

# Learning

*Deborah Stipek  
Stanford University*

## **Incontrovertible evidence:**

- of the effects of experience on the architecture of the brain as well as children's functioning
- of the value of early intervention
- of the benefits of high quality early childhood education



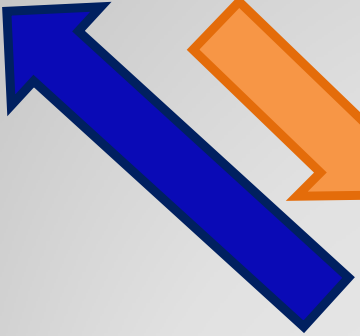
## What are our best leverage points?

- ✓ How early skill development enhances later skill development
- ✓ Nature of interconnections among dimensions of development
- ✓ Importance of “new” domains
  - § executive functions
  - § math skills

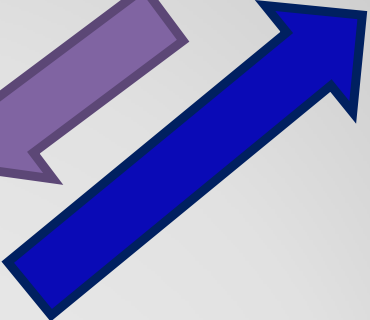
**Context**  
Verbal Input

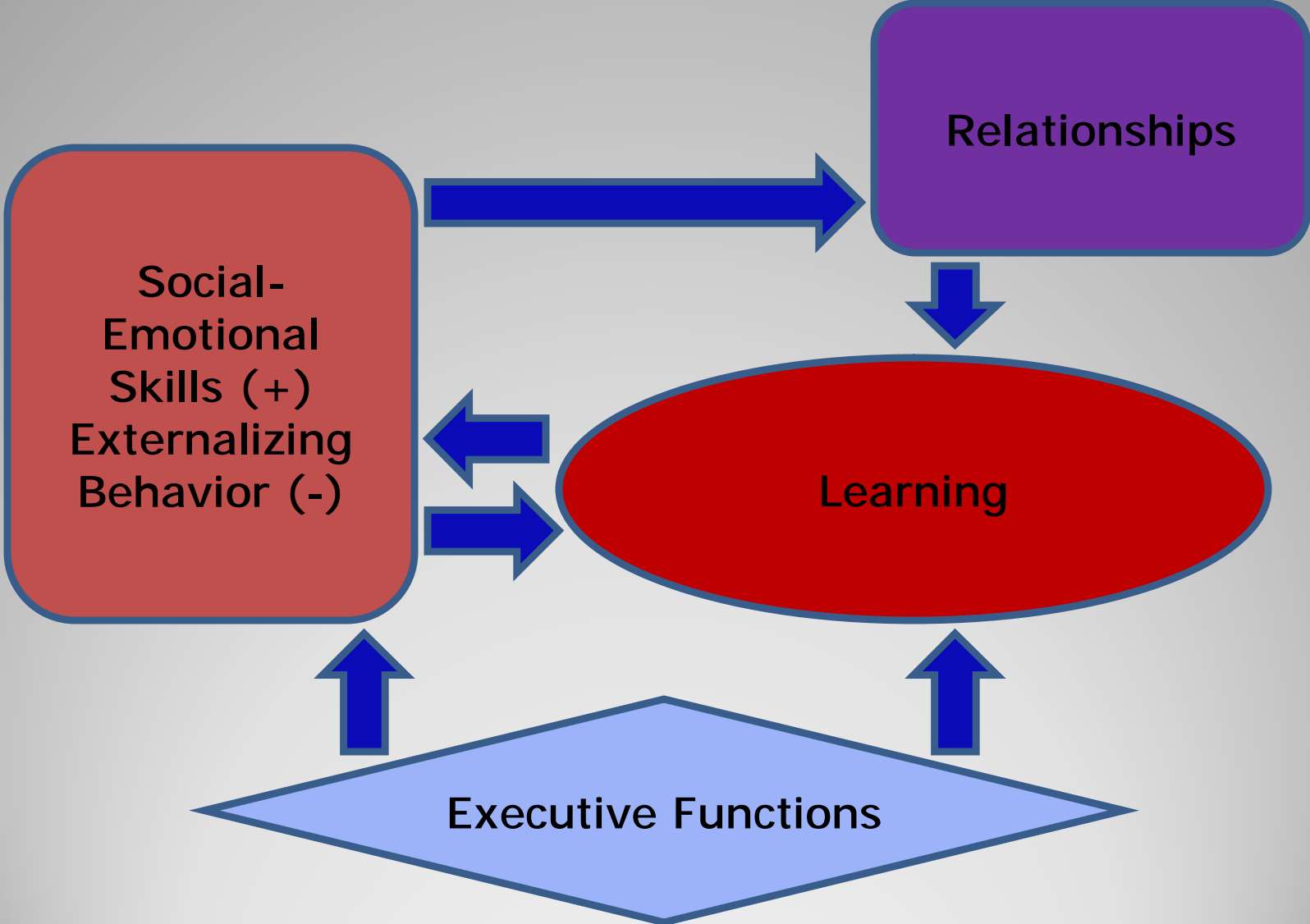


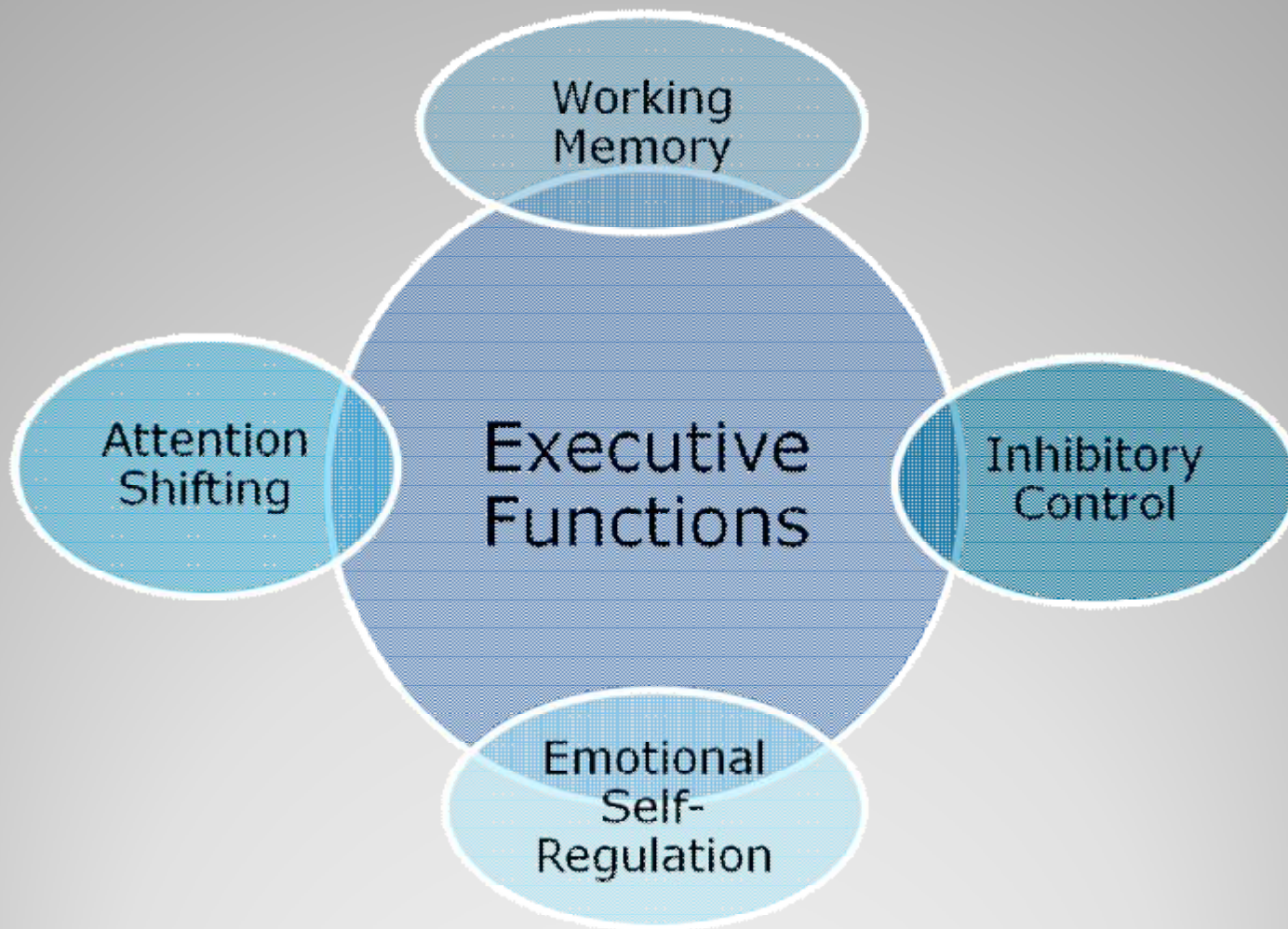
**Cognitive Skills**  
Working Memory & Processing Speed

