Cognitive Theory

CD 446

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Knowledge: A place to start

- Knowledge as a frame
- Reasoning and the contents of the mind
- The KWL process and our project beginning
- Is cognition an observable activity?
- Do you know what you know?
- How knowledge is represented in the mind
- Learning as active organizing; meaning making
Knowledge

Communication

Reading

Acoustic properties of inner ear

- **Declarative** – School boards have decided that students should not read some books. There are three small bones in the inner ear.
- **Procedural** – In English you read from left to right.
- **Conditional** – It is best to protect your ears when exposed to loud noises.
Information Processing

- A model built on one set of theories about memory
- Parallel processing or integrated processing; communications within the brain
- Sensory memory, working memory and long term memory (implicit memories)
Sensory memory

- Capacity
- Duration
- Contents

Perception
- Gestalt: figure ground, proximity, similarity, closure
- Feature analysis
- Context analysis

Attention
- The challenge of mindfulness research
Working Memory

- The “work bench” – what happens if it gets messy?
- Central Executive
- Phonological loop
- Visuospatial sketchpad
- Duration: memory strategies (E,R,C)
- Content: words and images (MI Theory)
Long Term Memory

- Contents: logic structures (propositions, schemata), episodes, etc. Rhythms and patterns? Specialized workbenches?
- Retrieval systems: coding patterns and associations
- Explicit memory: Semantic, episodic
- Implicit memory: conditioning, procedural memory and priming
Semantic Memory

- Propositions and propositional networks
- Images
- Schemas
  - Beware of differences; this is not Piaget’s schema but it is similar
  - Category organizational structures
  - Story schemas
  - Event scripts
- Cultural impacts
Storing new information

- Elaboration
- Organization
- Context
- Match what appears to be already in place
- Structure the learning occasion to provide scaffolds
Metacognition

- Declarative, procedural and conditional knowledge
- Planning, monitoring and evaluating
- Developmental and individual differences
- Strategies: meaningful, mnemonic, rote
- Back to mindfulness and neurobiology
Cognitive Styles

- Field Dependence Independence
- Categorization styles
- Cognitive Tempo – learned, conditioned, innate, socially defined???
- Resource allocation – task management
- ATIs – aptitude treatment interactions
  - Outcomes of interaction between learner characteristics (aptitudes) and learning occasions (treatments)