Chapter 1: History of Psychology

The definition of psychology

The scientific study of the mind and behaviour.
The mind: private inner experiance
Behaviour: observable actions of human being and nonhuman animals

Representation in psychology

Representation in psychology means the mental imagery created in our minds, not currently precieved by our senses.

Nativism and empiricism

Nativism is the philisophical view that certain kinds of knowledge are innate or inbord, you are born with innate talent for some things.(nature)
Empiricism is the philisophical view that all knowledge is aquired through experiance, no innate talent, instead everything you are good at comes from your experiances.(nurture)

Willhelm Wundt and William James

William James
- Functionalism: study how mental abilites allow people to adapt to their environments
- First to take a scientific approach to psychology
- Was not very good at the science stuff tho

Willhelm Wundt
- Structuralism: Analyze the mind by breaking it down into basic components.
- 'Father of psychology'
- Opened first psychology lab
- Consiousness: A persons subjective experiance of the world and mind.
- Introspection: The subjective observation of ones own experiance

Chapter 2: Methods of Psychology

Operational definition

Specific, precise procedure where a variable is defined and measured.
Can define things many different ways, important to pick an exact definition.
Might define things as objective or subjective.

Dependent variable vs independent variable

Dependent variable: the variable that is measured in a study
Independent variable: the variable that manipulated during an experiment

Reliability vs validity

Validity: the extent to which a measurment and a property and conceptually related.
Reliability: how often a measure produces the same measurment

Demand characteristics

An observational setting causing people to act differntly, or act as they think they should.
Something is demanded in a certain situation, so people act different

Correlation

Correlation does not mean causation; things can be correlated, but this does not mean one of these things is causing the other.
Positive correlation: when two varaibles go up or down together
Negative correlatio: when two varaibles move in opposite directions

Third varaible problem

A relationship between two variables cannot be inferred from a correlation because of the possibility of a third variable influencing correlation.

Observer bias, double blind and naturalistic studies

Observer bias: Expectations can influence the observations being made, influencing perceptions of reality
Double-blind: This is an observation where the true purpose is hidden from both the observer and the person being observed.
Naturalistic studies: hiding the fact that subjects are being observed in a study, unobtrusively observing people in their natural environments

Experimental group, control group, random sampling, random assignment

Experimental group: the group being tested basically
Control group: the group not being tested, baseline data
Random sampling: people being chosen from a large group, all having a chance to be selected.
Random assigment: Randomly assignment participants to experimental group or the control group.

Case method

This is a case study

Respecting people and ethics

Informed consent, no coercion, protect from harm, risk-benifi ration, deception, debreifing, confidentialit

Chapter 3: Neuroscience and behaviour

Neurons

A neuron is a cell in the nervous system that communicates with other neurons to preform information-processing tasks

Parts of a neuron

Cell body: contains the nucleus
Dentrites: recieves signals from other neuron cells

Synapses: helps neurons send electical and chemical signals
Axon: conducts electrical impulses along the neuron cell
Myelin sheath: Insulates the axon to help protect the neuron cell and speed up transmittion of electical impulses
Terminal boutons: converts electrical signal into chemical

How neurons communicate with each other

Action potential: Electric simulation of the neurons shts down the K- channels and opens up the NA- channels, allowing NA- to rush in and increase the positive chare inside the axon relative to the outside, triggering the action potential.

Types of neurons

Sensory: Gather information from external world, sending either directly to your brain, or through your spinal cord. -- Things you hear, see, smell, touch
Motor: interpret what they get from the sensory neurons and carry signals from they spinal cord to the muscles to produce movement.
Interneurons: connect sensory, motor and other interneurons
Mirror: Neurons thate fire both when the animal is preforming the action and when it observes another animal performing the action.

Synapse

Transmitts signals within the nervous system

How neurotransmitters are regulated in the synapse

???

Types of neurotransmitters

Glutamate: major excitatory neurotransmitter invloved in information transmittion throughout the brain
Acetylocholine: Involved in a number of functions including volentary motor control. Found in a lot of organs associated with attention, learning, sleeping, ect.
- Associated with alzheimers
Serotonin: Involved in the regulation of sleep and wakefullness, eating and agressive

behaviour
- Associated with anxiety and depression, maybe not depression
Dopamine: Regulates motor behavior, motivation, pleasure, and emotional arousal.
- Associated with parkinsons
Norepinephrine: Influences mood and arousal.
- Associated with anxiety and depression
Endorphins: chemicals that act within the pain pathways and emotional centers of the brain, kind of like our bodies natural morphine

Diseases associated with increased or decreased amounts of dopamine.

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Agonist and antagonist action

Agonist: mimics or enhances the action of a neurotransmitter by binding to the same receptor and activating it.
Antagonist: blocks or dampens the action of a neurotransmitter by binding to the same receptor without activating it.

Different areas of the nervous system

Nervous system
- peripheral
- Automatic(controls self regulated action of internal organs and glands)
- Sympathetic(arousing)
- Parasympathetic(calming)
- Somatic(controls volentary movement of skeletal muscles

- Central(brain and spinal cord)

Lobes of the brain

Frontal: movement, abstract thinking, planning, memory and judgement
Parietal: Sensory information like touch, spacial awareness
Temportal: Hearing and language, processes sound waves but does not recognize voices or what it is hearing

Occipital: Visual information, does not tell you what you see but the features of it, what you see is interpreted elsewhere.

