

Gen. Psychology 1 – Contents

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I. Introduction

What is Psychology?

- The scientific study¹ of **behavior** and **mental** processes
- An academic discipline
- From Greek words: *Psyche* (mind) + *logos* (study)

Behavior

- Any action that others can **observe** and **measure**
- Classifications
 1. Overt – Behavior that can be observed. Ex: walking, talking
 2. Covert (mental processes) – Behavior that cannot be observed. Ex: thinking, concentrating

Perspectives of Psychology

1. **Psychoanalytic Perspective:** Focuses on the **unconscious mind**.
If a man has intimacy issues and cannot form relationships, perhaps they may delve into the man's unconscious and discover that he was bullied when he was younger. The bullying may have caused fear in getting close to others.
2. **Behavioral Perspective:** Focuses on **observable behavior** while putting feelings aside.
We behave in ways because we have been conditioned to do so. To change behaviors, we have to recondition the client.
3. **Cognitive Perspective:** Focuses on **how we think** (or encode information), how do we see the world, how did we **learn to react to events**.
Cognitive therapists attempt to change the way you think.

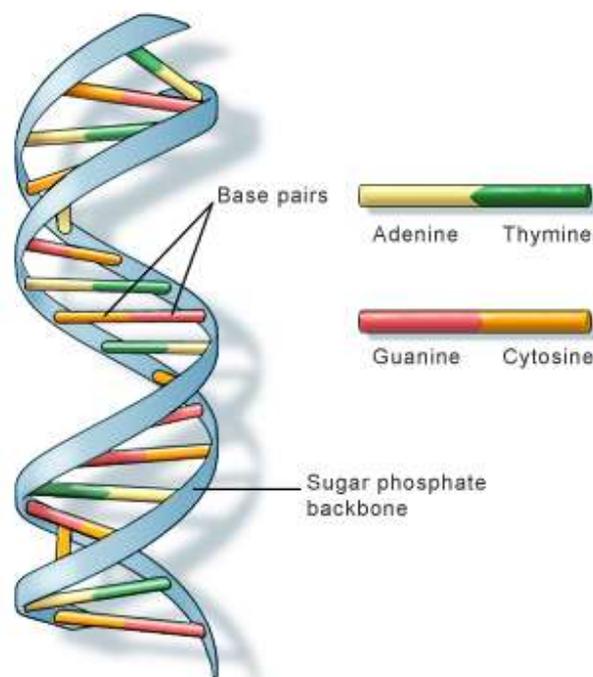
¹ It is considered as science as theories are used to test with research using scientific method.

IIa. Genetics

- Genetics – the study of how traits are inherited through the interactions of genes
- Heredity – the passing of traits from parents of offspring²

The Reproductive System

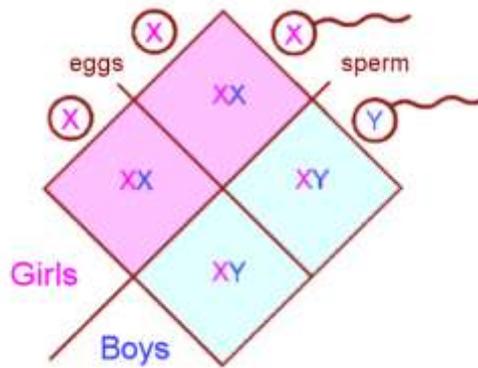
- Sperm Cells
Factors that affect sperm count: age, health, sexual stimulation, sex interval
- Egg Cells
- Chromosomes – a packet of coiled-up DNA
- DNA (**D**eoxyribonucleic **A**cid)
 1. Hereditary material found in humans and almost all other living things
 2. Carries the instructions to make proteins, each holds information to build many different proteins



U.S. National Library of Medicine

Parts of a DNA

² It includes your gender.



Chromosomal Determination of Sex

DNA Faults³

1. Turners Syndrome. 1 in 5000, 45 chromosomes X only. #25 Monosomy.
96 to 98% do not survive to birth. No menstruation, no breast development, narrow hips, broad shoulders and neck.
2. Klinefelter Syndrome. 1 in 3300. 47 chromosomes. XXY. #25 Trisomy.
Scarce beard, longer fingers and arms, sterile, delicate skin, low mental ability, normal lifespan.
3. Down Syndrome. 1 in 1250. 47 chromosomes. #21 Trisomy nondisjunction.
Short, broad hands, rough skin, impotent, mentally retarded, small round face, protruding tongue, short lifespan.

