

# GRE SUBJECT TEST PSYCHOLOGY

## SOCIAL PSYCHOLOGY

*Concerned with social behaviour. The ways in which people influences each other's attitudes and behaviors.*

### Historical Perspective

#### Norman Triplett

- Published the **1<sup>st</sup> study** of social psychology.
- Investigated the effect of competition on performance; cyclists
- People perform better on familiar tasks.

#### William McDougall & E.H.Ross

- Published the **1<sup>st</sup> textbook** on social psychology

#### Verplank

- Suggested that social approval influences behaviour.
- The course of a conversation changes dramatically based upon feedback and approval from others.

#### Reinforcement Theory

- Verplank, Pavlov, Thorndike, Hull, Skinner
- Holds that behaviour is motivated by anticipated rewards

#### Role Theory – Bindle

- Bindle
- People are aware of social roles they are expected to fill
- Much of the observable behaviour can be attributed to adopting those roles.

### Attitudes

- Attitude refers to:
  - Cognition and beliefs
  - Emotions and feelings
  - Behavioral aspects and predisposition

#### Consistency Theories

- How attitudes change.
- People prefer consistency, and will change or resist changing attitudes based upon this preference.
- Individuals have a tendency to seek a state of consonance/harmony between their attitudes and their behaviour.
- Inconsistencies are viewed as stimuli or irritants that are often resolved by changing attitudes.

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## Consistency Theory: Balance Theory - Fritz Heider

- 3 elements (triad) are related in any given moment.
- Balance exists when all 3 fit together harmoniously.
- For example: a Person (P) who likes an Other (O) person will be balanced by the same valence attitude on behalf of the other. \
- Symbolically,  $P (+) > O$  and  $P < (+) O$  results in psychological balance.
- Balance will exist in a triad if there are 1 or 3 positives; when there is an even number of negative signs.

## Consistency Theory: Cognitive Dissonance Theory - Festinger

- Individuals act in order to gain consonance by changing their attitude in the direction of the behaviour that had BEEN performed.
  - If a person is pressured to act contrary to its privately held attitudes, there will be a tendency to change those attitudes.
  - *The greater the pressure to comply, there will be more resistance to change attitudes.*
- A person's degree of cognitive dissonance will depend upon the strength of that person's need for consistency.
  - Free-Choice Dissonance: A person makes a choice between several desirable alternatives.
  - Post-Decisional Dissonance: dissonance that emerges after a choice is made.
  - Forced-Compliance Dissonance: A person is forced into behaving in a manner that is inconsistent with his beliefs or attitudes.
  - Spreading of alternatives: the way of reducing dissonance.
  - Minimal justification effect: when the external justification for the behavior is minimal, one will reduce dissonance by changing internal conditions.

## Consistency Theory: Self-Perception Theory - Daryl Bem

- → Situational inference
- People infer that their attitudes are based upon observation of their own behaviour.
- A person's initial attitude is irrelevant and there is no discomfort produced by behaviour.

## Over justification effect - Daryl Bem

- if people are rewarded for their behaviour, they may stop liking that behaviour.

## Carl Hovland's Model

- Deals with attitude change as a process of communicating a message with the intent to persuade someone.
- Highly credible sources are more effective in changing attitudes.
- Arguing in a manner that appears to be against self-interest may produce a significant attitude change.

## Sleeper effect

- Over time, low credibility sources persuasive forces increase.
- Over time, high credibility sources persuasive forces decreases.
- Communication that has no immediate effect but proves to have long-range influence.

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## Elaboration Likelihood Model of Persuasion (ELM)

- Petty and Cacioppo
- People use either a central or a peripheral route to decision making.
  - Central: people are highly motivated and give careful thought and extensive deliberation to the IMPORTANT decision they are making.
  - Peripheral: people have low motivation and give very little thought or deliberation to the NOT IMPORTANT decisions they are making.

## Resistance to Persuasion: Analogy of inoculation

- William McGuire
- People can be 'immunized' against a subsequent persuasive communication if they have been familiarized in advance with the persuasive arguments they are going to hear and have heard the counterarguments.
- Anticipate and discredit the actual arguments prior to the presentation of an alternative attack.
  - Cultural truisms: beliefs that are seldom questioned.

## Belief Perseverance

- People will hold beliefs even after those beliefs have been shown to be false.

## Reactance

- People will tend to act in a way to reassert a sense of freedom when attacked against its beliefs.

## Motivational Arousal-Enhancement Type Theories

- Optimal state theories:
  - there is an optimal arousal state for maximal efficiency.
  - Each of us has a personal adaptation level and finds small deviations from it pleasant and stimulating, while large deviations produce anxiety.
- Intrinsic Motivation:
  - There is an internal drive to develop our competencies and to accept challenges that will promote our individual growth.
  - It is a related motivation to have personal control over events affecting our lives.
- Opponent Process:
  - Pleasurable affective stimuli evoke one brain process that then triggers an opposing inhibitory process that is longer and gradual than the pleasurable stimuli.
  - This has implications in substance abusers, which engage in vicious-cycle-type phenomenon's.

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## Motivational Acquired-Type Theories

- Need-Press
  - [MURRAY]:
  - Used to create the Thematic Apperception Test (TAT), considers several need and motives that are activated by the pressure of environmental stimuli (people, settings, places).
    - i. Simple pictures depicting scenes that have ambiguous meanings.
  - Motivation stems from a list of needs that include: abasement, achievement, aggression, play, dominance, and understanding. Etc.
- Expectancy-Value
  - [TOLMAN, ROTTER]:
  - based on the purposive behaviour work of Tolman that suggests we come to expect certain outcomes from given behaviour and place a value on those outcomes.
  - The individual then is motivated to repeat those behaviors that bring an outcome it highly values.
  - Latent Learning
- Achievement
  - [McClelland, Atkinson]
  - Postulated a basic achievement motivates of need to achieve on a Ach scale.
  - People high in the N Ach welcome new challenges and are constantly seeking to attain high standards and to excel.

## Affiliation and Attraction

### Social Comparison Theory - Leon Festinger

- → People are drawn to affiliate because of a tendency to evaluate ourselves in relationship to other people.
- → People have a need to evaluate their own attitudes and abilities.
  - 3 Principles
    1. People prefer to evaluate themselves by objective, nonsocial terms. When not possible, people evaluate their opinions and abilities by comparison.
    2. People are attracted to personas they perceive as similar to themselves. When there is a discrepancy in opinions and abilities, there is a tendency to change one's position in favor of the majority.
    3. People perceive the persons to whom they are attracted as more similar to themselves than is really the case.

