Freyd and Lylte also fault the study's length: however, the ETS evaluation was a two-year undertaking. The first year was formative; and the second year summative. Pre- and post-achievement data were gathered during the school testing cycle, which in most schools extends from November to May. Input from observational data, interviews, surveys, and questionnaires was gathered throughout the two-year period. ETS used school reading achievement data because this is the most common measure schools employ to gauge success.

Cost Considerations
To compare the cost of the WTR program with that of other programs would require a complete analysis of the costs of a variety of program approaches, including the hidden costs of "special educators" for those children who do not learn to read and write in their regular classroom programs. Also, the additional benefits of having computers in the schools must be considered in the equation, and these costs must be amortized over the life of the computers. In their critique, Freyd and Lylte have not undertaken a serious analysis of the costs and benefits of the WTR program.

A False Impression
Freyd and Lylte's article gives the impression that for a corporation to involve itself in a major way in language arts education is somehow new and unique to IBM. Major publishing companies have, in fact, been extremely influential in language arts education for many years (Chall 1967, 1983); their products have been the mainstay of language arts programs. Surely IBM, a company of outstanding reputation, should be allowed the same rights as other corporations to compete in the language education market. The exceptional popularity of the Writing to Read program with school administrators, teachers, parents, and children should be a basis for giving the corporation credit rather than abuse.

References

Virginia Nelms was a classroom teacher in the elementary grades for over 10 years, has been on the education faculty of Mercer University—Atlanta, and was a consultant in the areas of reading and language arts. She has recently joined IBM Educational Systems as a program administrator and may be contacted there, at P.O. Box 2150, Atlanta, GA 30055.

Let the Readers Decide: A Response to Nelms

There are a few points in Nelms' response to our article that we would like to reply to.

1. Initial teaching alphabets. Nelms argues that the Writing to Read phonemic spelling system is different from other nonstandard initial writing systems. Her chief argument is that "WTR children do not have to unlearn a writing system." We wonder just what processes are involved, then, in moving from a system that uses diaritical marks to standard English.

2. Phonics for writing/reading. Nelms tells us that "an examination of the writing done by students in WTR programs shows students in kindergarten and 1st grade producing stories which they otherwise would not have written." Are we really to believe that no kindergarten and 1st grade students have produced such stories without Writing to Read? It is precisely undocumented assertions such as this that lie at the heart of our criticism.

3. Whole-language perspective. We, too, advocate the use of computers wherever they can be used to create supportive learning environments for students and teachers. Since WTR was conceived, however, technology has advanced to a point where programs can be far more interactive and open and can, consequently, fit more comfortably into the variety of practices referred to as "whole language."

4. Computer phonics program design. Nelms avoids our main point: since the computer phonics program is integral to WTR, this component should be compared to other computer programs that claim to teach or reinforce letter/sound correspondence. On the other hand, Nelms states that "the heart of
WTR is children's personal writing. "We contend that personal writing can be fostered without computers.

5. Evaluation of research on WTR. We apparently made a mistake in relying on the summary of the Zurn dissertation (which itself, our bibliography should make clear, was unavailable to us). Nelms further faults us for stating that "none of the studies uses a true experimental design." She says that "it is almost unknown in school-based research that children and teachers are randomly assigned to treatments in classrooms." It is not difficult to assign classes randomly to various treatments at the beginning of a school year, particularly in the early grades. Our saying so is neither "naive nor intentionally unfair"; it is based on our direct experience.

Most of the 17 studies we reviewed have severe limitations. Given these limitations and the fact that about half the findings favored WTR and half did not, we must continue to raise questions of cost-effectiveness.¹

6. The ETS study. Nelms must be using a different version of the study than the one IBM provides to potential customers. Her reading of it is not supported by the data or the text in the IBM version.

7. Implementation and cost considerations. Nelms claims that we "have not undertaken any serious analysis of the costs and benefits of the WTR program." It was precisely our point that unless such a serious analysis were done, one should be cautious about buying it.

We trust the readers of this journal to weigh the merits of these two arguments and to come to their own decisions.

¹Krendl and Williams (in press) at the Department of Telecommunications, Indiana University, have recently completed a critique of WTR research and evaluation that parallels ours; they are even more critical of this literature than we have been and arrive at similar conclusions.

Pamela Freyd is a Computer Teacher, Philadelphia Public Schools, and Director, PennLincs, University of Pennsylvania, 3700 Walnut St., Philadelphia, PA 19104-6216.

James H. Lytle is a Visiting Professor at the University of Pennsylvania Graduate School of Education, 3700 Walnut St., Philadelphia, PA 19104-6216, on loan from the School District of Philadelphia, where he is Executive Director for Research and Evaluation.