

# ***Cognition and Metacognition***

***Susan R. Goldman***

***NAPLeS Webinar***

***May 19, 2014***



University of Illinois at Chicago  
**Learning Sciences Research Institute**



# Metacognition: Origins

- John Flavell
  - Developmental psychologist
  - Translated Piaget and basically brought Piaget to the United States
  - **The developmental psychology of Jean Piaget. 1963. Translated from the French.**
- Fit with the cognitive “revolution” in American Psychology that had begun in the early 60s with George Miller and others.



# First there was Cognition

- What was revolutionary about the cognitive revolution of the 60s?
  - American psychology had been dominated by behaviorist psychology – Watson, Skinner.
  - The paradigm shift: The black box is important.
  - We need to better understand how people perceive and act on “stimuli” in the world.
    - Not everyone gets the same thing
    - Why? How does this work?
  - How do people process the information → Information processing approach



# Metacognition: Origins

- In the mid 70s, the idea that one could think about their thinking was “in the air.”
  - Vygotsky – self-regulation comes from interacting with more knowledgeable others. Initially others do the regulating; ultimately the individual engages in self-regulation
  - Piaget – interacting with peers makes you aware that others don’t necessarily think like you. Produces thinking about thinking.
- Meta began with memory



# MetaMemory

- Meta began with memory
  - Flavell gave talks about this idea
  - Published a chapter in 1976; then the paper in the American Psychologist that you read.
  - Much of the work with children was memory research
    - A doctoral student of Flavell's did the first metamemory study: Kreutzer, Leonard, & Flavell (1975). Investigated what K – 5 children knew about how their memories worked.



# At the same time

- At around the same time Ann Brown was looking at accuracy of self-assessing readiness to be tested on memorized items.
  - 1978 “Knowing when, where, and how to remember”
- Brown, A., Bransford, J., Ferrara., R., & Campione, J. (1983). Learning, Remembering, and Understanding. *Handbook of Child Psychology: Cognitive development*.
  - Brought together results of a number of studies that, taken together, argued for looking at cognitive/memory processes separately from knowledge about one’s own cognition, memory processes.



# MetaComprehension

- Meta extended to comprehension by Brown in 1980 and in a paper with Linda Baker in 1984.
- Flavell, Brown and those that followed them distinguish between metacognition as
  - Knowledge about cognition
  - Regulation of cognition

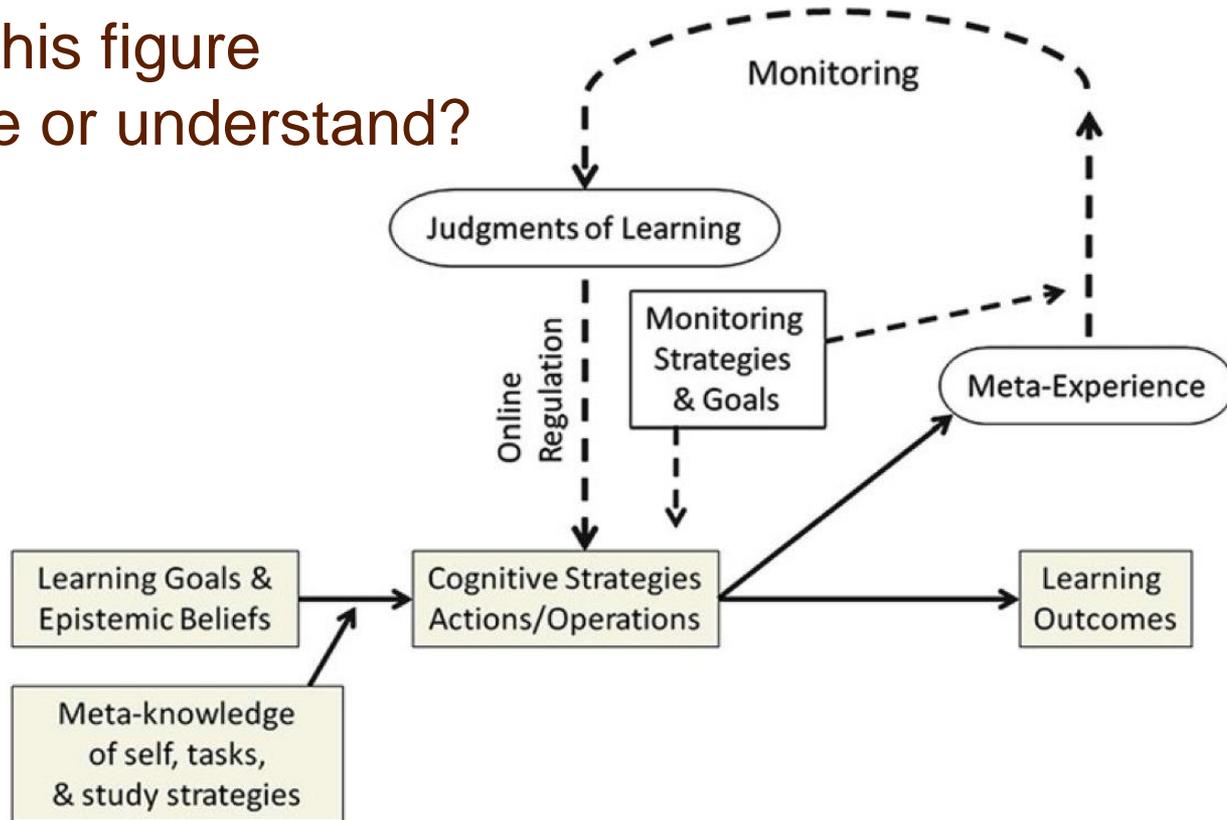


# And in 2014

- More emphasis on self-regulated learning
  - Interest in independence of learners and ability to self-assess their state of knowledge
  - Relationship between beliefs about knowledge and learning and the cognitive as well as metacognitive strategies exhibited.
  - These relationships are depicted in Figure 2.1.

# Unpacking SRL: Interplay of the Cognitive & Metacognitive

What does this figure help you see or understand?



**Fig. 2.1** Components of the self-regulated learning process

From Griffin, Wiley, & Salas, 2013



# Where is Metacognition and SRL in your work?

- There was a small mini-assignment for today's seminar.
- Let's hear what you found out



# Wrap-Up

- Metacognition – thinking about thinking
- Crucial for regulating our learning processes
  - If we don't know how we are doing, we cannot make appropriate adjustments
    - Knowing what to do to learn – how we learn – the other aspect of metacognition
  - Decisions we make about our learning and its adequacy depend on goals, beliefs about ourselves and what we are trying to learn, and about whether we have the tools to do it