### Reciprocity Hypothesis

- People like other whom indicates that they like us.
- People dislike others that indicate a dislike to one.

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## Gain-Loss Model/Principle - Aronson and Linder

- An evaluation that changes will have more of an impact than an evaluation that remains constant.
- Movement from a negative to a positive evaluation leads to a stronger attraction toward the evaluator by the person being evaluated than did movement from a neutral position.

## Social Exchange Theory

- Assumes a person weighs the rewards and costs of interacting with others.
- People attempt to maximize rewards and minimize costs.
- Social exchange theory features many of the main assumptions found in rational choice theory and structuralism.

## Equity Theory

- People not only consider their own costs and rewards, but that of the other person.
- The costs and rewards must be equal or there will be instability due to perceived inequity.

## Individual Characteristics

### Determinants of attraction

1. Proximity
  - Mere exposure hypothesis: repeated exposure to a stimulus leads to enhanced liking for it.
2. Similarity
  - Leads to stronger affiliation.
3. Rewardiness/Reciprocity
  - People choose relationships so that they mutually satisfy each other's needs = complementation

## Complementary Theory

- Winch
- In romantic relationships, aspects of the personality must be complimentary in order for the relationship to be successful.

## Prosocial Behaviour

- The Kin-Selection Hypothesis = explains altruistic behaviour as the result of an individual's interest in promoting their genes. Currently a controversial claim.

## Bystander Intervention - John Darley and Bibb Latané

- New York crime; the assassination of Kitty Genovese
- Diffusion of Responsibility: the more people present, the less likelihood that any individual will offer help.
- Naïve subjects are likely to reveal more concern than a person trained not to react.

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- Social influence = Pluralistic Ignorance

## Helping Behaviour

- The likelihood of anyone helping decreasing as the number of bystanders increased.
- If a model of helping has preceded the incident in which a person is called upon to help, the likelihood that that person will help is greater than the likelihood present in a no-model setting.

## Bateson's Empathy-Altruism Model

- When faced with situations in which others may need help, people might feel distress or empathy.

## Aggressive and Antisocial Behaviour

### Frustration-Aggression Hypothesis

- When people are frustrated, they act aggressively.

### Bandura's Social Learning Theory on Aggression

- Aggression is learned through modeling (direct observation) or reinforcement.
- Bobo Doll experiment.

### Conformity Study I - Muzafer Sherif

- Study with the movement of light; autokinetic effect.
- Individuals conform to the group's ideas of the estimation of movement of the light.

### Conformity Study II- Solomon Asch

- Study where individuals had to compare groups of lines then report their findings in group.
- Demonstrated a surprising degree of conformity to a majority opinion and the willingness to conform publicly in order to attain social reward and avoid social punishment.

### Stanley Milgram's Obedience Experiment

- Milgram studied the pressure to conform and obedience behaviour.
- Through a shock-administering experiment, he found that people are surprisingly obedient to commands to administer high-level shocks to other people.

→ Stimulus-Overload Theory: differences between city and country dwellers.

- Urbanites are less prosocial than country men because they don't need any more interaction.

### Foot-in-the-door

- Freedman
- People are more likely to agree to a large, commitment-type request if we have approach in advance to a smaller commitment request.

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## Door-in-the-face

- Begins with a unreasonable commitment potential, and relief comes when a more modest opinion is presented.

## Self-Perception

### Doll Preference Study - Clark and Clark

- Study of ethnic self-concept with children; children chose the white doll.
- Showed the negative effects of racism and minority group status on the self-concept of blacks.

## Social Perception

### Primacy (1<sup>st</sup>) Tendency Effect - Hermann Ebbinghaus

- First impressions are more important than subsequent impressions.
- Among earlier list items, the first few items are recalled more frequently than the middle items.

### Recency (Last) Effect - Hermann Ebbinghaus

- The most recent information we have about an individual is most important in forming our impressions.
- People tend to begin recall with the end of the list, recalling those items best.

## Attribution Theory - Fritz Heider

- We form impressions of others through observation of their behaviour
- There is a tendency to infer the causes of other people's behaviour.
  - Dispositional causes of behaviour: relate to the features of the individual (beliefs, attitudes, personality) whose behaviour is considered.
  - Situational causes: external and environmental causes.

## Halo Effect (Bias)

- Tendency for bias in evaluations of other people.
- Tendency to allow a general impression about a person to influence other, more specific evaluations of that person.

## Groups

### Theodore Newcomb's Study

- Experiment demonstrating the influence of political group norms.
- Study in an all-women University; Politics and Ideals.

### Edward Hall and Proxemics

- Proxemics = research relating to territoriality and personal space; one foot.

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## Mere Exposure effect - Zajonc's Theory

- Attraction determinants → Social facilitation effect
- The presence of others increases arousal and consequently enhances the emission of dominant responses.
- The presence of others only facilitates the performance once the performance is mastered.
- During early stages of learning, dominant responses are likely to be the wrong ones.

## Social Loafing

- Group phenomenon to the tendency for people to put forth less effort when part of a group than when acting individually.

## Eat-while-reading

- People are more likely to acquiesce to a request or agree if it were presented during a pleasurable activity.

## Ask-and-you-shall-be-given

- High likelihood that a person will respond positively to our request on behalf of a charitable, worthy cause.

## Low-balling

- Tendency to stay with a commitment we've made after the initially low stakes have been raised.

## Anonymity/Deindividuation → Zimbardo

- People are more likely to commit antisocial acts when they feel anonymous.
- Prison Simulation Study

→ Deindividuation: indicated that when people lose their identities or become anonymous within a larger group, they are likely to engage in aggression and violence.

## Group Decision-Making - Irving Janis

- Verbal Communication and group decisions that go awry.
- Studied historical and political mistakes.

→ **Groupthink**: tendency of decision-making groups to strive for consensus by not considering discordant information.

→ Group decisions are riskier and more extreme than the average of the individual choices.

- Janis considers it important that arranging group conditions in such a manner that individual thought and expression are encouraged.

## Group Polarization

- The tendency for group decision to enhance the group's initial tendencies towards riskiness or caution.