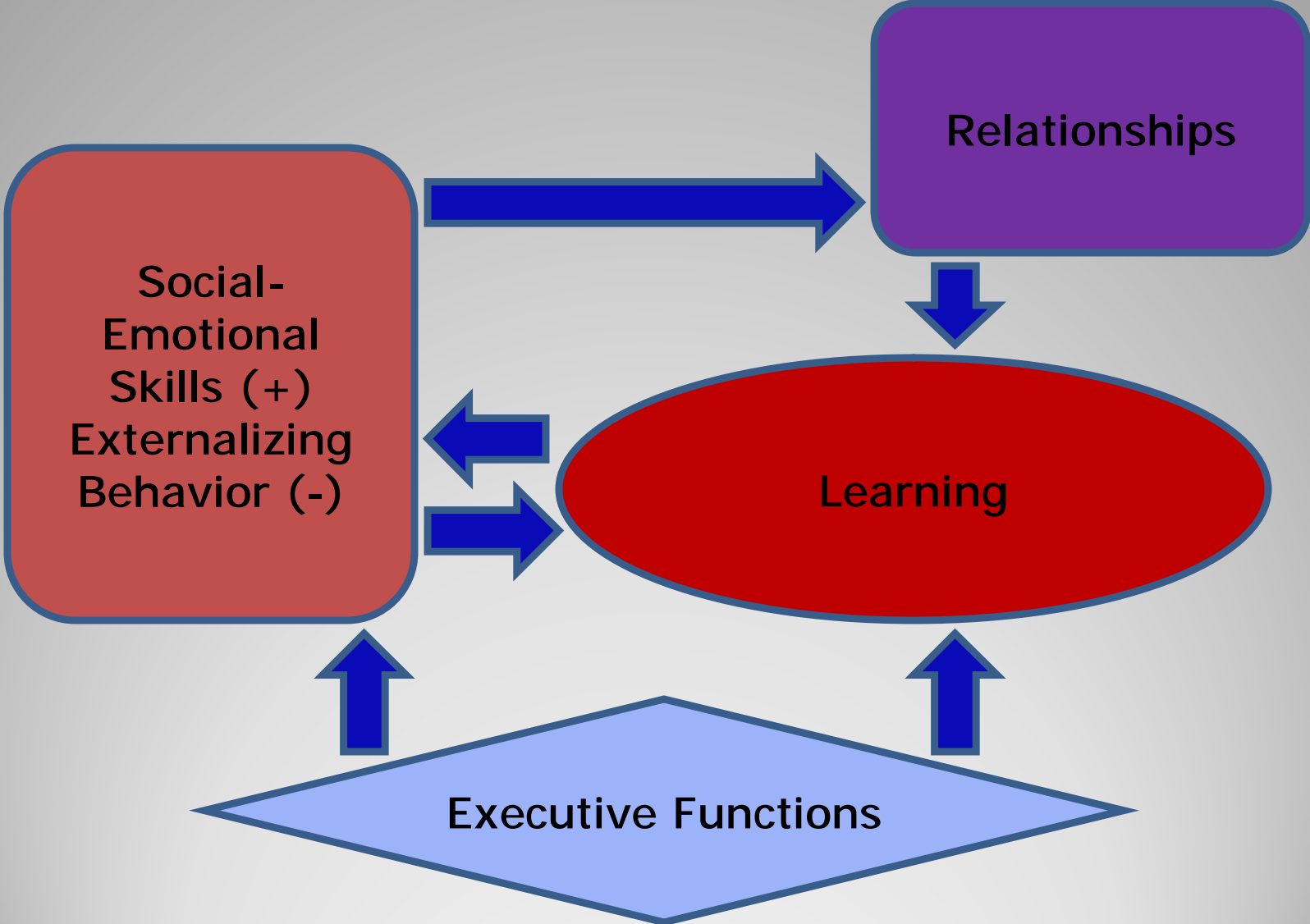


**Learning**  
Vocabulary









| 3 <sup>rd</sup> Grade |               |               |               |
|-----------------------|---------------|---------------|---------------|
| School Entry          | Reading       | Math          | General       |
| Reading               | .18***        | .05***        |               |
| Math                  | <b>.27***</b> | <b>.10***</b> |               |
| 2 <sup>nd</sup> Grade |               |               |               |
| Reading               | .14***        | .12**         | .11**         |
| Math                  | <b>.23***</b> | <b>.23***</b> | <b>.27***</b> |