³ Faults occur when DNA has missing or extra pairs

Twins

4. Identical twins: a single fertilized egg (zygote) splits into 2 embryos after the first 2 days of fertilization, have identical genes. Cases:
 - a. May also share one placenta and amnion sac (rarest combination).
 - b. Conjoined twins: joined at some region of their bodies.
 - i. How? It results when an embryo starts to divide but fails to complete the process. Always originate from a single fertilized egg, usually occurs between 13 and 15 days after fertilization.
 - ii. Survival rate: 5% to 25%. If they have separate sets of organs, chances for surgery and survival are greater than if they share the same organs.
 - iii. Very rare and have poor survival rate.
5. Fraternal twins: 2 fertilized eggs are implanted in the uterine wall at the same time. 2 eggs form 2 zygotes. May have same or opposite sex. Doesn't have same genes, have separate placentas.

Inherited Traits – Traits that are passed down from parents to their offspring.

Ex: Human's eye, hair, and skin color, freckles, dimples, etc.

I Ib. Socialization

Agents of Socialization

1. Family

- Has the greatest impact on socialization
- The first to teach skills, values, and beliefs
- Even teens to continue to place their greatest trust in their parents
- The first agent of socialization
- Shows the child how to use objects (such as clothes, computers, eating utensils, books, bikes), how to relate to others (some as family, others as friends, still others as strangers, or teachers, or neighbors), how the world works (what is real and what is imagined)
- Involves teaching and learning about an unending array of objects and ideas
- Research suggests that nothing is more likely to produce a happy, well-adjusted child than being in a loving family
- Research also shows that the class position of parents affects how they raise their children

2. School

- Enlarges children's social worlds to include people of different backgrounds
- Teach a wide range of knowledge and skills
- The hidden curriculum-honoring competition, academic success, societal values, etc.
- Are most children's first experience with bureaucracy
 - Runs on impersonal rules
 - Strict time schedules
 - Just a number
 - These being the hallmarks of many organization that will employ them later in life

3. Peer Groups

- By the time they enter school, kids have discovered the peer group
- A social group whose members have interests, social position, and age in common
- Unlike family and school, the peer group lets children escape the direct supervision of adults
- May affect short-term interests such as music but parents retain greater sway over long-term goals such as going to college

4. Religion

- An important avenue of socialization for many people
- People gather to worship and learn

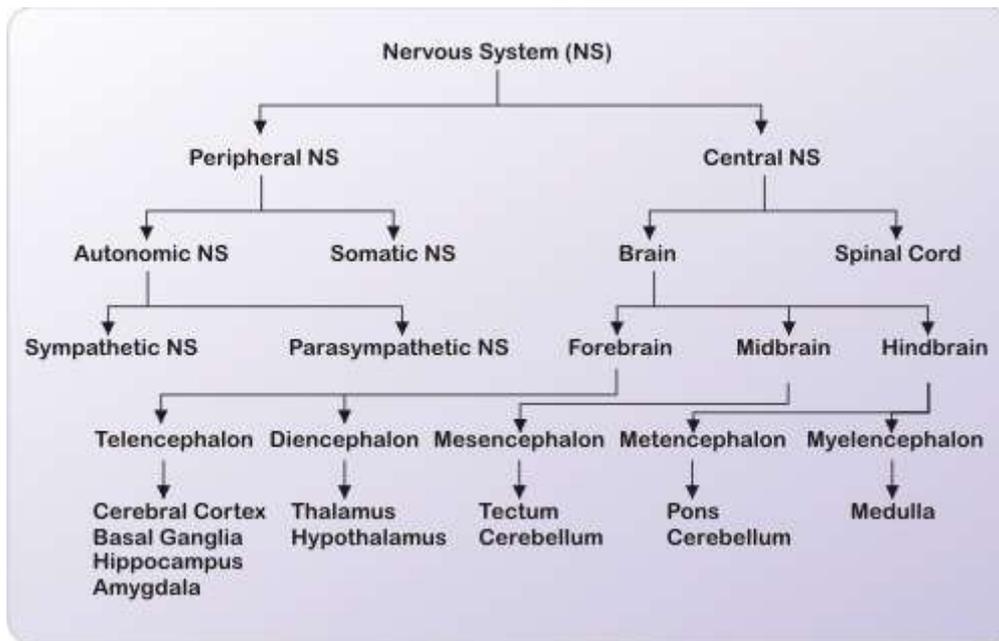
- Like other institutions, these places teach participation, how to interact with the religion's material cultures
- For some people, important ceremonies related to family structure (like marriage and birth) are collected to religious celebrations