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## Leadership and Communication

### Kurt Lewin's Study

- Leadership Styles
  - Autocratic: greater output; less motivation and interest
  - Democratic: more motivation and cohesiveness
  - Laissez-faire: less efficient and organized

## Cooperation and Competition

### Prisoner's Dilemma - Morton Deutsch

- Canonical example of a game analyzed in game theory that shows why two individuals might not cooperate, even if it appears that it is in their best interest to do so.
- Both players can make intermediate gains if they cooperatively refrain from trying to maximize individual gain.
- If they both try to maximize individual gains, they will both suffer great losses.
- The matrix concept allows several payoff possibilities to be established and investigated.

### Game decision theory

- Zero-sum game: gains of one player are made at the direct expense of the other.
- Nonzero-sum game: allows each player to make intermediate gains. (cooperation-competition)

### Robber's Cave Experiment - Muzafer Sherif

- Experiment on a boy's camp on the concepts of hierarchy, roles and cooperation.
- → Having superordinate goals increases intergroup cooperation and relations.

### Nonverbal communication - Ekman

- Concluded that the smile was a universal expression, a general communicator across all the cultures he has studied.

## Violence

### Bandura

- Modeling effects of aggression
- Children's aggression is heightened immediately following observation of a model that has been rewarded for aggressive activity.
  - VICARIOUS LEARNING / OBSERVATION

### Wolfgang

- Believes our society has, in effect, legitimized violence.

### Zillman and Bryant

- Link aggression to arousal and affect.

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## Prejudice

- Prejudice: an attitude against an identifiable group, formed without knowledge of or familiarity with specific members of the group.

→ The challenge becomes that of getting to know individuals, which serves to weaken and dilute group stereotypes.

- Social identity theory: allows us to enhance our individual self-esteem by our association with the groups to which we belong.

## Information integration theory - Anderson

- Proposes that our impressions of others are formed by a combination of:
  - Our own personal disposition (the perceiver)
  - Weighted average of the target person's characteristics.

## DEVELOPMENTAL PSYCHOLOGY

### Historical Perspective

#### Stanley Hall

- Father of Developmental Psychology
- First psychologist to do empirical research on children.
- Founder of APA, and child and adolescent psychology.

#### John Watson – Behaviorist

- Believe in 'tabula rasa' as Locke.
- "Give me a dozen healthy infants and own my own special world to bring them up in, I'll guarantee to take one at random and make up any type of specialist"
- Placed great responsibility on upbringing; had an extreme view that emotions and thought were acquired through learning.

#### Arnold Gesell

- Believed development occurred as a maturational/biological process, regardless of practice or training.
- There is a biological blue print, people are pre-determined.

### Research Methodologies

- Cross-sectional: compare groups of subjects at different ages.
- Longitudinal: compare a specific group of people over an extended period of time
- Sequential Cohort: combined cross-sectional and longitudinal.

### Heredity

#### Gregor Mendel – Genetics

- Studied pea plants and discovered genes, the basic unit of heredity.
- For any given gene, there are 2 alleles; which can be dominant or recessive.
- Parental genes are distributed randomly, given this distribution, there are 4 equally likely possibilities of combining alleles.

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- Genotype: total genetic complement or genetic makeup of an individual.
- Phenotype: individuals observable characteristics.
- Chromosomes: where genes are located. Humans have 23 chromosomes.
- Each cell of the human body has 23 PAIRS of chromosomes. 46 in TOTAL = diploid cells
- Gametes: sperm and egg cells that only have 23 SINGLE chromosomes = haploid cells.
- Children have 50% of their genes in common with each of their parents, siblings and fraternal twins. Identical twins have 100%.
- Monozygotic Twins = genetically identical
- Dizygotic twins = share approx. 50% of genes

## R. C. Tryon Study

- Studies on inheritance of maze-running laboratory rats.
- Learning abilities have a genetic basis.

## Lewis Terman

- Important longitudinal study that compared the development of children with high IQ's.
- Revised the Stanford-Binet Intelligence Test

## Genetic Disorders

- Down's syndrome: genetic anomaly in the 21<sup>st</sup> chromosome.
  - Mental retardation
- Phenylketonuria (PKU): degenerative disease of the nervous system.
- Klinefelter's syndrome: males with XXY sexual chromosome disconfiguration.
- Turner's syndrome: females with only one X chromosome.

## Stages of Prenatal Development

### Conception

- Germinal Period
  - Zygote/Fertilized Egg travels along the fallopian tubes.
  - 2 weeks
- Embryonic
  - Embryo starts to have human appearance.
  - Nerve cells and spine development.
  - Movement of limbs
  - 8-10 weeks
- Fetal
  - Beginning of measurable electrical activity in the brain.
  - 3<sup>rd</sup> month forward

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## Patterns of development

1. Cephalocaudal = top-down (first the head)
2. Proximodistal = center to extremities
3. General to specific = large motor movement first, fine motor movement later.

## Newborn Characteristics

### Neonatal Reflexes

1. Rooting: turn the head in direction of the stimuli
2. Moro: react to abrupt movements of their heads, arms, extending fingers and hugging themselves.
3. Babinski: toes spread apart when the soles are stimulated
4. Grasping: automatically close their fingers around objects in their hands
5. Sucking

### Infant perceptual preferences

- Complex over simple images
- Curved over straight images
- Human faces over random patterns or mixed features

## Cognitive Development

### Jean Piaget

- Humans learn through reflexive behaviours and organized patterns = behavioral schematas.
  - Schemas → Conceptual frameworks we use to organize our knowledge.
  - We interpret our experiences and therefore, remember them in terms of our existing schemata
- Learning comes from adaptation:
  - a. Assimilation = process of interpreting new info. In terms of existing schemata.
  - b. Accommodation = process of modifying existing schemata to adapt to new information that can't be assimilated.
- Believed that the development of thought directs the development of language
  - Comes from the capacity for symbolic thought
- Piaget used observation and clinical methods for experimentation

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## Piaget's Stages of Cognitive Development

### Sensorimotor (0 to 2yrs)

- Primary circular reactions: infants coordinate separate aspects of movement concerned with the body.
  - Pleasurable responses that an infant discovers by change and repeats over and over with its own body.
- Secondary circular reactions: infants coordinate separate aspects of movement to manipulate objects in the environment.
  - It is goal-oriented behaviour that is repeated with other objects.
- Development of Object Permanence
  - Child realized that objects continue to exist even if they can't see it.

