



Institute for P-12 Engineering Research and Learning



PURDUE
UNIVERSITY



THE DEPARTMENT OF ENGINEERING EDUCATION PRESENTS

THE INSPIRE RESEARCH SEMINAR SERIES

THURSDAY, FEBRUARY 7, 2008

3:30 - 4:30 P.M.

NEIL ARMSTRONG HALL OF ENGINEERING
ARMS B071



Precursors to Engineering Thinking (PET): Intentional Designs with Experimental Artifacts (IDEA)

Children's play naturally employs skills of observation and experimentation that lead to the development of intuitive models for how things work. These spontaneously occurring activities are precursors to engineering thinking that we recognize as preparation for future learning. We are engaging in a research agenda to explore the learning progression of *engineering thinking* in young children's development, to identify opportunities for expanding their thinking, and to foster interest in engineering. Literature on early childhood development documents how students' cognitive abilities develop over time. However, little research has been done to document how these activities relate to activities that require *engineering thinking*. In this presentation we will share some of our early results from a naturalistic study with preschool children's constructions with blocks. Our future goals are to learn how we can be more intentional about the activities, toys and devices we could develop that stimulate engineering thinking.

Time will be available following the seminar to ask questions about the next round of Young Engineer Studies (YES) Seed Grant Initiative proposals due March 31, 2008.

Sean Brophy, PhD, is an Assistant Professor in the Engineering Education (ENE) Department at Purdue University and a Bechtel Faculty Scholar. He has been collaborating with other Faculty Scholars in INSPIRE to help define the curriculum for the INSPIRE Summer Academies and identify potential research directions for the Institute. Dr. Brophy organizes the Young Engineering Seed Grant Project for INSPIRE.

Demetra Evangelou, PhD, is an Assistant Professor in Engineering Education at Purdue University and a Bechtel Faculty Scholar. Her research with INSPIRE has focused on early education antecedents of engineering education and developmental factors in engineering pedagogy, as well as human-artifact interaction and engineering thinking.

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