5. Mass Media

- Impersonal communication aimed at a vast audience
- Spread information on a vast scale
- Newspapers, radio, TV
- It has an enormous effect on our attitudes and behavior.
 - Highest rate of TV ownership in the world
 - The Avg. Household has the TV on for 7 hours a day.
 - People spend almost 1/2 of their free time watching

III. Nervous System

A complex network of nerves and cells that carry messages to and from the brain and spinal cord to various parts of the body.



Central Nervous System (the brain and the spinal cord)

The Brain

- The Brain Stem (**Medulla Oblongata**), between the pons and the spinal cord.
- The Cerebrum: contains 2 hemispheres, 4 lobes.
 1. Frontal lobe
 2. Temporal lobe
 3. Parietal lobe
 4. Occipital lobe
- The **Cerebellum** (the little brain)
- The **Diencephalon** (**Thalamus** and **Hypothalamus**)⁴
- The **pons** acts as a pathway to higher structures⁵

The Spinal Cord

- A long structure, approximately as thick as our little finger
- Distributes motor axons to the effector organs (glands and muscles) and to collect and pass somatosensory information to the brain

⁴ The midbrain provides conduction pathways to and from higher and lower centers

⁵ It contains conduction pathways between the medulla and higher brain centers

- Also has a certain degree of autonomy with various reflexive controls
- Protected by the vertebral column, which is composed of 24 individual vertebrae, and passes through a hole in each

Male vs Female Brain (generally)

- Early life
 1. Boys > girls: areas of math and geometry (4 years earlier, 12 yo girl = 8 yo boy)
 2. Girls > boys: language and fine motor skills (such as handwriting) (6 years earlier)
- Skills
 1. Men > women: systemizing and mechanistic skills (mathematics, physics, and engineering, rational systems governed by rules), mental rotation (innate sense of direction)
 2. Women > men: empathizing and mentalistic skills (languages, judges of character), primatology (mothering of infants by reading minds of individuals they cannot communicate by language), and memory (as double-edged sword)
- Over the course of human evolution, men and women faced different selection pressures
 1. Men acquire skills to invent and make tools and weapons
 2. Women helped men in tolerating solitude (long hunting and tracking trips, etc.), mothering (anticipating and understanding the needs of infants), or making new friends

- Structural
 1. Men's brains are 10% bigger, performs tasks predominantly with the left-side (logical/rational side), "let's fix the problem as fast as possible"
 2. Women have larger limbic system, more nerve cells and cellular connections (making it compact and more efficient), has larger corpus callosum (uses both side of brains, connection of data transfer between hemispheres), fixes a problem more creatively, aware of feelings in communication
- Downsides
 1. Women are more susceptible depression (produce less serotonin (mood-influencing chemical) than men (52% more)⁶, attempts suicide 3 times more than men)
 2. While men are 3 times more successful to commit suicide at an attempt