### Preoperational (2 to 7 yrs)

- Marks the beginning of representational mental thought of external objects and events.
- They understand a thing exists even if they cannot see it.
  - Completely developed object permanence.
- Development of centration
  - Tendency to be able to focus on 1 aspect of a phenomenon; egocentrism.
- Development of Conservation
  - Notion that physical properties of matter does not change just because its appearance changes. (water glass bigger/thinner; same quantity of water)

### Concrete Operational (7 to 11yrs)

- Full development of conservation
- Limited to working with concrete objects and take account other individuals and information that is directly available.
- No abstract thought

### Formal Operational (11 forward)

- Logical and abstract thought and concepts is possible.

## Lev Vygotsky

- Zone of Proximal Development
  - Internalization of various aspects of culture to develop cognitive abilities.
  - Skills and abilities that have not yet developed but are in the process of...
  - Child needs guidance to develop its skills.

## Stages of Psychosexual Development: Sigmund Freud

- Libidinal energy and the drive to reduce libidinal tension are the underlying dynamic forces that account for human psychological development.
- When a fixation occurs in a given stage, the individual forms a personality pattern that is expressed in adulthood.

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## Oral (0 to 1 yr)

- Mouth
- Excessive dependency personality

## Anal (1 to 3yrs)

- Toilet training
- Excessive orderliness or messiness personality

## Phallic (3 to 5yrs)

- Oedipal or Electra complex is resolved in this stage

## Latency (5 to Puberty)

- Sublimation of the libido

## Genital (Puberty to Adulthood)

- If previous stages have been successfully resolved, the person will enter into normal heterosexual relations

## Psychosocial Theory of Development: Erik Erickson

→ Development is sequential to central life crises and through the resolution of conflicts between needs and social demands that occur in stages.

- Describes the entire life-span
- Erickson is neo-Freudian

Maturity	Ego Integrity Vs Despair (Wisdom) Age 50 ++
Middle Adulthood	Generativity Vs Stagnation (Care) Age 35 - 50
Young Adulthood	Intimacy Vs Isolation (Love) Age 18 - 35
Adolescence	Identity Vs Diffusion (Fidelity) Age 12 - 18
School Age	Industry Vs Inferiority (Competence) Age 6 - 12
Preschool	Initiative Vs Guilt (Purpose) Age 3 - 6
Early Childhood	Autonomy Vs Shame & Doubt (Will) Age 2 - 3
Infancy	Trust Vs Mistrust (Hope) Age 0 - 2

## Thomas and Chess

- Longitudinal study to examine infant temperament.
  - Easy
  - Slow to warm up
  - Difficult

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## Temperament

- Central aspect of an individual's personality.
- Somewhat heritable.
- Refers to the individual differences and patterns of responding to the environment.

## Early social and emotional behaviour

### Crying – Wolff

- Wolff identified 3 types of crying:
  1. Basic cry: hunger
  2. Angry cry: frustration
  3. Pain cry: pain
- People react with high palpitations when hear a child cry.
- Infants learn that their cry elicits a response to their caregivers as early as the second month.

### Attachment -- Harry Harlow

- First to show that contact comfort was necessary for the formation of mother-infant attachment bond.
- Early bonding with parent and child is important for future emotional behaviour.
- Studied monkeys and their mothers.

### Attachment -- John Bowlby

- Studied children in orphanages and foster homes.
- Established 3 phases for attachment:
  1. Pre-attachment = infants react the same way to every adult
  2. Attachment = infants discriminate towards familiar and unfamiliar faces
  3. Attachment intensifies = children are scared of strangers
    - Separation anxiety; 2 years +

### Attachment -- Mary Ainsworth

- Strange-Situation Experiment: mother-child attachment
  - Type A: Insecure/avoidant attachment
  - Type B: Secure attachment
  - Type C: insecure/resistant attachment

### Fixed action pattern (FAP) - Konrad Lorenz

- **Imprinting:** rapid formation of an attachment bond between organism and an object in the environment.
  - Imprinting takes place during certain critical periods.
- **Fixed action pattern (FAP)**
  - Or modal action pattern
  - is an instinctive behavioral sequence that is indivisible and runs to completion.

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- Fixed action patterns are invariant and are produced by a neural network known as the innate releasing mechanism in response to an external sensory stimulus known as a sign stimulus or releaser (a signal from one individual to another).
  - A fixed action pattern is one of the few types of behaviors that can be said to be hard-wired and instinctive.
  - Theory by Tinbergen and Lorenz
- Made Ethology a recognized discipline:
    - The scientific study of animal behavior, and a sub-topic of zoology.
    - Study of animals in their own natural habitat.
    - Criticizes the study of animals in a laboratory

## Diane Baumrind – Parenting

- Authoritarian → punitive and lack emotional warmth
- Authoritative → punitive and use positive reinforcement and has emotional warmth
- Permissive → low control

## Arnold Gesell

- Maturation: found infant motor skills developing in a consistent sequence primarily of maturation.
- An infant typically sits without support between five and six months.

## Cognitive Development:

- 1 Voluntary movement
- 2 Mental representation and object permanence
- 3 Symbolic thought
- 4 Intuitive thought
- 5 Concrete operations and conservation
- 6 Information Processing

## Gender Schematic Processing Theory - Martin and Halverson

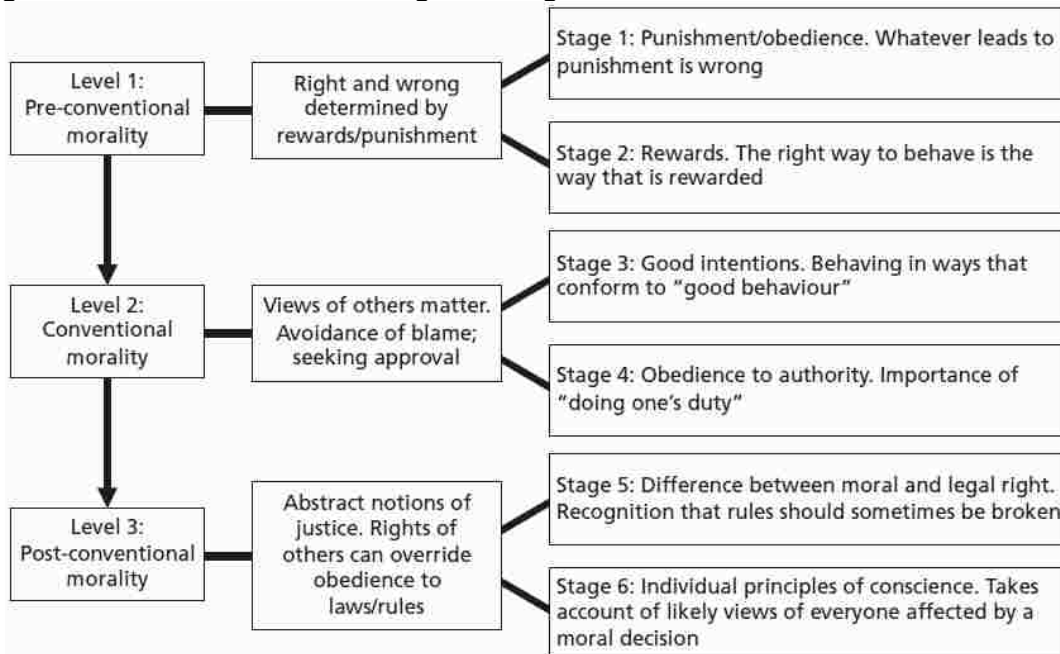
- As soon as children are able to label themselves, they concentrate their behaviors associated to that gender and pay less attention to those of the opposite gender.



