

Donders (1868) - First cognitive psychology experiment  
Wundt (1879) - established 1<sup>st</sup> laboratory of Scientific Psychology  
Ebbinghaus (1885) - quantitative measurement of mental processes  
James (1890) - First book of psychology.

## INTRODUCTION

### # MEANING

- COGNITION or mental activities, describes the acquisitions, storage, transformation and use of knowledge. The term cognition stems from Latin word "cognoscere" or "to know".

- The cognitive processes depicts includes attention, mentally focusing on some stimulus (some mysterious shape); perception, interpreting sensory information to yield meaningful information and pattern recognition, classifying a stimulus into a known category.

- In recognizing the shape as something familiar, you no doubt called on memory, the storage facilities and retrieval processes of cognition.

- In simple words, how people perceive, learn, remember and think.

- The use of memory processes includes recognition (you see the woman as familiar) and recall (you try to ~~the~~ determine where you know her from) the You may use various strategies or techniques of reasoning and problem solving (to know who she is)

To communicate with her, you use language as well as non-verbal cues or sensory signals.

★ In 1967, Ulric Neisser's, "Cognitive Psychology" was published  
★ And in 1970 more than 60 universities in North America and Europe have established cognitive psychology programs.  
Eventually you'll have to use decision-making to determine how to deal with the situation.

Associated term cognitive psychology has two meanings

① Sometimes, it is a synonym for the word cognition, and so it refers to the variety of mental activities we just listed.

② Sometimes it refers to a particular theoretical approach to psychology.

Specifically, the cognitive approach is a theoretical orientation that emphasizes people's mental processes and their knowledge.

[Ulric Neisser]

**COGNITIVE PSYCHOLOGY** - that branch of psychology concerned with how people acquire, store, transform, use and communicated information

- Neisser 1967

It is a branch with the scientific study of mind concerned  
Put differently, cognitive psychology deals with our mental life what goes on inside our head when we perceive, attend, remember, think, categorize, reason, decide and so forth.

- Cognitive psychology is closely related to the highly interdisciplinary cognitive science and influenced by artificial intelligence, computer science, philosophy, anthropology, linguistics, biology, physics and neuroscience.

## # ORIGIN OF COGNITIVE PSYCHOLOGY.

The cognitive approach to psychology traces its origin to the classical Greek philosophers and to developments in 19<sup>th</sup> - and the 20<sup>th</sup> century psychology.

### \* Aristotle.

- The Greek philosopher Aristotle examined topics such as perception, memory and mental imagery.

- He also discussed how humans acquire knowledge through experience and observation.

- Aristotle emphasized the importance of empirical evidence, or scientific evidence obtained by careful observations and experimentations.

- Leahy (2003), suggests that Aristotle could reasonably be called the first cognitive psychologist.

- However psychology as a discipline did not emerge until the late 1800's.

Date: \_\_\_\_\_ Page: \_\_\_\_\_

- Other historians of psychology trace the fields roots to the philosophers of the 17<sup>th</sup> to 19<sup>th</sup> century, including David Hume, John Stuart Mill, George Berkeley, and Immanuel Kant.

### Empiricism -

rests on the tenet that knowledge comes from an individual's own experiences.

Empiricists recognize individual's own differences in genetics but emphasize human natures malleable, or changeable aspects.

Empiricists believe people are the way they are, and have the capabilities they have, largely because of previous learning.

Nativism, by contrast, emphasizes the role of constitutional factors - of native ability over the role of learning in the acquisition of ability and tendencies. Nativists attribute differences in individuals abilities less to difference in learning than to differences in original, biologically endowed capacities and abilities. "Hardwired" functions such as working memory are attributed to unaltered

\* 19<sup>th</sup> century in 1879, psychology is celebrated as birth of scientific psychology.

Wilhelm Wundt. (Structuralism) Edward Titchener.

— A central researcher in the history of psychology is Wilhelm Wundt who lived in Leipzig, Germany between 1832 to 1920.

— Historians often give credit to Wundt for creating the new discipline of psychology; — a discipline that was separate from philosophy and physiology. — According to Stove, our whole experience is determined by combining basic elements of experiences called sensations. — Wundt established the first laboratory in a small lecture room in the university of Leipzig, Germany. — Wundt wanted to make a "periodic table of mind" which would include all of the basic <sup>sensation</sup> ~~experiences~~ <sup>involving in</sup> <sup>creating experience</sup> — Wundt proposed that psychology should study mental processes (conscious experiences) using a technique called introspection.

— Introspection meant that carefully trained observers would systematically analyze their own sensations and report them as objectively as possible. Although Wundt never achieved his goal of explaining behaviour in terms of sensations, he had a major impact on psychology by establishing laboratories and departments in diff. universities.

→ birth.