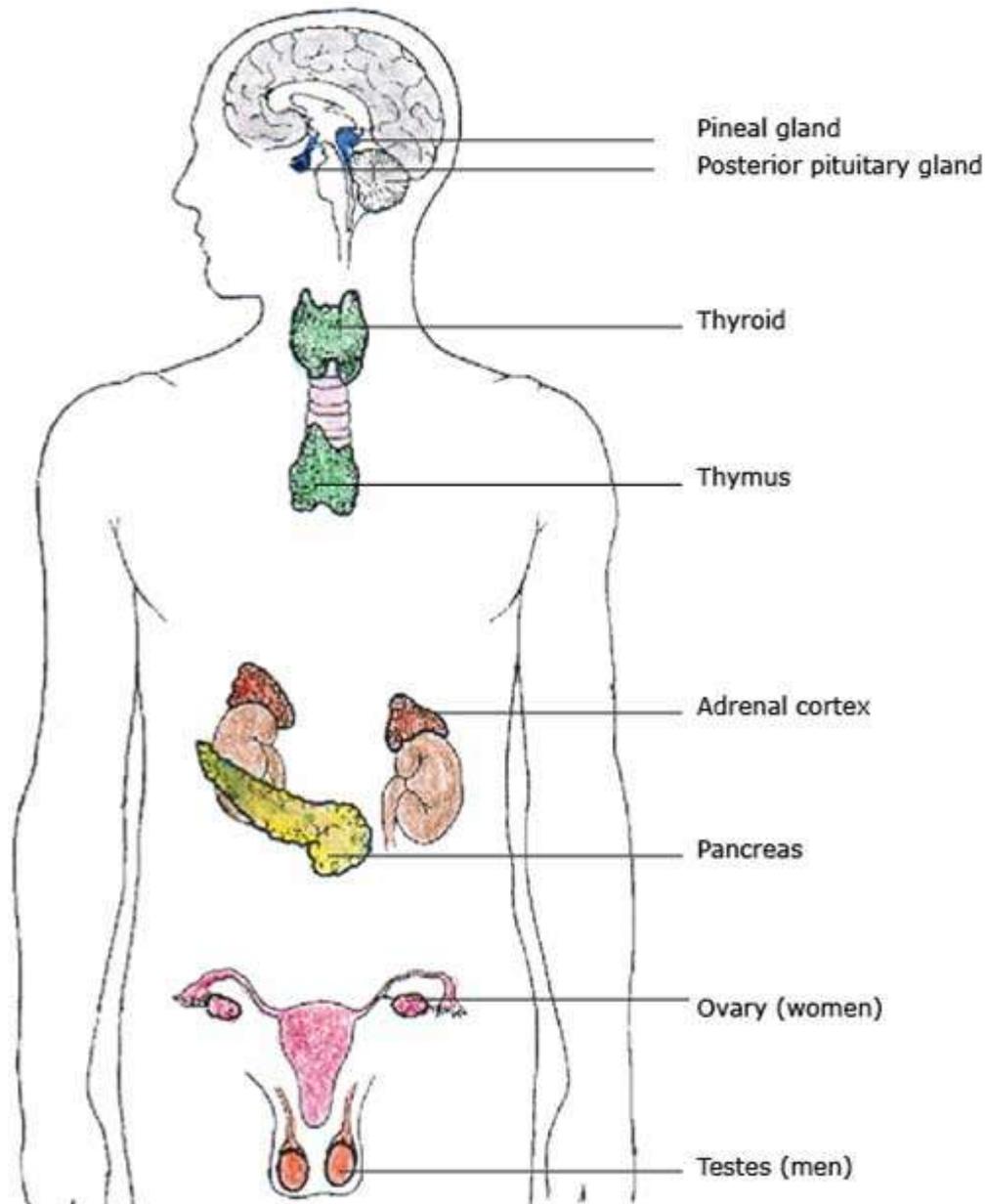
⁶ Reference: McGill University Study

Iva. Endocrine System

Endocrine System - the collection of *glands that produce hormones* that regulate metabolism, growth and development, tissue function, sexual function, reproduction, sleep, and mood, among other things.

From Greek "endo" (inside) and "crinis" (secrete). Also called "Tubeless glands" as the system secretes to the bloodstream.

The endocrine system is made up of the pituitary gland, thyroid gland, parathyroid glands, adrenal glands, pancreas, ovaries (in females) and testicles (in males).



IVb. Development Theories

Jean Piaget's Development Theory

- Schema: Basic unit of knowledge (such as an idea of what defines an animal)
- Assimilation: Process of taking new information
- Accommodation: The schema changes itself to adjust to new information

4 Stages:

1. Sensorimotor stage (infancy)
2. Pre-operational stage (toddlerhood and early childhood)
3. Concrete operational stage (elementary and early adolescence)
4. Formal operational stage (adolescence and adulthood)

Erik Erikson's 8 Stages of Development

1. Trust vs Mistrust (birth to 1 year)
2. Autonomy vs Shame and Doubt (1 to 3)
3. Initiative vs Guilt (3 to 5)
4. Industry vs Inferiority (6 to 11)
5. Identity vs Role confusion (Puberty/Adolescence)
6. Intimacy vs Isolation (Young Adult)
7. Generativity vs Self-Absorption and Stagnation (Middle Age)
8. Integrity vs Despair (Old Age)

