

**Knowledge under Construction:
The Importance of Play in
Developing Children's Spatial
and Geometric Thinking**

Daniel Ness and Stephen J. Farenga

Lanham, MD: Rowman & Littlefield Publishers, Inc., 2007. References, diagrams, charts, tables, illustrations. 257 pp. \$32.95 paper. ISBN: 9780742547896

In an era when tensions between developmentally appropriate early-childhood practices and the push for rigid academic goals exist, many early childhood educators are placed in the position of having to defend the importance of play. This book is significant for educators, parents, and researchers in that it underscores the value of informal and unstructured play with blocks in the development of mathematical conceptual understanding. We need to know about how block play contributes to the development of mathematical and scientific thinking if we are going to successfully advocate for play-based learning. This book brings attention to the types of geometric, spatial, and architectural understanding exhibited by children during free play with blocks and to the materials and environments that encourages mathematical thinking and activity. It provides a useful context through which educators working with young children can defend block play, and it offers conclusive evidence in support of unstructured free-play practices in the development of mathematical thinking. These are important findings that buttress the instructional goals of the National Council of Teachers of Mathematics (NCTM) for young learners.

The authors begin with a clarification of important terms relevant for their read-

ers and an exploration into the research, philosophers, and developmental theorists who have provided significant insights into the spatial, geometric, and architectural thinking of young children. They examine closely the perspectives of Heinz Werner, Pierre and Dina van Hiele, Jean Piaget, Lev Vygotsky, I. S. Yakimanskaya, and others. This background, intertwined with thought-provoking quotes and their expansive use of examples to illustrate mathematical concepts and the mathematical thinking of young children, provides readers with concise insight into both traditional and contemporary notions of how young children view space and develop spatial and geometric thinking. In addition, the authors investigate the connection between spatial and geometric thinking and architectural principles, a relationship that is neglected in contemporary research.

Through a novel collaboration between a professional architect and professor of architecture, the authors also gained insight into, and make a good case for "the interconnectedness between spatial and geometric thinking with architectural principles" (p. 68) that can be seen in children's play with blocks and LEGO play sets. This innovative collaboration allows readers to view children's building with blocks through a different lens and identify and understand the architectural principles that are evident in spontaneous play.

The inclusion of individual case studies and contextual observations shed additional light on the mathematical and scientific thinking that occurs in both solitary and collaborative play with blocks, LEGO sets, and other construction materials. Through the development of an original and innovative instrument,

the Spatial, Geometric, Architectural (SPAGAR) Coding System, the authors present research findings pertaining to the spatial, geometric, and architectural activity of ninety preschoolers from five different urban schools. They provide extensive information in regard to each category contained in the SPAGAR and offer a simplified chart as a helpful reference to each of its thirteen code descriptors. The development of this coding system is of particular importance to educators, researchers, and parents as it provides specific guidelines for observing and examining children's mathematical and scientific behaviors during free block play.

The findings presented in this book highlight some important questions pertaining to young children's mathematical thinking and include some interesting outcomes regarding the impact of age, gender, and socioeconomic status on children's cognition and activities pertaining to space, geometry, and architecture. In addition, the authors provide insights into the implications of the research for those concerned with the education of young children. This is one of the most comprehensive works to date on the spatial, geometric, and architectural thinking of young children. Overall, this book significantly contributes to our understanding of the oftentimes overlooked mathematical abilities of our youngest learners.

—Jenifer Thornton, *University of Texas at San Antonio, TX*

Inside Role-Play in Early Childhood Education: Researching Young Children's Perspectives

Sue Rogers and Julie Evans

New York: Routledge, 2008. Photographs, drawings, glossary, references, index. 152 pp. \$43.95 paper. ISBN: 9780415404976

In their new book, Sue Rogers and Julie Evans focus on early education in the United Kingdom (UK) for the “muddle in the middle,” that is, they look at teaching and child-play theory in the reception class, which is what the British call the first class of primary school. (Rogers is a senior lecturer in education at the University of London, and Evans is a senior lecturer in sociology at the University College Plymouth St. Mark & St. John.) The book is based on their interesting research of kids’ “being four” in contrast to “becoming five.” They generate such research through observations and innovative interviews of teachers and young children to acquire perspectives on social pretense or role playing both indoors and outdoors at school. This book and its modest ethnographic research are timely and significant for readers in the United States, where kids go through preschool nowadays at three and four years of age and where academic models that denigrate play flourish under learning standards, accountability, and the rubric of “No Child Left Behind.”

Rogers and Evans position their research in the context of international discussions among early childhood education (ECE) professionals about whether and how teachers should be involved with children's play. They study role playing from the child's view because of their con-