Other areas of the brain

Amygala: emotional processes and memories (fear)
Cerebellum: fine motor skills
Hippocampus: really imporatn for memory, transforming short term to long term memory also imporant for spacial memory like directions
Medulla: heart rate, ciculation, resperatory
Thalamus: relay station for the senses

Brain plasticity

Sensory cortices can adapt to change
The brain is plastic: functions that were assigned to certain areas of the brain may be capable of being reassigned to toher areas of the brain to accommodate changing input from the environment
Greater use of function may allocate greater space in the cortical map
physical exersise can benifit the strngth and connections of synapes in the brain

Chapter 5: Consciousness

Problem of other minds and the mind/body problem

Problem of other minds: the fundamental difficulty we have in perceiving the consciousness of others
Mind/body problem: the relationship between the mind and the body

Four properties of consciouness

Intentionality: being directed towards an object
-all mental states are intentional
- consious attention is limited
- this does not last long, for example when reading something boring
- it is not possible to stay completely focused on one thing for a long time
- Some things, that we might be interesting in, we can maintain intentionality for much longer

Unity: resistance to division
- divided attention
- taking everything that is going on in at once
- hard to maintain for a long time
- we usually task switch, something humans do very well, not multi-tasking
Selectivity: the capacity to include some objects but not others
- dichotic listening: a tast in whcih people wearing headphones heard differnt mesages presenting to each ear
- cocktail party phenomenon: people tune in one message even while they filter out others nearby
Transience: the tendency to change
- ability to allow your thoughts to shift from one thing to another
- change blindness: the phenomenon that people are unable to keep track of all the information in a typical complex scene.

Levels of consiousness

Minimal consciousness: a low-level kind of sensory awareness and responsiveness tat occurs when the mind inputts sensation and may output behaviour
- kind of like being half-awake
Full consciousness: conscioussness in which you know and are able to report your mental state
- This is the level you are at most of the time
- You know what is going on and what your are feeling
Self-consciousness: a distict level of consciousness in which the persons attention is drawn to the self as an object
- recognition of self in mirrors
- evaluate aspecs of your self, your attention is being driven inside, the self becomes the focus, why are you feeling what you are feeling?

The mirror test

A test where humans and other animals are put in front of a mirror, can they recognize themselves?
Shows how self-conscious animals are

The default network

Tends to be associated with things like day dreaming, thinking about the self, also connected to imaginiation and creativity
Activates when you dont agree with something that is a core belief of yours
- humans have a very hard time taking in information that goes against our beliefs and our identities.

Freud and Cognitive Psychologist on the unconscious mind

Freud
- Dynamic unconsciosL an active system encompassing a lifetime of hidden memories, the person's depest insticts and desires and the persons inner struggle to control these forces
- Repression: a mental process that removes unacceptable thoughts and memories from consiousness
Modern unconscious
- Cognitive unconscious: the mental processes that give rise to a persons thoughts, choices, emotions and behavior even though they are not experienced vby the person.
- Subliminal perceptionL a thought or behavior that is influnced by stimuli that a person cannot consciously report perceiving

Thought suppression, rebound effect, ironic processes of mental control

Thought suppression: the conscious aviodance of a thought
- can we shift focus, once we get into a certain state of mind, how well can we suppress thoughts like things we are worried about
Rebound effect: the tendencyt of a thought to return to consciousness with greater frequency following supression of that thought
- we have a very difficult time trying not to think about things we are trying not to think about
Ironic processes of mental control: mental processes that can produce ironic errors because monitoring for errors can itself produce them

Hypnagoic and hypnopompic sleep

Hynagoic: The state in which you are transitioning from wakefullness into sleep.
Hypnopomic: The state in which you are transitioning from sleep into wakefullness

Circadian rhythm and stages of sleep/types of brain waves

Circadian rhythm: a naturally occuring 24-hour cycle
Awake: beta waves (small close together)
Drowsey, relaxed: alpha waves (small, very close together)
Stage 1 sleep: theta waves (small, not as close but still)
Stage 2 sleep: sleep spindles(areas of larger movement), k complex(areas of a big movement)
Stage 3/4: delta waves(large not as close together)
REM sleep: fast, random (very small, sawtooth)

Sleep disorders

Insomnia: trouble falling asleep and/or staying asleep
- poor sleep habits
- poor sleep environment
- stress
- sleep disorders
- circadian rhythm

Sleep apnea: restricted air flow and/or breif cessations of breathing
- obstructive sleep apnea
- airflow stops, resperatory system works
- central sleep apnea
- resperatory system stops for brief periods

Narcolepsy: exessive daytime sleepiness
- cataplexy
- sudden muscle paralysis
- precipitated by strong emotions
- sleep paralysis
- REM carryover at sleep ofset

Sleep walking: Series of complex behavior accuring during sleep
Night terrors: onset during N3 sleep, sudden arousal from sleep that is occompanied by intense fear, includes behavioral manifestations of the fear.