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## Moral Development -- Lawrence Kolber's Stages

- Stages are associated with changes in cognitive structure.



## Gender Development

- Gilligan criticizes these stages saying that the experiment was done with only males and that women's morality is more focused on caring and compassion, more concerned with relationships and social responsibilities.

Gilligan's Stages of the Ethic of Care		
Approximate Age Range	Stage	Goal
not listed	Preconventional	Goal is individual survival
<b>Transition</b> is from selfishness -- to -- responsibility to others		
not listed	Conventional	Self sacrifice is goodness
<b>Transition</b> is from goodness -- to -- truth that she is a person too		
maybe never	Postconventional	Principle of nonviolence: do not hurt others or self

## Kohlberg's Gender Stages

- Gender labeling (2 to 3 yrs) → They are able to achieve gender identity
- Gender Stability (3 to 4 yrs) → They can predict being a gender in the future, only in the concrete sense
- Gender Consistency (4 to 7 yrs) → They understand the permanency of gender, regardless of how one behaves or wears.

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## PERSONALITY

### Historical Perspective

#### Big Five Personality Inventory - Norman, Hans and Eysenck

- Advanced the premise that **individual personality variations** can be reduced to two or three dimensions:
  1. Openness to experience
  2. Conscientiousness
  3. Extraversion
  4. Agreeableness
  5. Neuroticism

#### Body Types - William Sheldon

- Theory of Personality by their physical/biological types
  - Endomorphy
  - Mesomorphy
  - Ectomorphy

#### Sigmund Freud

- First comprehensive theory of personality

#### Cerletti and Bini - electroshock

- Introduced the use of electroshock for the artificial production of convulsive seizures in psychiatric patients with schizophrenia.

#### Emil Kraepelin – Taxonomy

- 1883
- Devised a textbook and classification of mental disorders with clinical data.
- Precursor for the DMS.

### Theories of Personality and Treatment Models

#### Psychodynamic – Sigmund Freud

- Existence of unconscious internal states that motivate the overt actions of individuals and determine personality.
  - a. Ego
    - i. postpone discharge of energy until reality conditions are suitable for gratification
    - ii. is at the service of the Id
    - iii. mediates between libidinal forces and realistic demands
  - b. Superego → reality center
  - c. Id → discharges libidinal energy

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- Defense mechanisms:
  1. Repression: is the blocking of unacceptable impulses from consciousness.
  2. Suppression: Sometimes we do this consciously by forcing the unwanted information out of our awareness.
  3. Projection: is the attribution of one's undesired impulses onto another. Thus, an angry spouse accuses their partner of hostility.
  4. Reaction Formation: is the converting of wishes or impulses that are perceived to be dangerous into their opposites. A woman who is furious at her child and wishes her harm might become overly concerned and protective of the child's health.
  5. Rationalization: is the cognitive reframing of one's perceptions to protect the ego in the face of changing realities. Thus, the promotion one wished fervently for and didn't get becomes "a dead end job for brown nosers and yes men".
  6. Regression: is the reversion to an earlier stage of development in the face of unacceptable impulses. For an example an adolescent who is overwhelmed with fear, anger and growing sexual impulses might become clinging and begin thumb sucking or bed wetting.
  7. Sublimation: is the channeling of unacceptable impulses into more acceptable outlets.
  8. Displacement: is the redirecting of thoughts feelings and impulses from an object that gives rise to anxiety to a safer, more acceptable one. Being angry at the boss and kicking the dog can be an example of displacement.

→ A person is motivated by inborn instincts.

## Psychoanalysts Points of View -- Carl Jung

- Behaviour was motivated by a continuous life urge which had for its aim wholeness and the completion of creative development
- Thought of the libido as psychic energy in general
  - Personal unconscious
  - Collective unconscious = powerful system that is shared among humans; residue of the experiences of our ancestors.
- Archetypes = thoughts or images that have an emotional element
  - Persona → social role
  - Anima → female gender
  - Animus → male gender
  - Shadow → animal instincts
  - Self → point of intersection between the personal and collective unconscious
- Proposed the Personality as
  - Introvert
  - Extrovert

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- Perceptual approaches to the environment – Psychological Functions
  - Sensing
  - Thinking
  - Feeling
  - Intuiting

→ A person's conduct is governed by inborn archetypes.

## Psychoanalysts Points of View – Alfred Adler

- Believed our basic, underlying drive was not instinctual or sexual, but a drive for superiority born of early inferiority feelings.
  - Inferiority Complex
  - Sense of imperfection
  - Physical inferiority
  - Social disabilities
  - Fictional Finalism → people are motivated more by expectations of the future than past
  - Superiority Strivings
  - Uniqueness

→ The individual strives toward superiority; its what drives the personality.

