

A BRIEF HISTORY OF COGNITIVE PSYCHOLOGY - STUDY NOTES

Early Thoughts on Thinking

- Two fundamental perspectives on knowledge:
 - **Empiricists**: Knowledge comes from experience
 - **Nativists**: Knowledge is based on innate brain characteristics
- Ancient views on the seat of thought:
 - **Ancient Egyptians & Aristotle**: Knowledge located in the heart
 - **Plato**: Brain is the locus of knowledge

Cognition in the Renaissance and Beyond

- Renaissance thinkers agreed knowledge was located in the brain
- Knowledge acquisition from:
 - **Mundus sensibilis**: Physical senses (touch, taste, smell, vision, hearing)
 - **Mundus intellectualis**: Divine sources
- 18th century British empiricists (Berkeley, Hume, Mill) proposed three types of internal representation:
 1. Direct sensory events
 2. Faint copies of percepts stored in memory
 3. Transformation of faint copies through associated thought
- 19th century psychologists (Fechner, Helmholtz, Wundt, etc.) began forming empirical discipline
- Two competing theories emerged:
 - **Structure** of mental representation (Wundt, Titchener)
 - **Processes** or acts (Brentano)
- **William James**: Established first psychological laboratory in America
 - Published **Principles of Psychology** (1890)
 - Developed model where structure and process both played important roles in memory
- **Donders and Cattell**: Used brief visual displays to measure time for mental operations

Cognitive Psychology in Early Twentieth Century

- Two major approaches:
 - **Behaviorism**: Stimulus-response (S-R) framework
 - **Gestalt psychology**: Isomorphism (one-to-one relationship between representation and reality)
- Mental processes became unfashionable for about 50 years
- **Edward Tolman** (1932): Published "Purposive Behavior in Animals and Men"

- Introduced **cognitive maps** concept
- Animals develop mental "pictures" of their environment
- **Sir Frederick Bartlett** (1932): Published "Remembering"
 - Rejected studying memory with nonsense syllables
 - Advocated using meaningful material under naturalistic conditions
 - Introduced **schema** concept - unifying theme describing essence of experience

Cognitive Psychology—As it is Today

- 1950s: Renewed interest in cognitive topics (attention, memory, pattern recognition, etc.)
- Factors contributing to the cognitive revolution:
 1. **Failure of behaviorism** to account for diversity of human behavior (especially language)
 2. **Communication theory** prompting experiments in signal detection and attention
 3. **Modern linguistics** offering new perspectives on language structure
 4. **Memory research** providing empirical base for memory theories and models
 5. **Computer science and AI** causing reexamination of problem-solving and memory processing
 6. **Cognitive development** research by psychologists like **Jean Piaget**

Key Concepts Across History

- Knowledge representation has consistently been linked to sensory inputs
- Growing evidence that internal representations are not isomorphic with external reality
- Information from the external world is stored as abstract representations in neurochemical code