V. Sensation and Perception

Sensation

- The feeling we experience in response to information received through our sense organs
- The basic immediate experiences generated by single isolated stimuli
- Involucres feelings

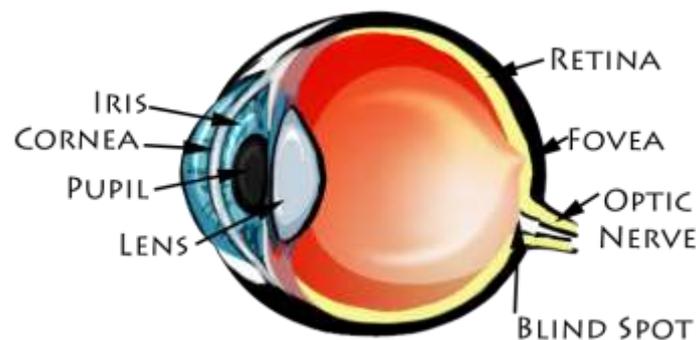
Perception

- The way our body is organized to interpret those feelings
Ex: recognition of objects that comes from combining the sensations with the memory of previous sensory experiences
- Involucres ideas

Stimulus

- Any object or event that elicits a sensory or behavioral response in an organism
- Energy changes registered by the senses

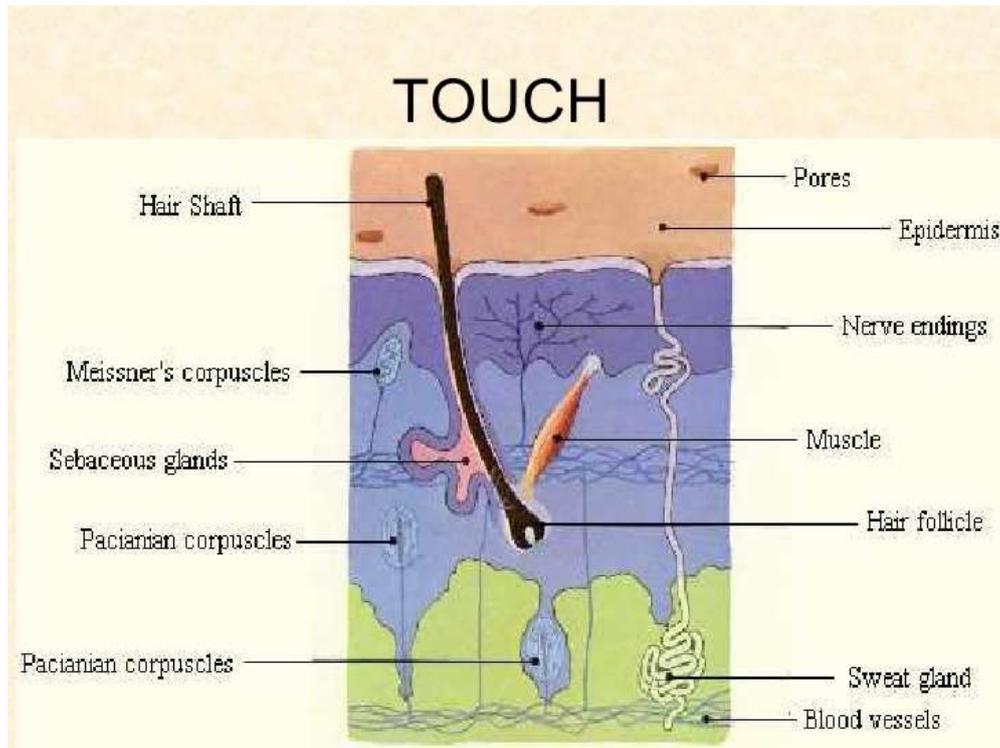
Sight



Structure of the Eye

- Cornea: transparent tissue where light enters eye
- Iris: muscle that expands/contracts to change pupil size depending on light
- Lens: focuses the light rays on the retina
- Optic Nerve: carries neural impulses from the eye to the brain (thalamus)
 - blind spot- where optic nerve leaves retina, there are no receptors
- Fovea: central point in retina around which cones cluster
- Cones: receptors that detect color, detail
- Rods: receptors that are sensitive to movement, faint light, peripheral
 - there is no color in your peripheral vision

