

Cognitive Psychology

- THE STUDY OF HUMAN MENTAL PROCESSES AND THEIR ROLE IN THINKING, FEELING, AND BEHAVING.

- INFORMATION PROCESSING—THE MIND IS ANALOGOUS TO THE SOFTWARE OF A COMPUTER AND THE BRAIN TO ITS HARDWARE.

Subject Code	16B1NHS632	Semester: EVEN	Semester VI Session 2020-21 Month from Jan 2021 to June 2021
Subject Name	COGNITIVE PSYCHOLOGY		
Credits	3	Contact Hours	2-1-0

COURSE OUTCOMES		COGNITIVE LEVELS
CO1	Understand and apply the concepts of cognitive psychology in everyday life	Applying Level (C3)
CO2	Analyze the different models of various cognitive processes	Analyzing Level (C4)
CO3	Evaluate cognitive psychology issues and recommend possible solutions	Evaluating Level (C5)
CO4	Evaluate interventions/solutions for self-development through cognitive processes	Evaluating Level (C5)

Module No.	Subtitle of the Module	Topics in the module	No. of Lectures for the module
1.	Introduction to Cognitive Psychology	Historical Background: Emergence of modern cognitive Psychology; Approaches: Information Processing and PDP Model; Research Methods	3
3.	Perceptual Processes	Perceptual learning and development; perception of shape, space, and movement.	4
3.	Attention	Selective Attention and Divided Attention: Meaning, Definition, and Theories.	4
4.	Memory	Short Term Memory	3
5.	Imagery	Properties of mental images; Representation of images and cognitive maps.	3
6.	Language	Structure of language and its acquisition, speech perception, factors affecting comprehension.	4
7.	Thinking and Problem Solving	Types of thinking; Classification of problems; Problems solving approaches, Problems space theory by Newell and Simon, Creativity	4
8.	Decision Making	Logical reasoning types and errors in reasoning processes. Concept formation and categorization; Judgment and decision making	3
Total number of Lectures			28

Evaluation Criteria

Components	Maximum Marks	
T1	20	
T2	20	
End Semester Examination	35	
TA	25	(Project, Assignment Attendance)
Total	100	

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
1.	Ronald T. Kellogg, Fundamentals of Cognitive Psychology, 2nd Ed., Sage Publishing, 2012
2.	Robert Solso, Otto Maclin, M. Kimberly Maclin, Cognitive Psychology, 8th Ed., Pearson Education, 2013
3.	Kathleen M. Galotti, Cognitive Psychology, 5th Ed., Sage Publishing, 2014

Overview

What is Cognitive Psychology?

The History of Cognitive Psychology in Brief

Cognitive Psychology is about Processing Information

Metaphors, Models, Theories, and Perspectives

Cognitive Psychology and Cognitive Science

Research Methods

What is Cognitive Psychology?

Scientific study of the thinking mind

- Attending to information
- Perceiving information from the world
- Storing information
- Processing information
- Retrieving information
- Solving problems, thinking, language

A Brief History...

Early Thoughts on Thinking

Two perspectives about how knowledge represented in the mind:

- **Empiricists**
 - Knowledge comes from Experiences gained through the lifetime
- **Nativists**
 - Knowledge is based on the Innate characteristics of the brain
 - Knowledge is defined as the storage and organization of information in memory. This supports both sides of argument.
 - Storage side suggests that experiences are important, and the organization side suggests that some preexisting structural capacity exists in the brain.

A Brief History...

The Rise and Fall of Behaviorism

- Stimulus-response
- Intervening variables
- Edward C. Tolman's book "Purposive Behavior in Animals and Men" (1932)
- Rats used alternate, novel (untrained) pathway when accessible to locate the food.
- The animal developed gradually developed a "picture" a picture of its environment that was later used to find the food.
- Sir Frederick Bartlett wrote "Remembering" (1932).
- Important aspect of remembering a story was the participant's **attitude** towards the story

A Brief History...

The Cognitive Revolution

- 1956, symposium on information theory in MIT
- Interest turned again toward cognitive processes and how knowledge is represented in the mind

Cognitive Psychology is about Processing Information

Involves total range of psychological processes

How we attend to and perceive information in the world

How that information is processed, stored and used

Metaphors, Models, Theories & Perspectives

Metaphors can be used to conceptualize a cognitive process (e.g., memory is like a video camera).

- Useful for understanding
- Not always accurate

Models are organizational frameworks used to describe processes.

- Provides a representation of the character of the observation and aids in making predictions
- Models help us understand the process by explicitly describing it.
- E.g. Ordering a take-and-bake-pizza;



Metaphors, Models, Theories & Perspectives

Theories attempt to explain some aspect of a process

- Used to test hypotheses
- Can be supported or disproven

Perspectives guide scientists' research questions and evaluation of their findings

- Information processing
- Neuroscience
- Computer science
- Evolutionary psychology

1. Who said that knowledge is based on the innate characteristics of the brain?

Empiricists

Nativists

Atkinson

William James

2. All of the following statements are central to empiricism EXCEPT:

Knowledge comes from an individual's experience.

Learning takes place through the mental association of two ideas.

Environment plays a powerful role in determining intellectual ability.

Important structures of the human mind are present at birth.

Most of our human characteristics and capabilities are changeable.



3. The belief that most of our abilities and tendencies are with us from birth is known as:

nativism.

empiricism.

associationism.

introspection.

behaviorism.

4. Which of the following is NOT an example of a cognitive process?

attention

perception

reflex

recognition

problem solving



5. Even rats have goals and expectations, and can form mental representations of mazes, according to whom?

Watson

Skinner

Tolman

both Watson and Tolman

both Skinner and Tolman

6. Skinner objected to hypothesizing the existence of _____, which he took to be internal copies of external stimuli.

reinforcers

instincts

stimulus–response connections

mental representations