

# Sensory thresholds + Webers law

## absolute threshold

lowest level of stimulus that we can detect 50% of the time

## difference threshold

minimum difference btwn 2 stimuli that can be detected 50% of the time

also known as the just noticeable difference (JND)

perception: decoding

sensation: encoding

## Stimulus

any detectible change in the environment

## Webers law

two stimuli must differ by a constant proportion, which varies by the type of stimulus, but remains constant within a given stimulus  
light: 8% weight: 2% tone: 0.2%

psychophysics: study of how physical stimuli are translated into perception

# Signal Detection Theory

## Signal Detection Theory

proposes a method for quantifying a persons ability to detect a given stimulus (signal) among other, nonimportant stimuli (noise)  
- assumes no absolute threshold

'got it right'  
'wrong'

ROC curves!

larger area under curve = more accurate!

	Response Present	Response absent
stimulus present	HIT	MISS false (-) / type II error
stimulus absent	False alarm TYPE I error, false (+)	correct Rejection

## To detect signal we must...

1. acquire the information (stimulus)
2. Apply criteria (make decision)

occipitotemporal boarder agnosia: visual / speech cant process

## Accuracy depends on....

1. External noise (outside of body)
2. Internal noise (inside of body)

# Gestalt Psychology

## bottom up processing:

Starts w/ info fm. sensory receptors & builds up to a final product, starts w/ details & ends with the final representation (learning to read, sound out letters)

## TOP down processing:

Starts w/ larger concept or idea and works down to the details. start w/ idea about final representation and work down to sensory details (reading now)

Both used at the same time in reality

## Gestalt Psychology

Emphasizes tendency to organize information into a meaningful whole; our minds tend to influence what we perceive in predictable ways  
- whole > sum of its parts

Kinesthesia: sense position of limbs + body movement  
Mechanoreceptors: pressure  
Propinoreceptors: physical disturbances, movement  
Thermoreceptors: heat  
nociceptors: pain

Tonic receptor: generate action potential as long as stimuli is present

Phasic receptor: only generate action pot. when stimuli starts

- Used in visual processing
- 'POPS out all at once'
- Distinguishing things from their background

or is changed

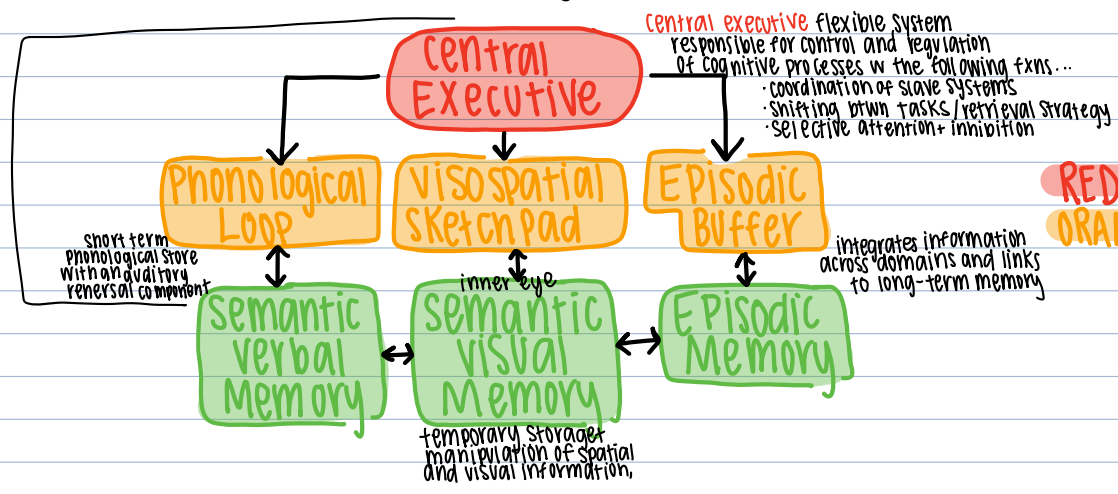
## Baddeley's Model of Working Memory

Cognition

Thinking, how we process information, receiving, transforming  
 Storing, recalling information, thoughts/processes  
 involved w/ language, thinking, problem solving, decision-making, etc

likes to compare mind to computer

Baddeley's Model explains how our 3 ST sensory stores  
 interact w/ central executive, which controls the  
 flow of info from/to sensory stores



