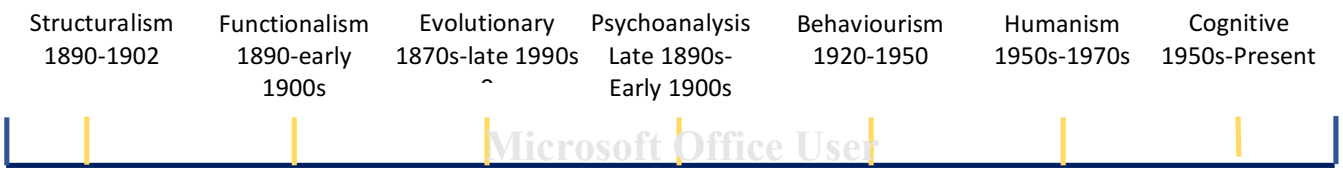
Week 1: Introduction of Psychology

One: Define psychology

- Psychology is the scientific investigation of mental processes (thinking, remembering and feeling) and behaviour.
- Understanding a person requires attention to the individuals' biology, psychological experience and cultural context.

Two: Outline the history of Psychology

- Many issues at the heart of contemporary psychology were born out of philosophy. Psychologists began to apply the methods and technologies of natural science to psychological questions; if physics could discover the atom, psych could uncover basic laws of animals and human nature
- **Rationalists/Descartes:** free will vs determinism.
    - Rationalism: a method of understanding the world based on the use of reason as the means to attain knowledge. People choose a certain action and act on it. (free will)
- **Determinists:** assert that behaviour follows lawful patterns like everything else in the universe, from falling rocks to orbiting planets
- **Mind/Body Problem:** how mental and physical events interact.
- **Wilhem Wundt:** Unlike philosophers before him, Wundt trained observers to report verbally everything that went through their minds when presented a stimulus or task. By varying objects presented, concluded basic elements of consciousness are sensations (colours) and feelings. Combine → perceptions → more complex ideas by focusing attention on them
- Hence his version of introspection is looking inwards and reporting on one's conscious experience
- **Edward Titchener:** advocated using introspection in experiments
- Hoped to devise a 'periodic table of the elements of human consciousness'
- Interested in **structure of consciousness;** became known as pioneer of structuralism
- Unlike Wundt, believed experimentation only appropriate method for the science of psych
    - **Structuralism:** attempts to uncover basic elements of consciousness through introspection.
- **William James:** wanted to identify why people behave, not how. To discover the purpose of consciousness/behaviour. Used experiments and introspection.
    - **Functionalism.** Functionalism attempts to explain psych processes in terms or the role, or function, they serve.

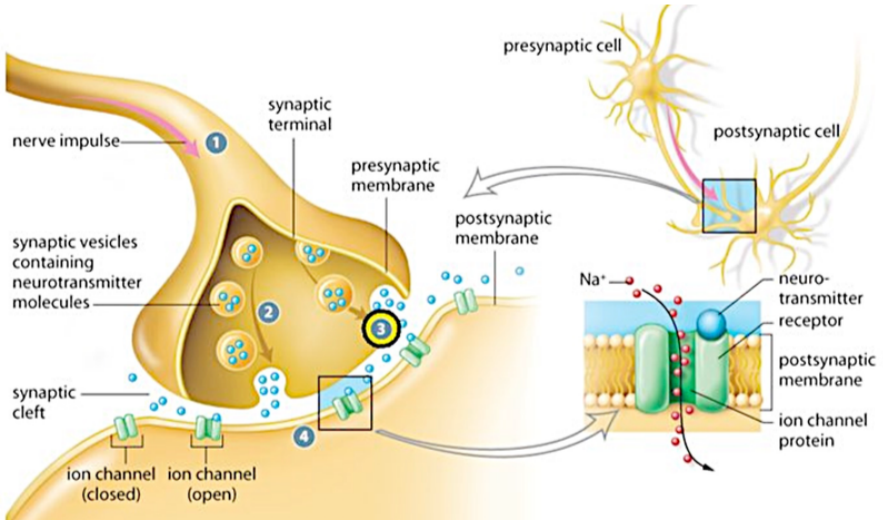


Timeline of When Psychological Schools of Thought Emerged

Week 2: Activity

Fill-in-the-Blank - Synaptic Communication

1. _____ buttons, located at the ends of _____, contain tiny ____ (packages) of neurotransmitter
2. When the action ____ reaches _____buttons, causes _____ to fuse with the cell _____ and rupture
3. This _____ the neurotransmitter into the ____ ____ (gap between two neurons)
4. The _____ chemical attaches to ___ on the postsynaptic neuron
5. This causes channels in the cell membrane to _____ and lets ___+ ions in
6. This triggers an _____ potential in the post-synaptic cell
7. The neurotransmitter molecules quickly _____ out of the synaptic cleft or are _____ by enzymes.
8. This process stops the _____ of the postsynaptic cell



1. Practically _____ brain function results from synaptic communication between _____
2. Many disorders of behaviour and cognition have been traced to a _____n in one of the steps of _____ communication
3. Most drugs that affect brain function target _____ _____