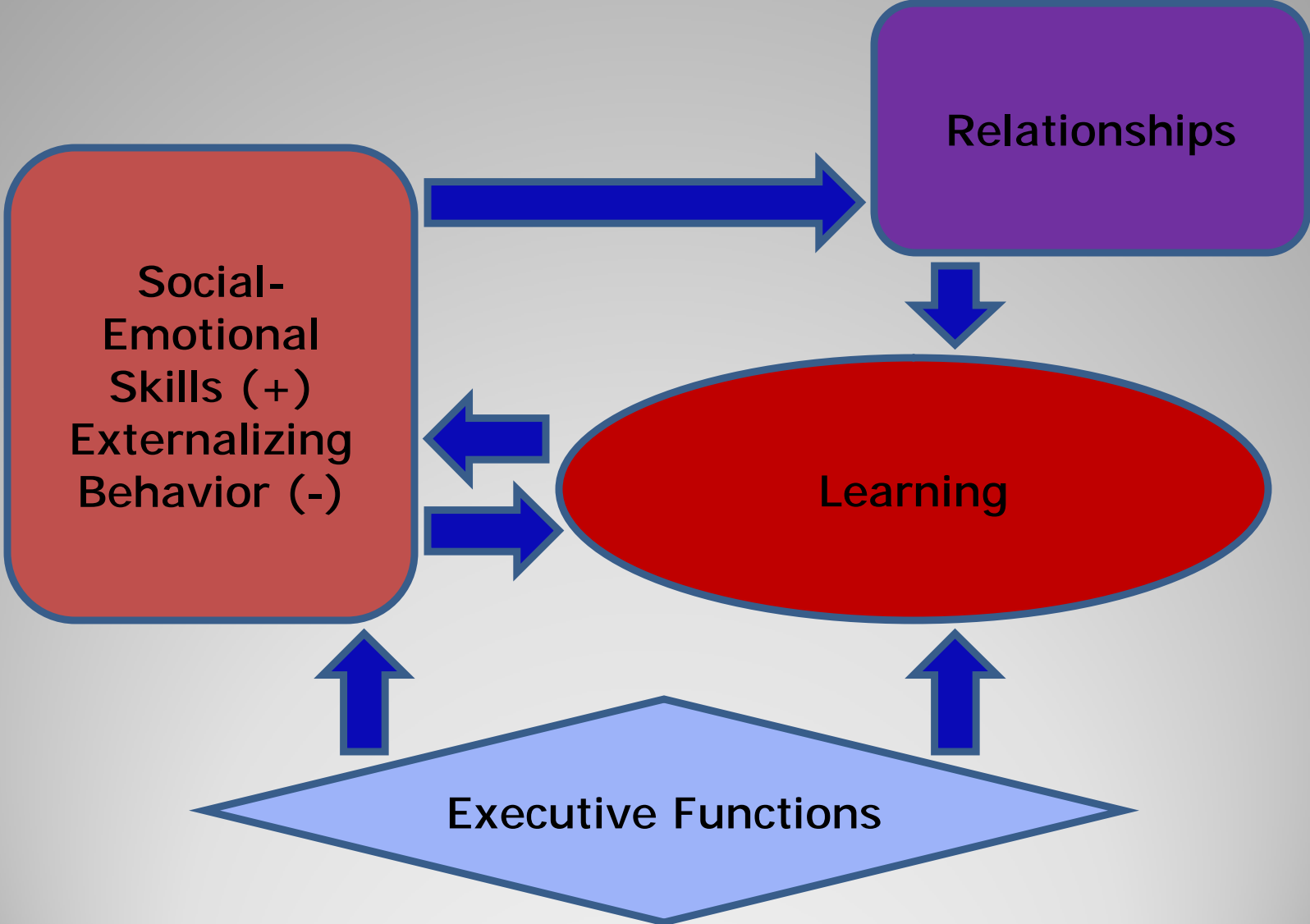
**Math**

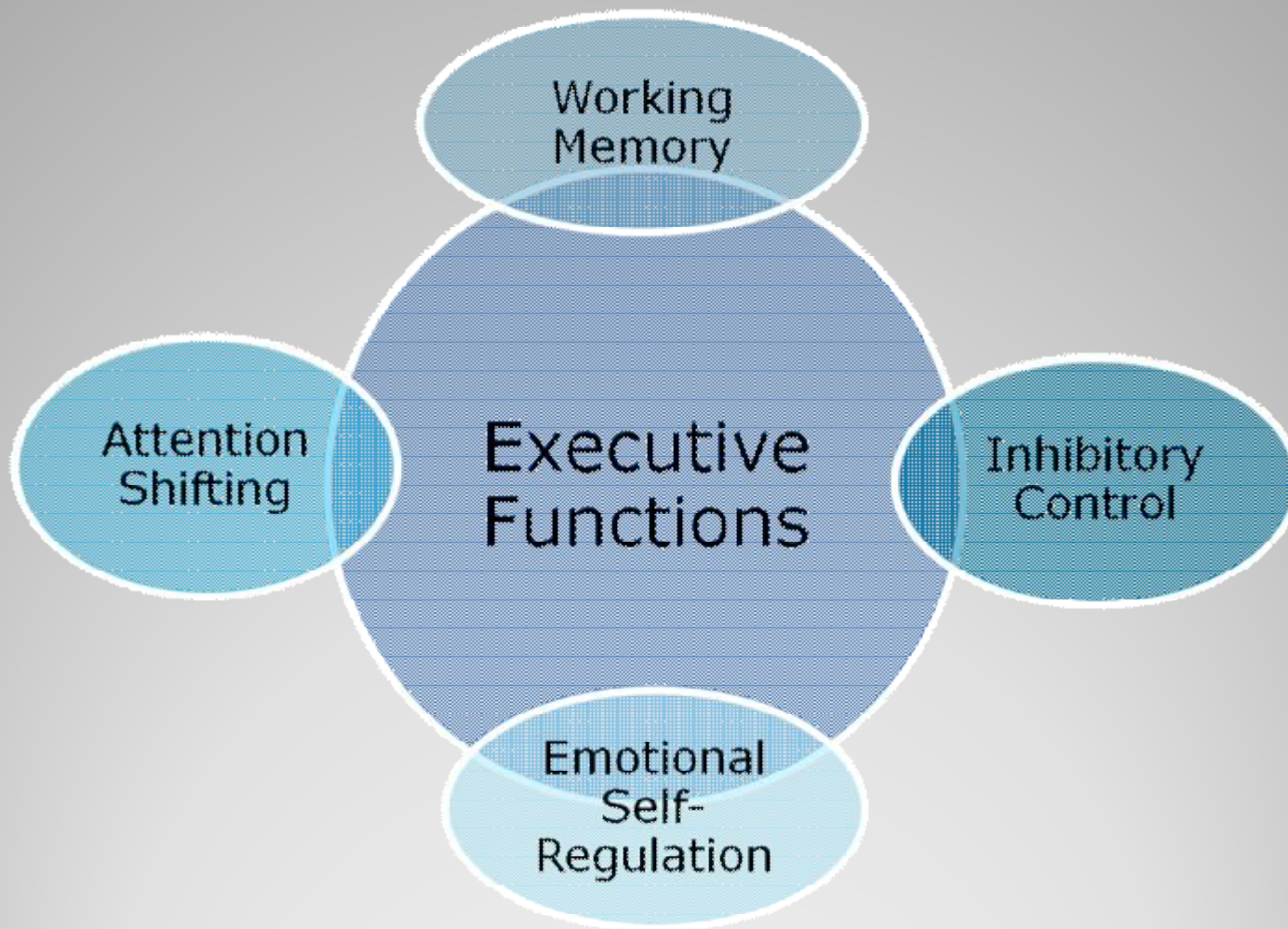


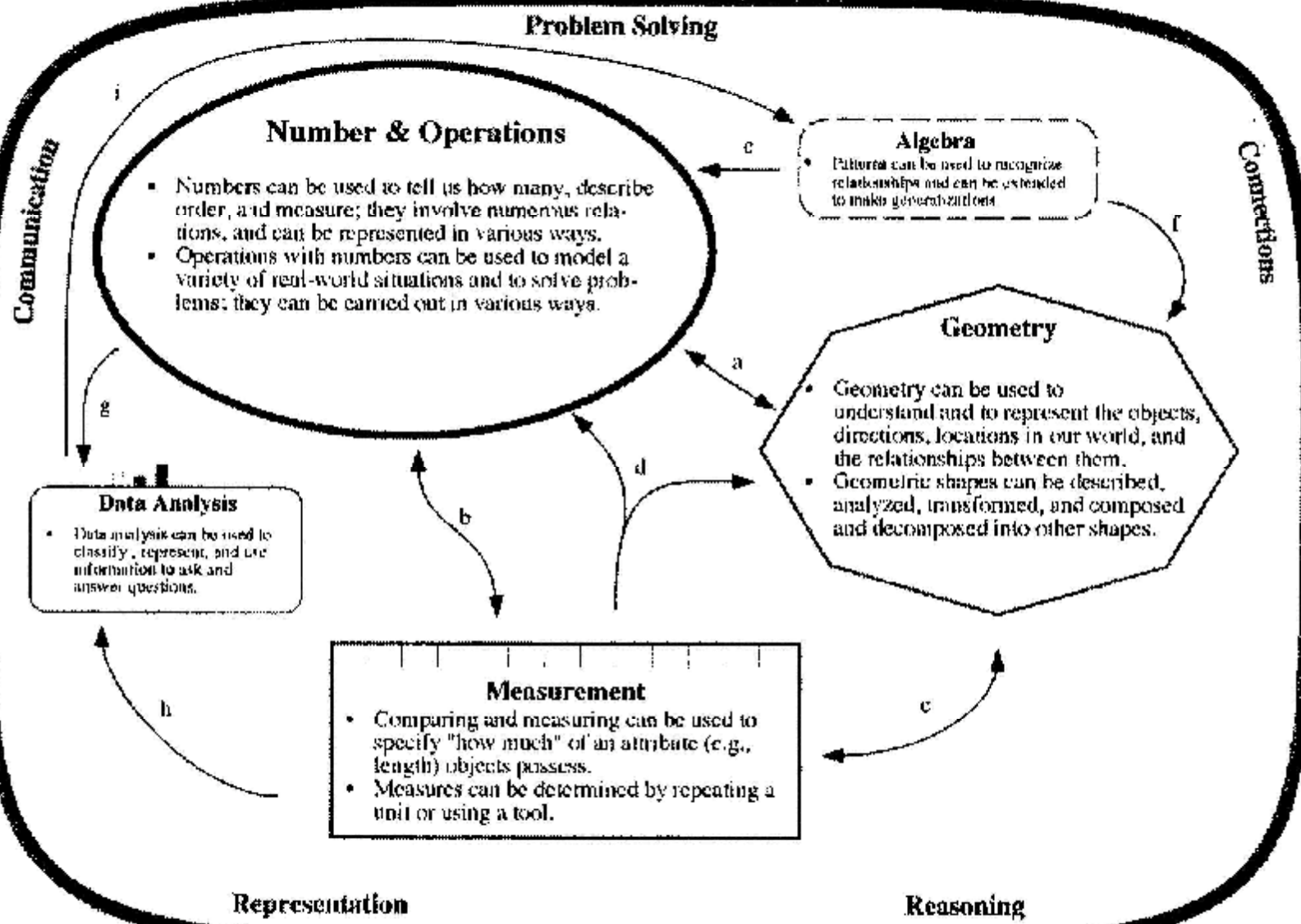
- § Young children are more capable of learning math than previous believed
- § Know about the natural progression of mathematics understanding
- § Fair amount known about effective strategies for teaching math to young children
- § Research-based preschool mathematics programs exist

# Implications for Instruction

- ✓ Need to intervene early
- ✓ Good leverage points (?)
  - § executive skills
  - § math
- ✓ Teachers need to be well trained
  - § educating young children is not just important, *its complicated*

