

BOOK REVIEWS

B Garbage Pizza, Patchwork Quilts, and Math Magic

Susan Ohanian
New York: W. H. Freeman and Company, 1992. Hardback, 248 pages, \$19.95.

Elementary teachers and elementary math or science methods professors will find Susan Ohanian's book both interesting and useful. She speaks out of 20 years of experience as a fourth-grade classroom teacher and her recent assignment, financed by the Exxon Education Foundation, which was to summarize math attitudes and activities in successful elementary classrooms.

Ohanian is a firm supporter of the National Council of Teachers of Mathematics (NCTM's) standards and philosophy. She clearly likes teaching children and is enthusiastic about the concept of teachers learning from and supporting one another. She recommends a discovery approach to mathematical learning, particularly in the primary grades. Her book articulates well the challenge teachers face in the 1990s between the former "drill/skill" method of teaching math and the more modern constructivist approach. It clearly shows the danger of teaching too many math facts to children who are too young developmentally to assimilate this form of instruction.

Ohanian supports the constructivist approach and the extensive use of manipulatives, while at the same time analyzing the paradigm shift with which teachers must cope as they strive to implement new teaching strategies.

The title offers some insights into the exemplary teaching Ohanian witnessed as she toured classrooms in several states. "Garbage math" refers to an integrated math-science lesson in which the teacher had students inspect their trash at home and then construct pie graphs depicting the percentages of various categories of trash. The complete lesson takes several days and validates the students as researchers and problem solvers. Other exemplary lessons teach symmetry and measurement through the use of quilting patterns, or circumference and estimation via the use of real pumpkins. Ohanian's approach makes it easy for teachers at various levels to implement or adjust the lessons for their own classrooms.

Often the teacher is called upon to follow the interests of the students, so lessons are deliberately planned to be open-ended and to incorporate those interests within certain parameters. Ohanian closes with a chapter of student work and comments that help teachers to understand the thinking of children.

Many teachers are convinced of the need for a discovery approach to learning. This book supports that view and also strengthens the hand of the teacher by giving concrete examples of many successful lessons. It is refreshing to read Ohanian's optimistic attitude toward children, teaching, and especially math. Her attitude is contagious.—Barbara Rodenberg. ✍

Barbara Rodenberg teaches junior high math and science at John Nevins Andrews School in Takoma Park, Maryland. She has just finished an M.A. in science education at the University of Maryland.

Research on Whole Language

Diane Stephens
Katonah, New York: Richard C. Owen Publishers, 1991. Paper, 73 pages, \$9.95.

The whole-language movement is a grassroots development that is catching on rapidly at the elementary level. This means, in general, that a handful of teachers have "caught the spirit" and recruited others to the idea of whole language. Teachers shared their practices with others informally, and sometimes established formal networks. As time went on, Teachers Applying Whole Language (TAWL) groups began meeting at national conventions of the International Reading Association (IRA) and the National Council of Teachers of English (NCTE). Finally, in 1990, TAWL groups formed their own national organization, the Whole Language Umbrella Teachers, who began writing about their classroom experience with whole language.

Books on whole language began to appear during the 1980s. Public school and university teachers began to dialogue about this "new" thing, wanting to know "what whole language was, what it looked like, and whether or not it worked" (p. 3). As the dialogue and debate and discussion contin-

ued, a common knowledge base developed.

Stephens says that "whole language is a way of thinking and learning and of the role of language in these contexts" (p. 7). She suggests that three beliefs currently drive the whole-language agenda: (1) Learning takes place both inside and outside of school; (2) curricular decisions should be based on what we know about language and learning; (3) professional teachers should be empowered to become informed decision makers.

Stephens describes what we know about learning outside of school and how that information can be used to make worthwhile improvements in the teaching of reading. Since much of what we know about language and learning is relatively new, teachers must not only become informed professionals, but must also be empowered to make curricular decisions about literacy instruction.

Armed with these beliefs, Stephens began a search of the literature from 1974 to 1989. She read each study and included it in her annotated bibliography if: (1) the study was a "scholarly reflection" rather than a collection of anecdotal events; and (2) if the descriptions and programs were consistent with whole-language philosophy. She considered the following four characteristics to be a whole-language philosophy: (1) children are engaged learners; (2) teachers are engaged learners; (3) learning is a social process, and (4) texts used "were whole, cohesive documents."

Stephens includes 38 studies in her review of the literature and research on whole language. Ten of these are case studies of individual children, while 28 are descriptive and comparative classroom studies. Of these 28 studies, eight compare whole language with traditional instruction. Stephens provides enough information in her annotations for the reader to determine which studies he or she might want to pursue in their entirety.

Anyone—researcher, administrator, teacher, school board member, or parent—who seriously desires to know what whole language is about and how well it works will find Stephens' annotations informative and worthwhile. However, readers should remember that whole language and research on it are both in their beginning stages, and most of the research reported here took place between 1981 and 1989. Studies are multiplying rapidly and broadening our understanding of whole language and how to implement it in the classroom.—Paul Plummer. ✍

Paul Plummer is Professor of Education at Pacific Union College, Angwin, California.