## Piaget's stages of cognitive development 'drive to make sense of our experiences'

Schema

mental framework allowing us to organize our experiences/  
 stimuli & respond to new experiences/stimuli

countless mental schemas by adulthood

We must constantly **assimilate** new experiences to use  
 our schemas effectively

**accommodation**: we have to adjust our schemas based on  
 new experiences/interactions

Name	Age	Description	Milestone
Sensori-motor	0-1.5/2 yrs.	experience world directly through senses + motor movement	• Object Perminance • Stranger anxiety
Preoperational	2-7 yrs.	represent w/ words + images, learn through pretend play, can't take POV of others	Pretend Play Egocentrism Vocab blossoms
Concrete operational	7-11 yrs.	logical thinking, simple manipulation w/ concrete objects	conservation
Formal operational	12 yrs - adult	abstract reasoning, solve hypothetical problems, deduce consequences, etc.	abstract logic Moral Reasoning

## Problem solving

trial-and-error

troubleshooting, attempting several diff. possible solutions,  
 and ruling out ones that don't work

BroadBent filter of selective Attention  
 lots of stimuli coming in,

## Algorithm

Step by step procedure that exhausts all possible options but guarantees a solution, time consuming

but lots is FILTERED OUT, bottlenecking the important stuff

## Heuristic

Mental rule-of-thumb, shortcut, or guideline that can be applied to problem solving

## Triesman Attenuation Model

cocktail party effect: when you hear your name + your attention automatically diverts to who said your name.

-not just name: things you care about / what was that??

## Insight

When we puzzle over a problem, then we have a lightbulb moment

## Confirmation bias

We seek evidence to support our own thoughts/opinions more than we seek info to refute them.

Also we interpret neutral info as supporting our ideas

## Multi tasking ability

1. More diff. tasks = better
2. easier tasks = better
3. more practice = better

## fixation

We structured a problem a certain way, and are unable to see it any other way despite being stuck

## Mental set

tendency to approach situations a certain way bc it worked in the past

## functional fixedness

mental bias that limits our perspective for how an object can be used on how object is traditionally used

## Availability Heuristic

We rely on first examples that come to mind & overestimate probability/likelihood just bc it came to mind first

## Representative Heuristic

estimate likelihood by comparing it to an existing prototype that already exists in our minds, what we think the most relevant/typical example is

→ ex: surgeon → male

## Language Development

### Behaviorist Model

Infants learn language through operant conditioning (Skinner)

→ Doesn't explain speed of language development OR how we learn linguistic rules

### Chomsky

Humans born w/ innate ability to learn language

We learn language when exposed to it within a **critical period**

In absence of language, children will form own form of communication to meet their needs

### Sapir-Whorf hypothesis

language shapes AND limits our cognition, eskimos have lots of words for snow

corpus callosum: allow L+R brain to communicate

## Language Processing

### Frontal lobe

reasoning, planning, problem solving

Primary motor cortex is here

L Brain: Stem  
R Brain: Arts

### Parietal lobe

stimuli perception, touch, pressure, temp, pain



Somatosensory cortex is here

Occipital lobe

vision processing

Temporal lobe

perception + recognition of auditory stimuli (hearing)

hippocampus

memory consolidation

Cerebellum

motor movement

Broca's area

usu. in left hemisphere

language PRODUCTION

Broca's / nonfluent / expressive aphasia: loss of ability to produce written/spoken language, disjointed words, poor sentence structure.