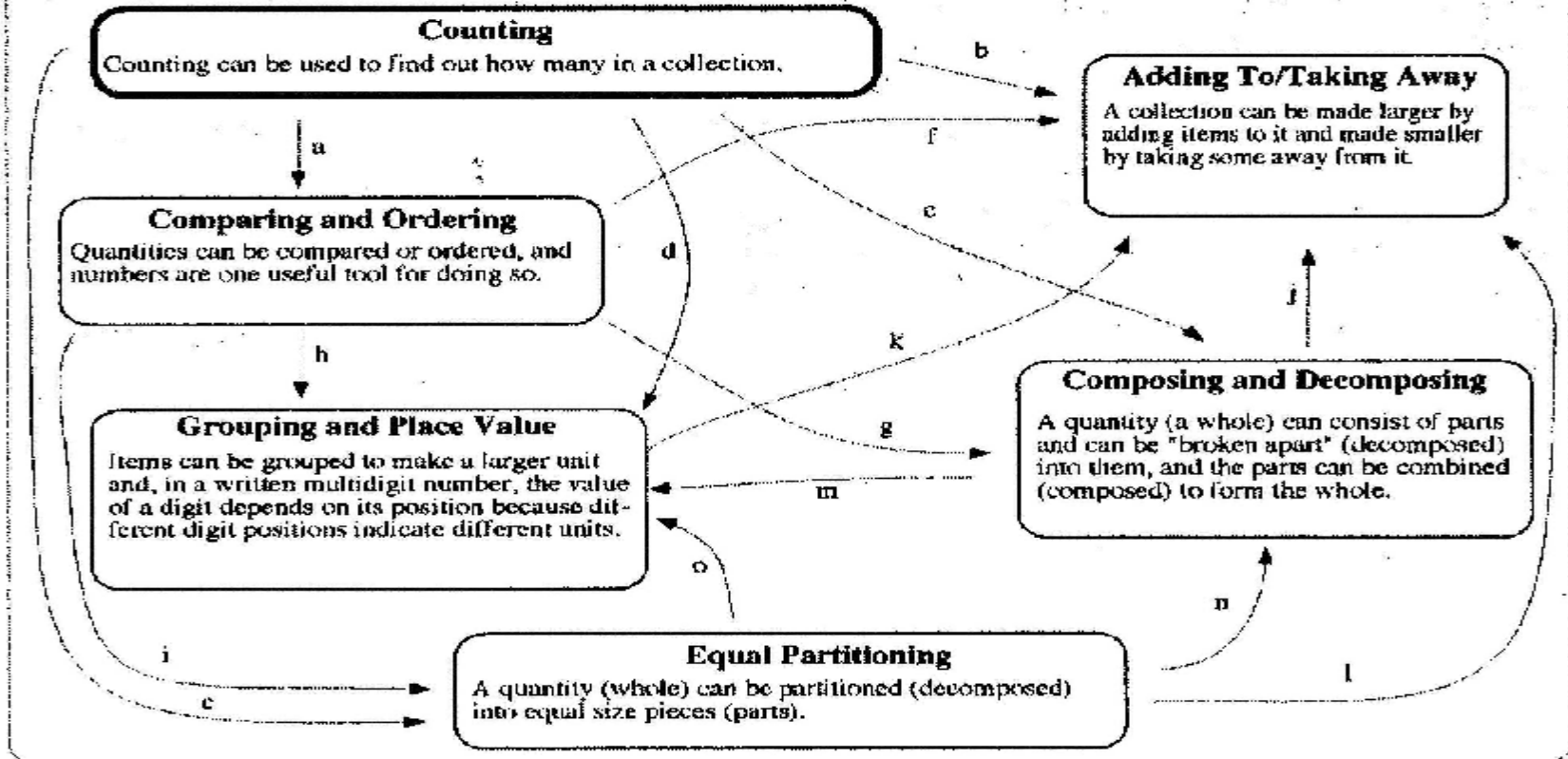






## Number & Operations

- Numbers can be used to tell us how many, describe order, and measure; they involve numerous relations, and can be represented in various ways.
- Operations with numbers can be used to model a variety of real-world situations and to solve problems; they can be carried out in various ways.



## Implications for Research

- ✓ Need to understand better the interconnections among dimensions of development
- ✓ Need to examine how interventions focused on one domain affect others & enhance future learning
- ✓ Need to figure out *how* to prepare ECE teachers to be effective