Hermann Ebbinghaus

nonsense syllables experiment

he waited for 31 days after which he tried gain the same procedure

— Another important German psychologist, who focused on factors that influence human memory

— He constructed more than 2000 nonsense syllables and tested his own ability to learn these stimuli. by using a device a memory drum (modern cognitive psychologists would use a computer) He examined a variety of factors that might influence performance, such as the amount of time between list presentation

He specifically chose nonsense syllables - rather than actual words - to reduce the influence of previous experience with the material.

— **Recency Effect** (Calkins reported the phenomenon) \* Calkins first woman to be president of APA.

it refers to the observation that our recall is especially accurate for the final items in a series of stimuli.

— Ebbinghaus and Calkins and their pioneers inspired 100's of researchers to examine how selected variables influenced memory. These early researchers typically used nonsense syllables.

(why)

## William James (Functionalism)

James was not impressed by Wundt's introspection technique or Ebbinghaus' research with nonsense syllables.

Instead, he preferred to theorize about our everyday psychological experiences.

He is best known for his book *Principles of psychology*, published in 1890.

This book provides detailed description about people's everyday experience. It also emphasizes that the human mind is active and inquiring.

- James regarded psychology's mission to be the explanation of our experience.

- He asked why the mind works the way it does.

He assumed that the way the mind works has a great deal to do with its functions - the purpose of its various operations. Hence, the term functionalism was applied to his approach.

- One of the best known chapters in his textbook, on "habit". James saw habit as the "flywheel of society".

- He saw habits as inevitable and powerful and drew from this a practical conclusion.

- James point is that the people should take care to avoid bad habits and establish good ones.

- He offered advice about how to do so urging people to ~~decisions~~ never allow an exception when trying to establish a good habit, to seize opportunities to act on resolutions and to engage in a "little gratuitous effort" every day to keep the "faculty of efforts" alive.

- James covers a wide range of cognitive topics, including thinking, consciousness, attention, memory, perception, imagination and reasonings in his book.

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## BEHAVIOURISM: -

- During the first half of the twentieth century, behaviourism was the most prominent theoretical perspective in the United States.

- It took root in the 1930's and dominated academic psychology until well into the 1960's.

- One of the general doctrines of behaviourism is that references to unobservable, subjective mental states as well as to ~~un~~ unobservable, subjective processes are to be banished from psychology proper, which behaviourists took to be the scientific study of behaviour.

- Behaviourists rejected such techniques of study as introspection, which they found in principle to be untestable.

- The most prominent early behaviourist was the U.S. psychologist John B. Watson who lived from 1878-1958.

- Watson's experiment (Little Albert experiment) on a boy, to a loud noise every time a rat (which he liked) came close to him. After some pairing of the noise with the rat, Albert reacted to the rat by crawling away rapidly.

- Watson regarded all "mental" as reducible to behavioral and physiological responses.

- Such things as "images" and "thoughts" he believed, resulted from low-level activity of glands or small muscles.

- In his first textbook, Watson cited evidence showing that when people report they are "thinking", muscles in the tongue and larynx are actually moving slightly.

Thought, for Watson, simply amounted to perception of these muscle movement.

Watson's contribution to cognitive psychology - banishing all "mental language" from use - was largely negative insofar as he believed the scientific study of mental phenomena was simply not possible.

- Watson's ideas are associated with classical conditioning - how pairing one stimulus with another, previously neutral stimulus causes changes in the response to the neutral stimulus. Watson's inspiration for his experiment was Ivan Pavlov's research that demonstrated

classical conditioning of the dog. Pavlov's pairing of food (which made dog salivate) with a bell. This cause dog to salivate the sound of the bell.

B.F. Skinner.

- Psychology's best-known behaviorist took a different tack with regard to mental representations.

- Skinner argued that such "mentalist" entities as images, sensations and thoughts should not be excluded simply because they are difficult to study.

- Skinner believed in the existence of images, thoughts and the like and agreed they were proper objects of study, but he objected to treating mental events and activities as fundamentally different from behavioural events and activities.

- In particular, he objected to hypothesizing the existence of mental representations (**internal depictions of information**), which he took to be internal copies of external stimuli.

- Skinner believed images and thoughts were likely to be no more or less than verbal labels for bodily processes.

- Date: \_\_\_\_\_ Page: \_\_\_\_\_
- But even if mental events were real and separate entities, Skinner believed, they were triggered by external environmental stimuli and gave rise to behaviour.
  - Therefore, he held, a simple functional analysis of the relationship between the stimuli and behaviours would avoid the well known problems of studying mental events.
  - Other behaviourists were more accepting of the idea of mental representations.