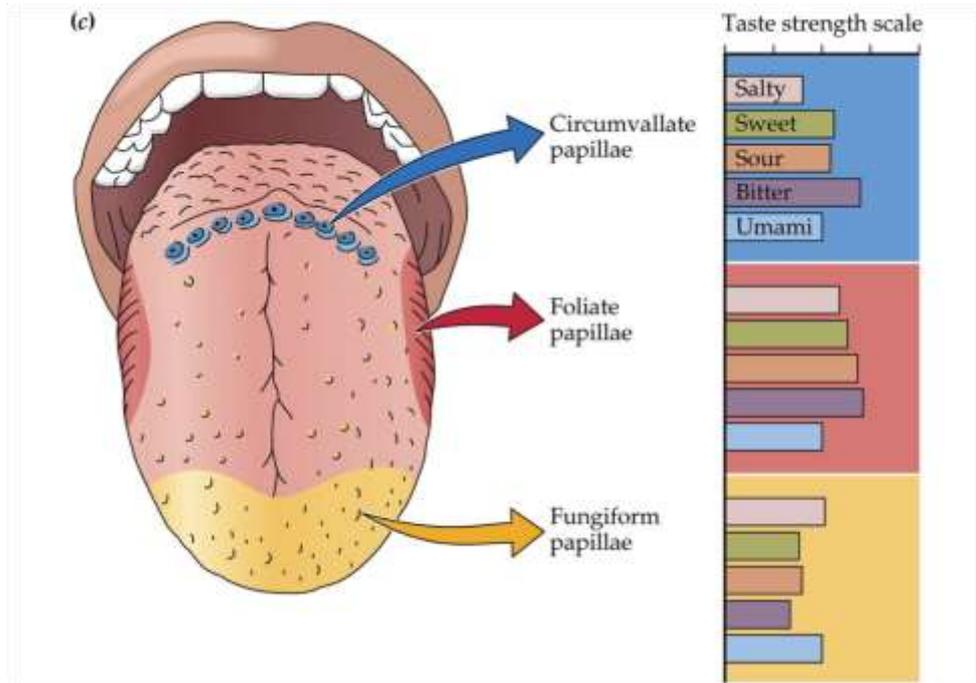
Touch



Four sensations: pressure, warmth, cold, pain—different combinations make different sensations (itchy is a certain pain receptor, hot is warm and cold at same time)

- pain results from injury or damage to the body
- "pain is in the brain"= pain is a subjective thing
 - gate-control theory: melzak and wall- spinal cord has neurological "gates" that can block pain or allow it to be sensed
 - relieve pain by massaging area: creates competing stimulation in area and blocks some of the receptors that would receive pain signals
- reduce pain: drugs, surgery, acupuncture, exercise, hypnosis, relaxation, distraction

Taste

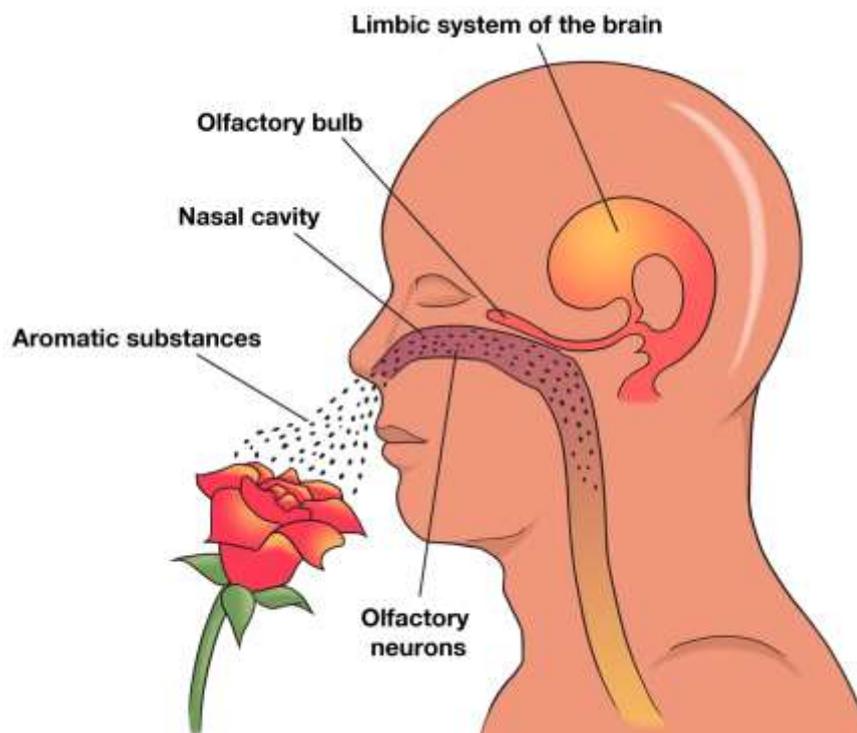


Five Sensations: sweet, salty, sour, bitter, umami (savory, meat)