- Social interest as a determinant of mental health
- The personality must be directed towards the social, towards benefitting all people. If it's endeavors are directed towards selfishness, then it is the root of all personality disturbances.
  - Creative Self → shaping uniqueness
  - Style of Life → manifestation of the creative self

## Psychoanalysts Points of View – Karen Horney

- Neurotic personalities are governed by one of 3 needs.
- Basic Anxiety → an individual's perception of the self is important.
- At infancy, if a sense of helplessness confuses the child, it will lead to the need to overcome basic anxiety in 3 HEADINGS:
  - Moving towards people to obtain the good will and security → LOVE
  - Moving against people to obtain the upper hand → POWER
  - Moving away from people, withdrawal → INDEPENDENCE
- When one of these dimensions is strictly and irrationally adhered, is when disturbance arises.
- Womb envy

# GRE SUBJECT TEST PSYCHOLOGY

## Psychoanalysts Points of View - Fromm

- Distinctions in types of love:
  - Brotherly
  - Motherly
  - Erotic
  - Self
  - Supernatural
- Five human needs:
  - Relatedness vs. Narcissism → LOVE NEED
  - Creativeness vs. Destructiveness → TRANSCENDENCE NEED
  - Brotherliness vs. incest → ROOTENED NEED
  - Individuality vs. Conformity → IDENTITY NEED
  - Reason vs. Irrationality → DEVOTION NEED

## Behaviorist Points of View: Learned Behaviour

- Determinism: all behaviour have causes
- Ineffectiveness of mental explanations
- Power of the environment to select behaviour

## Behaviorism - Dollard and Miller

- Related psychoanalysis concepts with behavioral theory
- Translates psychosexual stages into learning-theory terms
- Behavioral stimulus-response reinforcement learning
  - Focused on the conflicting motives or conflicting tendencies in the development of personality.

## Behaviorism – Classical Conditioning: Pavlov

- Reflex: unlearned response that is elicited by a specific stimulus.
- Pavlov dog salivation experiment.
- Process by which an organism learns a new association between 2 paired stimuli (a neutral stimuli and the one that evokes a reflexive response).
  - Unconditioned Stimulus → Stimulus consistently and automatically elicits a particular unconditioned response
  - Unconditioned response → Response reflexively elicited by an unconditional response
  - Conditioned Stimulus → Stimulus that, after conditioning, is able to elicit a non-reflexive response
- Acquisition → the process that establishes or strengthens a conditioned response.
- Extinction → the process of unlearning a conditioned response (repeatedly presenting CS without the UCS)

# GRE SUBJECT TEST PSYCHOLOGY

- Spontaneous Recovery → temporary return of an extinguished response after a delay
  - typically occurs during a rest period between extinction training sessions.
  - It is defined as increased recovery of a conditioned behavior that occurs during a rest period with no visible reason for its occurrence (that is a conditioned or unconditioned response), which is why it is labeled spontaneous.
  - The learning will be short lived and requires further training.
- Stimulus generalization → learned response to one stimulus will respond similarly to stimuli that resemble it.
- Generalization → tendency for stimuli similar to CS to elicit CR.
- Emotional conditioning without awareness is strongest.
- Second-Order Conditioning → Neutral stimulus paired with CS rather than UCS.
- Contingency: CS is a good signal for UCS

## Behaviorism - Operant Conditioning: Thorndike

- Introduced the concept of reinforcement/punishment in classical conditioning.
- Operant conditioning → process of controlling the rate of a behavior through its consequences and rewards.
- Sometimes called instrumental conditioning
- Operant Behavior is controlled by its consequences
- Law of Effect → if a response is followed by an annoying consequence, the animal will be less likely to emit the same response in the future.
- Stressed mentalistic terms: “satisfying” and “annoying”

## Behaviorism - Radical Conditioning: Skinner and Watson

- Radical Behaviorism
  - Focus on stimulus-response
  - Observable behaviour
- Form of learning during which an individual modifies the occurrence and form of its own behavior due to the association of the behavior with a stimulus.
- **Shaping or Differential Reinforcement**
  - Establishing a new response by reinforcing successive approximations to the desired behaviour.
  - Starts by initiating and reinforcing basic behaviours that the individuals does do before reinforcing the central behaviour a individual does not do because is scared or can't perform it
- **Positive Reinforcement**  
→ increase a behavior by giving a reward
- **Negative Reinforcement**  
→ Probability that a desired response will be performed is increased by taking away or preventing something undesirable whenever the desired response is made.
  - Escape: behavior removes something undesirable (annoying buzzer to put seat belt on once its on)

# GRE SUBJECT TEST PSYCHOLOGY

- Avoidance: behavior avoids something undesirable (get a warning that an aversive stimulus will soon occur)
- **Punishment**
  - behavior causes something undesirable
- **Partial Reinforcement Effect**
  - it takes longer to extinguish a behaviour when receiving only occasional reinforcement. The resistance that partial reinforcement schedules have to extinction. They are more effective at maintaining behaviour in the long run.
- **Generalization**
- **Fixed interval**
  - Behaviour will be reinforced for the 1<sup>st</sup> response after a fixed period of time has elapsed since the last reinforcement
- **Variable interval**
  - Behavior will be reinforced for the 1<sup>st</sup> response after a varying period has elapsed since the last reinforcement
- Fixed ratio
  - Reward after a fixed number of responses
- Variable ratio (on average reward every n responses)
  - Reward will be reinforced after a varying number of responses
  - Very resistant to extinction
  - Very rapid response rate
- Language is acquired by reinforcement

## Behaviorism – Social: Bandura and Rotter - Social Learning Theory

- Focus on expectancies and values of behavioral outcomes.
- Stimulus-Organism-Response
- Learning occurs not only by having behavior reinforced, but by observing other people's behaviors being reinforced.

## Behaviorism – Seligman Helplessness Theory (Depression)

- Clinical depression and related mental illnesses may result from a perceived absence of control over the outcome of a situation.
- In the learned helplessness experiment an animal is repeatedly hurt by an adverse stimulus which it cannot escape.
- Eventually the animal will stop trying to avoid the pain and behave as if it is utterly helpless to change the situation. Finally, when opportunities to escape are presented, this learned helplessness prevents any action. The only coping mechanism the animal uses is to be stoical and put up with the discomfort, not expending energy getting worked up about the adverse stimulus.



