

Engaging Young Children in Mathematics

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As an attendee to the meetings that helped to forge this document, I'm astounded at the amount and depth of the work that many individuals did to bring it forth. The struggles to carefully explain research, viewpoints and the need for this work are unseen but I remember the hours and hours spent discussing and rehashing points. The authors have done a tremendous job of representing the voices of many that attended and contributed. They've distilled those days into a comprehensive and detailed book that should be read by all that mandate national and local policy. It will be enjoyed by educators to quote Arthur Baroody because it "can help educators decide what to teach, when to teach it and how to teach." This will provide an excellent reference to educators for knowing what the standards are for programs, teaching and assessment. It is not another set of objectives to sort out children who are above or below the median but will help to guide teachers and administrators to know what is appropriate for young children to be doing in mathematics.

As a teacher of young children for the past twenty years, I have seen many pendulum swings and bandwagons come along that we all seen eager and ready to jump on and take off to supposedly help children. We have been lacking a clear path that is research based and broken into manageable chunks of curriculum. As a teacher in Kindergarten, I am expected to complete teaching a vast array of skills in a half-day. Few administrators ask if this is possible or developmentally appropriate. This document provides me the ammunition to say what is appropriate and why and have a chance of being heard. The partnership between the NCTM and the NAEYC finally brings together the idea of standards for programs and some idea about what should be taught to children. The age bands that are found here allow me to talk to parents about what they can and should be teaching to their children. Kathy Richardson says, "Being a good teacher is about knowing what your children already know and what they are still grappling with. It is valuing where each child is on their own personal journey and not comparing them to anyone else." The standards in this document are about that. I know where the child is on their journey through mathematics and where that child needs to go, but I am not holding that child up to a median standard and saying he or she does make the grade. The standards allow me to plan for thoughtful instruction not the completion of Chapter 4 by Thanksgiving. In the past, we have at times been activity driven, it's time to be standards driven in our practice. I say let's have some consistency that will allow me to teach what is appropriate not just what is mandated by the largest states in the union.

Karen Fuson argues that we already have a national curriculum that is created by the textbook companies who add everything but the kitchen sink in their search to be everything to everyone in every state in the union. I've taught on an air force base for the past seven years in a public school that serves the base and the surrounding community. We have a high rate of mobility and receive children from throughout the United States and many countries around the world. At every grade level, we see children who have been exposed to many programs, state standards and standards of other countries. How much easier our lives would be if I knew that the children entering my school have received instruction that emphasizes thinking and understanding. Not simply formulized learning that frequently doesn't make sense to the child and does not supply a firm foundation on which to build a knowledge base. Catherine Sophian's research makes clear

that we can be creating many misunderstandings and errors in later learning without a foundation that is built upon exploration and struggle for children with real problems. Educators need to be looking at the long-term goal of mathematics learning and not the short-term gain that formula based learning provides. I've seen 5 year olds who are already saying, "I'm not good at math" because they hear those around them saying this based on their negative feelings about math. Many negative attitudes are instilled because of early failure and our emphasis on right answers over struggle with complex ideas and understanding of number concepts.

Many educators and researchers have contributed overviews of existing programs that will provide research based, inquiry activities that were normed on "at risk" children for this document. This is a hopeful sign of real change for educators. I was so glad to see that progress is being made toward providing good curriculum to teachers of young children. Frequently curriculum dictates what children will learn and what teachers will teach. The programs reviewed here seem exciting and interesting to teachers and students. We know from our work in reading, that if children are not proficient readers by second grade that many will experience difficulty later. I think this is very true in mathematics as well. Children need to have a good foundation in thinking about mathematics early on, or they experience many problems later with more abstract mathematical concepts. Last year, a teacher in my math study group brought a problem to the group of a child in the 5th grade who still did not understand the concept of "one more" in counting and adding and she was expected to have this child ready to compute addition problems into the thousands by the end of the year. This child had been able to progress through a textbook driven curriculum without being firmly rooted in one of the most basic concepts of addition. Perhaps, good programs can prevent this sort of thing from happening.

I was so glad to see that progress is being made toward providing software to children that is more than drill. The Building Blocks program that I've used with the Investigations curriculum was superior to anything else we were using in geometry. The new version will help us to incorporate more activity-based learning that is beyond the worksheet format we encounter with existing software.

As we move into a standards based view of mathematics, the crucial piece of implementation lies within educating the teachers who will be using this system. No system can succeed if those who are in charge of using it fail to understand the hows and whys. Nita Copley has provided a model that could be employed at many universities but it is ultimately the responsibility of each person involved with education to implement change where they feel it is needed. Provide good teachers with good tools and they will turn out students who will be ready for whatever the future brings. The knowledge base of the world grows daily and mastery of all things is not possible, but children who know how to think, explore and learn will be able to meet all challenges. This will become a "must read" for all teachers who want and need good information on "what to teach, how to teach it and when to teach it".