Sensory Interaction: smell of food affects taste

- Synesthesia: stimulation in one sense causes sensation in another—seeing letters with colors, feeling shapes on skin when eating, tasting sounds etc.

Smell



Chemical Sense: odorants enter nasal cavity to stimulate 5 million receptors

- Women have better sense of smell

- Sense declines with age
- Brain Area for Smell (olfactory bulb) very close to brain region for memory
 - we often strongly associate smells with certain memories

VI. Learning

Types of Learning

- Motor: the process of internalizing new information which allows the complete mastery and control of one's **motor** skills and movements by repetition (practice) or other **learning** techniques
- Rational: Learning through clear understanding of the material and understanding the relationship between the components of the material
The organization of ideas
- Associational: A "**learning**" or "conditioning" term that refers to **learning** that two different events occur or happen together
Rules, coordination, knowledge, classical conditional
- Appreciational: articulate appreciation of the knowledge and wisdom (objective learning)
beauty, music, literature

Laws of Learning

1. Law of Readiness: "Law of Action Tendency". Learning takes place when an action tendency is aroused through preparatory adjustment, set or attitude.
2. Law of Exercise: drill or practice helps in increasing efficiency and durability of learning.
3. Law of Effect: The trial or steps leading to satisfaction stamps in the bond or connection. Satisfying states lead to consolidation and strengthening of the connection. The Disatisfaction, annoyance,

VII. Memories

What is Memory?

- Faculty of the mind by which information is encoded, stored, and retrieved.
- Learning that has persisted over time - information that has been stored and, in many cases, can be recalled.
- The retention of information over time for the purpose of influencing future action. If we could not remember past events, we could not learn or develop language, relationships, nor **personal identity** (Eysenck, 2012).

Information Processing Model

- The individual is as a processor of information, in much the same way that a computer takes in information and follows a program to produce an output.
- Developed by Richard Atkinson and Richard Shiffrin (1968).

Sensory Memory (Sensory Register)

- A temporary register of all your senses. Sensory information is stored in sensory memory just long enough to be transferred to short-term memory.

1. Iconic memory (Visual memory)
2. Echoic memory (Auditory memory)
3. Haptic memory (Touch memory)

Lasts a short amount of time, depending on the modality of the information. Visual stimulus only last up to a second while Auditory stimulus may last up to 4 seconds.

Working Memory (Short-Term Memory)

May hold up to 7 ± 2 (between 5 to 9) pieces of information which last up to 30 seconds, in which memory may decay (forget) or transferred to the long-term memory.

Factors that may affect quantity and quality of the memory includes: IQ, age, and complexity of the information.

Components of the Working Memory

1. Visual-spatial sketchpad (pictures/maps)
2. Phonological loop (verbal information, words and numbers, both what you hear in echoic memory and what you see in iconic memory)
3. Central executive (visual-spatial + phonological loop, ex: maps with names/labels)
Episodic buffer is the result of the coordination from the central executive, connector to the long term memory.

Long-Term Memory

Informative knowledge can remain indefinitely for a long period of time with unlimited capacity.

1. Explicit (Declarative) - Memory of facts and experiences that one can consciously know and "declare".
 1. Semantic memory (words and their meanings, usages, and rules, facts/events that you can clearly describe)
 2. Episodic memory (events that happen in sequential order, such as your last birthday party)
2. Implicit (Non-declarative) - Retention independent of conscious recollection
 1. Procedural memory (ex: riding a bike)
 2. Priming (Influential events)

Forgetting (and Remembering)

Memory is not a perfect processor and is affected by many factors.

