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# Book Review: **GARBAGE PIZZA, PATCHWORK QUILTS, AND MATH MAGIC: Stories about Teachers Who Love to Teach and Children Who Love to Learn** by Susan Ohanian

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*Garbage Pizza, Patchwork Quilts, and Math Magic: Stories About Teachers Who Love to Teach and Children Who Love to Learn.* Susan Chanian. W. H. Freeman, 1992. 248pp. ISBN: 0-7167-2360-3.

How was mathematics transformed from the most hated to the most loved subject for some K-3 children?

The Exxon Education Foundation, disturbed that children turn-off mathematics by fourth grade, created "K-3 math specialists" and invited applications. Everyone who applied was given a planning grant. After a year each school whose planning grant showed any sort of promise was given an implementation grant to get both the math specialists and the new ideas into primary classrooms. This book describes the transformations of teachers and students after several years of the project.

The book is a celebration of happy, involved children and their parents. The teachers have a new sense of professionalism and confidence. The children have a sense of ownership and excitement about their mathematical inventions and discoveries. Meaningless skill-drill is abandoned in favor of student involvement in creative opportunities for doing mathematics.

The book is filled with pictures the children have made of their activities. Patchwork quilts show symmetries and various geometric patterns. Bar graphs report on data collected. Sketches help children count the legs on farmyard animals. Garbage pizza illustrates the proportion of waste in the home. Paper gets the largest slice, followed by yard waste, food, etc. Students decorate their pizzas with samples of the appropriate trash.

Rote memorization is not present among these exuberant children who invent activities that use and extend mathematical concepts. Family Math Night when students bring their parents to school and "do"

hands-on-math with them is a sell-out in projects all over the country. Parents who experience the thrill of understanding the real mathematics underlying a rote procedure they memorized years ago are not eager to join a petition drive to substitute skill-drill worksheets for the manipulative materials that help their children understand, say the geometric properties of multiplication. These parents remember their own agony in school and don't want to see it perpetuated in their children.

Institutional change occurs in districts where there is a framework for administrators, teachers and parents to work and learn new things together - with the children and for the children. Teachers find colleagues at the NCTM (National Council of Teachers of Mathematics) meetings and guidance from the NCTM Standards. Research shows that learning does not occur by passive absorption. "We torture our students with the teaching of too many 'facts' too soon...Inappropriate practice and memorization produce muddled thinking."

An experienced teacher in Orlando confessed, "I hated math. That's why I applied to the math specialist program. I hoped it would help me improve. I owed it to my students to improve...I knew I had to get better in math because I was killing these kids with my narrow computational view. I was the kill-drill queen."

As an experienced teacher the author is not an impartial observer. Her remarks enliven the book. "I began my study for the Exxon Education Foundation thinking that my job would be to record what I saw; I did not expect to be changed by it. I saw myself as merely an observer, never imagining that I would become a learner along the way. I was wrong."

The book is filled with vignettes of children and teachers doing and learning mathematics in creative and happy ways. I enthusiastically recommend it.