# GRE SUBJECT TEST PSYCHOLOGY

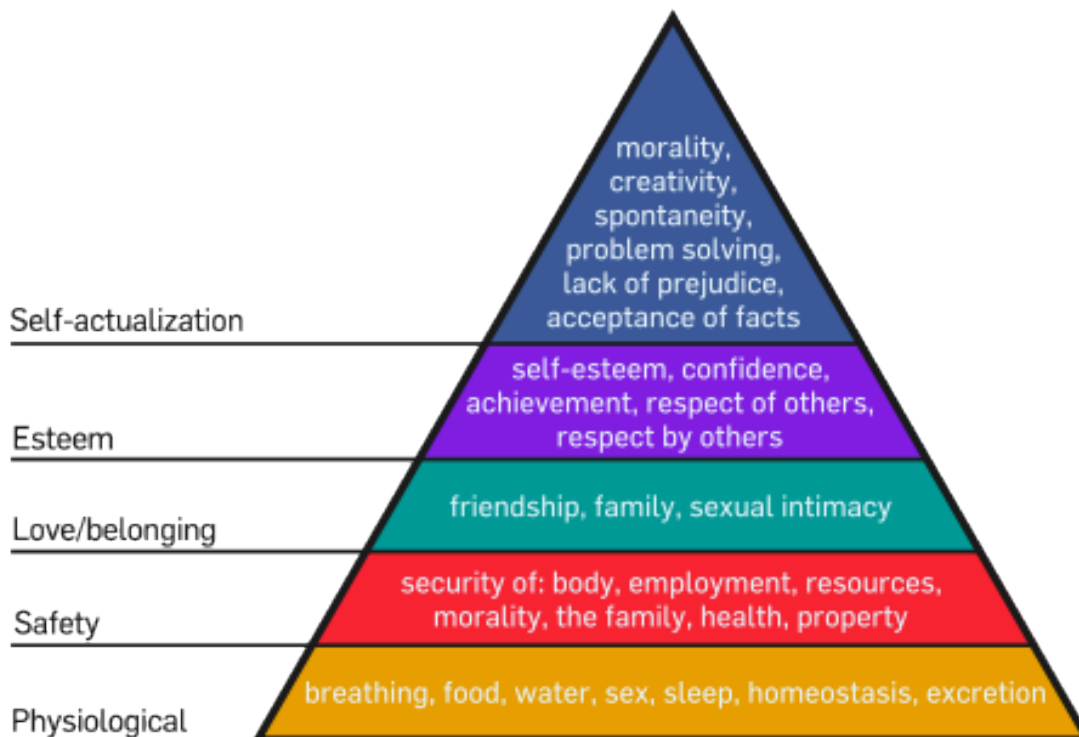
## Humanism – Phenomenology

→ Emphasize internal processes rather than behaviour.

### Humanism – Phenomenology: Kurt Lewin

- Personality is dynamic and constantly changing its SYSTEMS.
- The person needs to have well-articulated systems of his personality in order to have a normal life.
- **Force field analysis:** framework for looking at the factors (forces) that influence a situation, originally social situations. It looks at forces that are either driving movement toward a goal (helping forces) or blocking movement toward a goal (hindering forces).

### Humanism – Phenomenology: Abraham Maslow



- Peak experiences: profound and deeply moving experiences in a person's life that have important and lasting effects on the individual.

### Humanism – Phenomenology: George Kelly - Personal Construct

- The individual is a scientist that devises and tests predictions about the behaviour of significant people in their life.
- Individuals then create a scheme of anticipations and constructs of life.
- We view the world through our own personal constructs.



# GRE SUBJECT TEST PSYCHOLOGY

- C-P-C Cycle
  - Circumspection
  - Preemption
  - Control
- Role Construct Therapy

## Humanism – Phenomenology: Carl Rogers

- Humanistic point of view. The importance of our feelings; they are wiser than our intellects.
- Organized goal directed behaviour
- Conscious self structure
- Basic striving to actualize, maintain and enhance
- Listening to one's feelings

## Humanism – Phenomenology: Victor Frankl - Logotherapy

- View of life-meaning coming through our pursuit of exciting goals
- Mental illness stems from the notion of a meaningless life.
- Will to meaning; setting goals and working towards them rather than pursuing a will to power or pleasure
- Existential vacuum/frustration
- Collective neurosis

## Type A

- Behaviour that tends to be competitive and compulsive.

## Type B

- Personality that is generally laid-back and relaxed.

## Trait Theorists

- Attempt to ascertain the fundamental dimensions of personality.
  - Traits: relatively permanent reaction tendencies

## Trait Theorists: Raymond Cattell

- Cattell introduced mental testing in USA.
- Used factor analysis to measure personality in a more comprehensive way, attempting to account for the underlying factors that determine personality.
- Identified 16 basic traits or relatively permanent reaction tendencies in individuals.
- Used objective tests

## Trait Theorists: Hans Eysenck

1. Used factor analysis
2. Determined the broad dimensions of personality and that there were more specific traits.
  - i. Introversion-extroversion
  - ii. Emotional stability-neuroticism
  - iii. Psychoticism
3. Wanted to test scientifically Jung's division of extroversion and introversion.

# GRE SUBJECT TEST PSYCHOLOGY

## Trait Theorists: Gordon Allport

- Cardinal → traits around which a person organizes his life; basics
- Central → major characteristics of the personality that are easy to infer; thought
- Secondary → personal characteristics that are more limited in occurrence
- **Functional autonomy:**
  - A given activity or form of behavior may become an end or goal in itself, regardless of its original reason for existence.
  - People may continue to be the way that they are because of enjoyment, or other motives.
  - Traits that once had survival functions now take on a self-perpetuating life of their own.
  - Positive view of human nature.
- Idiographic approach → individual case studies (this was preferred)
- Nomothetic → focuses on group studies.

## Trait Theorists: David McClelland

- Personality as the need for achievement (nAch)
- They strive for goals
- Avoid high risks to avoid failing
- Avoid low risks because these won't produce a sense of achievement

## Trait Theorists: Herman Witkin - field-dependence:

- Drew a relationship between the personality and perception of the world.
- People can be classified by a Degree of field-dependence:
  - Independence
  - Dependence
- Personality characterized by inability or ability to distinguish experience from its context
- Rod and frame Experiment

## Trait Theorists: Julian Rotter

- Internal Locus Control → believe that they can control their destiny
- External locus of control → believe outside events to control their destiny
- Locus of control is related to SELF-ESTEEM and ATTRIBUTIONS

## Trait Theorists: Sandra Bem

- Androgyny → simultaneously being very feminine and masculine
- Gender identity is related to personality

## Mischel's Criticism

- Human behaviour is largely determined by the characteristics of the situation rather than by those of the person.

# GRE SUBJECT TEST PSYCHOLOGY

## PSYCHOPATHOLOGY -- ABNORMAL CLINICAL

- Pinel → 18<sup>th</sup> Century advocate for asylum reform
- Dix → 19<sup>th</sup> Century advocate for ASYLUM REFORM

### DSM-IV-TR

- Based on atheoretical descriptions of symptoms of the various disorders.
- It doesn't list 'neurosis' as a category of mental disorders, since neurosis is a theoretical term that is derived from psychoanalytic theory.