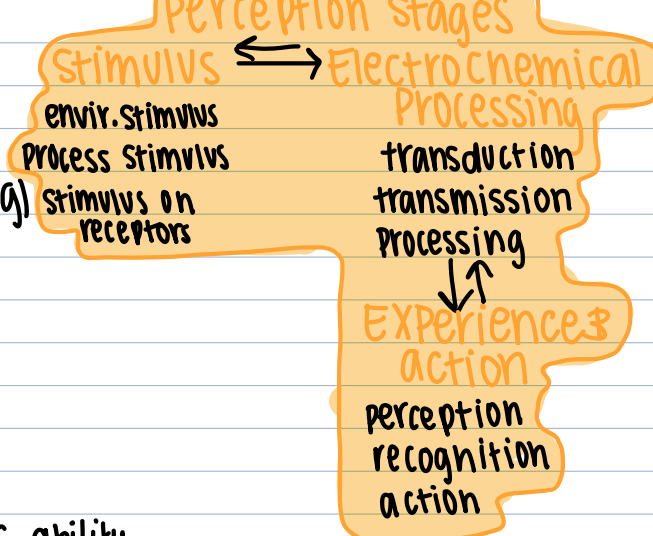
→ know what to say, just not how to say it

Wernicke's Area

At junction of temporal/occipital & parietal lobes (left usu.)

written/spoken language COMPREHENSION

Wernicke's Aphasia can't understand language, but can speak perfectly fine. can connect words, but doesn't make sense



General PSYCH / SOC REVIEW

Sociological theories

Theory	Description	Level	PERSON
Functionalism	parts work together to maintain stability (dynamic equilibrium)	macro	DURKHEIM
Conflict Theory	parts work against each other in competition for limited resources	macro	MARX, WEBER
Symbolic Interactionism	indiv. communicate using culturally learned symbols	Micro	Mead
Rational choice Theory	Individuals act based on cost/benefit	micro	X
Social exchange Theory	Individuals act on rewards/benefits	micro	X
Feminism	women deserve rights equal to men	Both	X
Social constructionism	indiv. interaction results in socially agreed upon 'constructs'	both	

Phenomenon	Social Situation	Effect on Behavior
Social Facilitation	performing task in front of others	Better @ simple tasks, worse @ complex tasks
Deindividuation	Large group doing arousing activity	loss of indiv. identity, mob mentality
Bystander Effect	Someone in need of help	more ppl present = each indiv. is less likely to help
Social loafing	Group working to complete task	each indiv. puts in less effort than if they were working alone
Peer Pressure	presence of peers	pressure to conform (+/-)
Groupthink	Group needs to reach consensus	more irrational/dysfunctional decision making



Group polarization	Group in agreement discusses topic together	Belief of group becomes more extreme
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### Attitude Predicts Behavior when....

- Social influences reduced
- General Behavior (Principle of Aggregation)
- Specific Attitudes
- Self-reflection is encouraged

### Behavior Predicts Attitude when...

- Role playing
- Public Declarations
- Justification of Effort

Perspective	In a Nutshell	Important People	Root of conflict
Life course	Contextual issues in life	n/a	
Psychoanalytic	Unconscious causes behavior	Freud, Erikson	Unconscious
Humanistic	Integrated Self-concept + Self-actualization	Carl Rogers	conditional (+) regard
Behaviorist	Rewards & Punishments determine personality	BF Skinner	reinforcement/punishment
Social cognitive	Behaviorist + Cognition & Observation	Bandura	Behavior + maladaptive
Trait Perspective	Describes personality, no explaining	n/a	Cognition + Observation
Biological Persp.	Brain = Personality	n/a	
Behavioral Genetics	Nature vs Nurture	n/a	

Flashbulb Memory	People claim to remember great detail ab. episodic memories of emotional events (9/11)
Eidetic Memory	Vivid recall of images from memory after few exposures w/ high precision for short time w/out using mnemonic
Reproductive Memory	Accurate memory retrieval w/ little significant alteration
Prospective Memory	Remembering to do something, like class assignments
Dual Encoding	Combining stimuli helps w/ recall
Levels of Processing	Deeper processing = longer memory
Reminiscent Bump	Old ppl remember events from 10 yrs - 30 yrs better than from any other time
Practice Effects	Improvement from repeated exposure to stimuli
Method of Loci	Using well known spatial info to recall lists
Peg Words	Connect words to improve retention (SNOW DROP OR BAPAN)