversy between the advocates of whole-word learning—reading for meaning—and those who advance the use of phonics—code breaking—as the best way to teach reading. Jeanne Chall's (1967) definitive study led her to conclude that ". . . better results in terms of reading for meaning are achieved with programs that emphasize code [phonics] at the start, than with programs that stress meaning at the beginning."

Our children were shown a picture of a cat and the word "cat" followed by exercises on the computer asking them to say the word, then each phoneme sound, and again the whole word. The three sounds were voiced by both the computer and the child, after which the child typed the whole word. Without exception our children were able, in response to the teacher's request, to write words on slate with chalk from recall before they showed any recognition of the letter/sound relationships. That is, they could write "cat" with little evidence that they understood the alphabetic process of constructing the word from three phonemes. Similarly, they could write all or most of the six words in the lessons before they came to understand that visual sounds—that is, letters—are interchangeable parts that can be used to make new words.

Their ability to write words began to demonstrate itself within the first two weeks. The more mature skill of writing new words—of understanding and using the recombinant nature of the alphabet—occurred for the first time with the ablest children during the third and fourth weeks. My cautious inference from these observations over the past few years is that the dichotomy between whole-word reading for meaning and code breaking for phonics is arbitrary because the two are interdependent. An either/or approach is rigidly doctrinaire and deprives children of the advantages of one procedure or the other. They respond to the whole word because it has meaning; a cat is a cat, but the phoneme *c*, voiced as a sound, doesn't register initially. Nevertheless they can learn—absorb at a lower level of understanding—almost simultaneously, the phonemic construction of words, if their program is structured to have them do both exercises in rapid succession.

The argument has been confounded by the tendency of basal textbook editors to mix the two approaches randomly. That's not what I'm talking about at all. ■

Reference

Chall, Jeanne. *Learning to Read: The Great Debate*. New York: McGraw-Hill, 1967.

Copyright © 1981 by the Association for Supervision and Curriculum Development. All rights reserved.