The reasons we forget are basically:

1. We fail to encode it.
2. We fail to retrieve it.
3. We experience storage decay.

Why do we forget

1. Retrieval Cues *through Priming* (Trace Decay Theory of Forgetting)
Memories leave a trace in the brain.
NOTE: Our states and emotions can also serve as cues.
2. Serial Position Effect (Displacement from STM)
Tendency to recall best **the first** and/or **the last items** in a list.
 1. Primacy Effect: How often you repeated the first items
 2. Recency Effect
3. Distortion: The memory encoded aren't exact.
4. Interference Theory: Where memory that is to be recalled gets "interfered" by another.
 1. Proactive Interference: The disruptive effect of **prior learning** (old memories) on the **recall of new information** (such as remembering your old password and forgetting the new one after changing it).
 2. Retroactive Interference Theory: The disruptive effect of **new learning** (new memories) on the **recall of old information** (You may tend to say *très bien* instead of *muy bien* when recently studying French, allowing you to forget the Spanish lessons you took years ago).
5. Organic causes: Forgetting that occurs through physiological damage or dilapidation to the brain are referred to as organic causes of forgetting.
 1. Alzheimer's (generalized degeneration of the brain)
 2. Amnesia (partial/total loss of memory)
 3. Dementia (disorder of the mental processes caused by brain disease or injury)
 4. Consolidation theory (how information is stored)
 5. The gradual slowing down of the central nervous system due to aging

VIII. Drug Addiction

Addiction: Behavioral pattern of drug abuse

Tolerance: The original dose of the drug no longer produces desired effect as the person repeatedly uses a drug over time.

Dependency: Change in the nervous system that a person needs to take the drugs to prevent painful withdrawal symptoms.

Withdrawal Symptoms: Painful physical and psychological symptoms that occur after a drug-dependent person stops using the drug.

Kinds of Drug Use/User

1. Experimental Use
2. Recreational Drug Use
3. Dependent Drug Use
4. Hardcore Drug Users

Kinds of Drugs and its Effects

1. **Psychoactive Drugs:** Affect the nervous systems and alters consciousness and awareness, influences how we sense and perceive things, and modify our moods, feelings, emotions, and thoughts.
2. **Stimulants** (ex: strong: cocaine and amphetamines, and mild: caffeine and nicotine): Increase activity of the central nervous system, heightened alertness, arousal, euphoria, and decreased appetite.
3. **Methamphetamine (D-~):**
 - Close to amphetamine in both chemical makeup and its effects.
 - Increases blood pressure and heart rate, and produces feelings of enhanced mood, alertness, and energy.
 - Primary effect is to increase the release of neurotransmitter dopamine and also to block its reuptake.
 - First periods have restless activities and perform repetitive behaviors. Later, the initial euphoria is replaced with depression, agitation, insomnia, and true paranoid feelings.
4. **Cocaine**
 - Comes from leaves of the cocoa plant. Similar effects to amphetamine.
 - Increased heart rate and blood pressure, enhanced mood, alertness, increased activity, decreased appetite, and diminished fatigue.
 - Blocks reuptake of the neurotransmitter dopamine.

5. **Caffeine**

- Mild stimulant. Produces physiological and psychological arousal, including decreased fatigue and drowsiness, feelings of alertness, and improved reaction time.
- Most widely used psychoactive drug in the world.
- Belongs to the group of chemicals called *xanthines* which have a number of effects.
- Blocks adenosine receptors in the brain.

6. **Nicotine**

- Stimulates the production of dopamine.
- Stops controlling cells from turning off the pleasure areas, so the overall result is that smoking produces relative long-lasting good feeling.
- Causes addicting problem, lung and heart problems, sexual problems (impotency), and withdrawal symptoms.

7. **Opiates** (Opium, Morphine, Heroin)

- 3 primary effects: analgesia, opiate euphoria (pleasurable state between waking and sleeping and constipation), and continued use of opiates results in tolerance, addiction, and dependency.
- Upon reaching the brain's receptors, it produces feelings of euphoria and analgesia.
- After regular use, the brain produces less of its own endorphins and relies more on the outside supply of opiates.
- Withdrawal symptoms: hot and cold flashes, sweating, muscle tremors, nausea, and stomach cramps.

8. **Hallucinogens:** Produces strange and unusual perceptual, sensory, and cognitive experiences, which the person sees or hears but know they are not occurring in reality (hallucinations).

9. **LSD:** Binds to receptors that normally respond to serotonin. The next effect increased stimulation of these neurons.