Week 2: Revision Questions

1. Explain Cartesian Dualism in terms of early thoughts on consciousness.
2. In what year did new technical approaches allow us to see into the living brain?
3. Is it true that no area of psychology can credibly claim to be independent of biology?
4. Define a neruron.
5. Differentiate between sensory, motor and interneurons.
6. What does it mean if a cell is polarised?
7. What does it mean if a cell is deploarised?
8. Define action potential
9. Label a diagram on Qs 6-8.
10. What is a neurotransmitter?
11. What is synaptic communication and how does this occur?
12. Briefly explain the effects of the following neurotransmitters:
    glutamate, GABA (gamma-amniobutryric acid), dopamine, serotonin, ACh (Acetlycholine), endorphins and enkephalins.
13. What is a nerve agent?
14. What neurotransmitter is the main one used by motor neurons to contract?
15. Which neurotransmitter is used by the nerves of the parasympathetic nervous system and affects gut mobility, bladder control and breathing?
16. What is VX? What does it prevent?
17. What symptoms do people exposed to VX exhibit?
18. How does victims of VX typically die?
19. What is the antidote called? How does it work?
20. Explain the case of Kim Jung Nam. Include the words: VS, V-series, AChE, VX, atropine.
21. Who was Phineas Gage? Explain the accident and his injury.
22. What was Phineas Gages' illness called?
23. What are the symptoms of this condition?
24. Was his brain able to rewire through plasticity? If yes, how did this occur?
25. Who is Sarah Scott and what event caused her brain damage?
26. Define Brocas' Area. Where is it located in the brain?
27. Define Brocas' Apashia.
28. Has Sarah Scott been able to recover?
29. Label a diagram of the brain. Write a brief sentence describing each areas' functions.
30. Define hemispheric specialisation.

Week 5: Memory

One: Define what memory is & its' importance

Set of systems for storing & retrieving information acquired via our senses – sensation. Storage **duration** of different memory systems ranges from fractions of a second to a lifetime. **Capacity** of different memory systems ranges from a few items to more than the largest available computer.

Two: Describe early research on memory & the limitation of the standard – serial processing model

Ebbinghaus (1850-1909)

- Years (decades) of self-experiment with Nonsense syllables
- First experiments on remembering and forgetting James (1890) defined 2 types of memory, primary (STM) and secondary (LTM)
- Interest waned under behaviourism
- Resurgence in 60s in the cognitive revolution!
- In 1968 Atkinson and Shiffrin proposed a system of memory
- Critical summary work in cognitive psychology
- Memory consists of three "stores"
- The stores are based on how long the memory is retained and their capacity...
- Important as without memory the world would be incredibly unstable & unpredictable

Three: Define levels of processing as described by Craik & Lockhart (1972) and its importance in contemporary theories of memory

Craik & Lockhart compared phonological & semantic processing of study items:

- Phonological – shallow. Generating a rhyming word
- Semantic – deep. Generate a synonym
- Deep or elaborate encoding creates meaning-based codes (semantic codes) that relate information to previously acquired knowledge

Shallow & Deep Processing

- Involves increased interaction with previously stored knowledge increases the chance the info will be preserved, compared to shallow processing
- Deep processing includes; reorganisation of information, formation of associations, creation of mental images
- Shallow processing includes; rote repetition of material, processing of surface features (e.g. whether word presented in upper/lower case letters)
- The deeper the processing, richer the resulting network of associations. Rich associations increase likelihood of recall.

Mnemonists – people with extraordinary memory, provide an extreme example of the benefits of elaborative processing

Luria: reported case of S who could reproduce extremely long lists of words regardless of delay between encoding / retrieval

Week 6: Learning (1)

One: Describe classical conditioning and define the types of stimuli and responses involved.
Learning: enduring change in the way an organism responds based on its' experience

Classical conditioning: two stimuli become associated in such a way that the occurrence of one reliably predicts the occurrence of the other.

Pavlov & the dog:

- Unconditioned stimulus: any stimulus that causes a natural or reflexive behaviour = food
- Unconditioned response: a behaviour that naturally results from exposure to the UCS
- Natural relationship: Relationship between the (UCS) food and the (UCR) salivation

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- Conditioned stimulus: pairing of the neutral stimulus – bell – with the UCS (food)
- After conditioning the salivation, the behavioural response to the CS is called the conditioned response

When a previously neutral stimulus (bell) has become *associated* with another stimulus (the food) and leads, by itself, to a response (salivation) that previously required the (food). When this association has been formed, we say that *learning has occurred*

Two: Apply the principles of classical conditioning in understanding a variety of learned human behaviours.
Real World Examples

Dentist Drill	• Sound of dentist's drill = neutral stimulus = unconditioned response • Pain = conditioned response • Turns into Conditioned stimulus drill, conditioned response pain
Jaws	• Unconditioned stimulus = shark, unconditioned response = fear • Jaws theme song previously neutral stimulus paired with UC → CS → produced CR
Adidas Picture	• Adidas shoes = NS • Paired with sexual UCS, led to sexual arousal UCR • Shoes become CS leading to pleasant thoughts → sexual arousal