### GESTALT PSYCHOLOGY. (observation, experiment)

- The school of Gestalt psychology began in 1911 in Frankfurt, Germany, in a meeting of three psychologists

- ① Max Wertheimer
- ② Kurt Koffka
- ③ Wolfgang Kohler

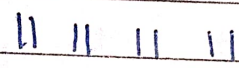
- Gestalt psychology emphasizes that we humans have basic tendency to actively organize what we see, furthermore the whole is greater than the sum of its part.

- In other words, the psychologists central assumption was that psychological phenomena could not be reduced to simple elements rather than had to be analyzed and studied in their entirety.

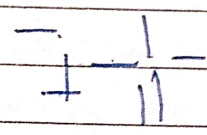
- For example.

(A), (B), (C) all contains 8 equal lines

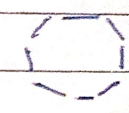
However, most people experience the 3 arrays quite differently



[A]



[B]



[C]

seeing [A] as four pairs of line segments  
 [B] 8 lines segments haphazardly arranged  
 [C] a circle, more precise an octagon made up of 8 line segments.

- The Gestalt psychologists thus rejected structuralism, functionalism and behaviourism as offering incomplete accounts of psychological and in particular cognitive experiences.

Date: \_\_\_\_\_ Page: \_\_\_\_\_  
- Gestalt psychologists also emphasized the importance of insight in problem solving.

- When you are trying to solve a problem, the parts of the problem initially seem unrelated to each other.

However, with a sudden flash of insight, the parts fit together into a solution. Gestalt psychologists conducted most of the early research in problem solving.

### FREDERIC C. BARTLETT.

- In the early 1900s, the behaviourist were dominant in the U.S. and the gestalt psychologists were influential in continental Europe.

- Meanwhile in ~~the~~ Europe England, a British psychologist named Frederic C. Bartlett rejected that carefully controlled research of Ebbinghaus.

- Instead, Bartlett used meaningful materials such as lengthy stories. He discovered that that people make made systematic errors when trying to recall these stories.

Bartlett proposed that ~~no~~ human memory is an active, constructive process, in which we interpret and transform the information we encounter.

We search for meaning, trying to integrate this new information so that it is more consistent with our own personal experiences.

## THE EMERGENCE OF MODERN COGNITIVE PSYCHOLOGY

- Cognitive psychologists generally agree that the birth of cognitive psychology should be listed as 1956

During this prolific year, researchers published numerous influential books and articles on attention, memory, language, concept formation and problem solving.

Many researchers also attended an important symposium at the Massachusetts Institute of Technology

- Enthusiasm for the cognitive approach grew rapidly, so that by 1960, the methodology and attitude had changed substantially.

Another important turning point was the publication of Ulric Neisser's book *Cognitive Psychology* (1967).

In fact, the growing support for the cognitive approach has sometimes been called "Cognitive revolution".

The Cognitive Revolution, a new series of psychological investigations was mainly a rejection of the behaviourist assumption that mental events and states were beyond the realm of scientific study or that mental representations did not exist.

2 assumptions

① Human cognition can at least in principle be fully revealed by the scientific method, that is, individual components of mental processes can be identified and understood.

② Internal mental processes can be described in terms of rules or

algorithms in information processing models there has been much recent debate on these assumptions

## Factors contributing to the rise of Cognitive Psychology.

- The emerging popularity of the cognitive approach can be traced to psychologists' disenchantments with behaviourism, as well as to new developments in linguistics, memory and developmental psychology.
- By the late 1960's psychologists were becoming increasingly disappointed with the behaviourist outlook that had dominated U.S. psychology.
- Complex human behaviour could not readily be explained using only the concepts from traditional behaviourist theory such as observable stimuli, responses and reinforcement.
- The most imp. contribution came from the linguist **Noam Chomsky** who <sup>emphasized</sup> ~~emphasized~~ that the structure of language was too complex to be explained in behaviourist terms.

- Chomsky and other linguists argued that humans have an <sup>inborn</sup> ability to master all the complicated and varied aspects of language.
- This perspective clearly contradicts the behaviourist perspective that the acquisition of language can be entirely explained by learning principles.
- Psychologists examined the organisation of memory and the proposed memory model.
- Another influential force came from ~~the~~ research on children's thought processes. **Jean Piaget** was a Swiss theorist who lived from 1896 to 1980.

His perspective continued to shape developmental psychology.

Acc. to Piaget, children actively explore their world in order to understand important concepts.

Furthermore, children's cognitive strategies change as they mature.

- During infancy, for eg babies master object permanence the knowledge that an object exists, even when it is temporarily out of sight where as, an adolescent often uses ~~sp~~ sophisticated strategies in order to conduct experiments about scientific principles.

- We have seen the growth of the cognitive approach was encouraged by research in linguistics, memory and developmental psychology.

By the mid 1970's the cognitive approach had replaced the behavioural approach as the dominant theory in psychological research.