### Multi-axial system

- Organizes each psychiatric diagnosis into five dimensions (axes) relating to different aspects of disorder or disability.

### Axis I → Clinical psychiatric syndrome; states the person's central problem.

- Clinical disorder: major mental disorders, learning disorders and substance use disorders
- NOT personality & Mental retardation

#### Common Axis I disorder:

- Depression
- anxiety disorders
- bipolar disorder
- ADHD
- autism spectrum disorders
- anorexia nervosa
- bulimia nervosa
- schizophrenia.

→ They have their onset after infancy. They carry the best potential for change and effective treatment.

### Axis II → Personality disorders and intellectual disabilities (retardation)

→ Developmental disorders

#### Common Axis II disorders:

- personality disorders
- paranoid personality disorder
- schizoid personality disorder
- borderline personality disorder
- antisocial personality disorder
- obsessive-compulsive personality disorder
- intellectual disabilities.

→ These disorders are life-long, rather than having a specific onset-point.

# GRE SUBJECT TEST PSYCHOLOGY

## **Axis III → Acute medical conditions and physical disorders**

→ Gives general knowledge to the close relationship and balance between the body and mind

Common Axis III disorders:

- brain injuries and other medical/physical disorders which may aggravate existing diseases or present symptoms similar to other disorders

## **Axis IV → Psychosocial and environmental factors contributing to the disorder**

→ addresses the severity of psychosocial stressors

- Indicates any psychosocial or environmental stresses that may influence progression, treatment, or outcome of the disorders from Axis I and Axis II.

## **Axis V → Global Assessment of Functioning or Children's Global Assessment Scale for children and teens under the age of 18**

→ evaluates the person's highest level of adaptive and overall level of functioning in the past year.

## **Disorders First Diagnosed in Infancy, Childhood or Adolescence**

- ADHD
- Autistic Disorder
- Tourette's Disorder

## **Schizophrenia and Other Psychotic Disorders**

- Schizophrenia
  - Bleuler → coined the term schizophrenia
  - Positive & Negative Symptoms
  - Delusions of reference, persecution, grandeur
  - Hallucinations
  - Disorganized thought
  - Blunting, flat affect, inappropriate affect
  - Catatonic motor behaviour
  - Prodromal phase
  - Active Phase
  - Process schizo
  - Reactive schizo
    - Catatonic
    - Paranoid
    - Disorganized
    - Undifferentiated
    - Residual
  - Basal ganglia
    - Dopamine

# GRE SUBJECT TEST PSYCHOLOGY

- Schizophrenia Disorder Theories
  - Excess Dopamine Hypothesis
  - Double-Blind Hypothesis

## **Mood Disorder**

- Major Depressive Disorder
- Bipolar disorder (manic depression)
- Hypomania
- Dysthymic Disorders
  - Doesn't meet the criteria for major depression; less severe symptoms
- Cyclothymic disorders
  - Doesn't meet the criteria for bipolar disorders; less severe symptoms

## **Mood Disorder Theories**

- Norepinephrine and Serotonin
- Monoamine Theory of Depression = Catecholamine Theory of Depression
  - TOO MUCH leads to mania
  - TOO LITTLE leads to depression

## **Anxiety Disorders**

- Phobias
- Specific phobias
- Social phobias
- Obsessive-Compulsive Disorder

## **Somatoform Disorders**

- Conversion Disorders (paralysis, blindness)
- Hypochondriasis

## **Dissociative Disorders**

→ Escape from one's identity

- Dissociative amnesia
- Dissociative fugue
- Dissociative identity disorder
- Depersonalization disorder

## **Personality Disorders**

- Schizoid
- Narcissistic
- Borderline
- Antisocial

# GRE SUBJECT TEST PSYCHOLOGY

## **Diathesis-Stress Model**

- Framework that can be used to examine the causes of mental disorders
- A diathesis → is a predisposition or abnormality toward developing a specific mental disorder.
  - Genetic
  - Anatomic
  - Biochemical
- An individual whose brain is oversensitive to dopamine and who also experiences excessive stress may be likely to develop schizophrenia.
- CASUAL FACTORS AT THE BIOLOGICAL AND PSYCHOLOGICAL LEVELS INTERACT WITH EACH OTHER.

## **David Rosenhan → LABELLING**

- Studied the labeling effects of 'mental disorders.
- Was admitted to a mental hospital acting as if suffering from auditory hallucinations.
- Rosenhan concluded that psychologists needed to exercise greater care when judging normality and abnormality.

## **Thomas Szasz**

- Argued that most mental illnesses aren't really illnesses.
- He conceptualized them as traits or behaviours that differ from the cultural norm.
- Labeling people as mentally ill is a way to force them to change and conform to societal norms rather than allowing them to attack the societal causes of their problems.
- "The Myth of the Mental Illness"

## **Personality Measurement**

### **Minnesota Multiphasic Personality Inventory (MMPI)**

- McKinley and Hathaway; 1942
- It was invented towards detecting abnormality and Clinical Disorders
- 550 statements
  - True
  - False
  - Cannot Say
- Yields scores on 10 clinical scales
- High score can lead to the rejection of the rest record
- Was created using the Empirical Criterion-Keying Approach
  - Differentiation between mental patient and nonpatient populations.
- MMPI-2 → more theoretical.

### **Rorschach Inkblot Test**

- Projective test of 10 ambiguous-stimulus plates.
- Allows to understand the major facets of an individual's concerns and thoughts.
- Stimuli is ambiguous
- There is no possible responses, just interpretations
- SUBJECTIVE

# GRE SUBJECT TEST PSYCHOLOGY

## BIOLOGICAL FOUNDATIONS

### Historical Perspective

#### Franz Gall

- Developed PHRENOLOGY
  - The brain had areas responsible for any given trait that was developed by an individual.

#### Pierre Flourens

- 1<sup>st</sup> to study the functions of the major sections of the brain.
- Extirpation = ablation then observed the behaviour in pigeons.

#### William James

- Believed in studying how the mind functioned in adapting to the environment.
- Founder of FUNCTIONALISM = system of thought that was concerned with studying how mental processes help individuals adapt to their environments.
- Link between physiology and emotional experience.

#### John Dewey

- Functionalist; believed that psychology should focus on the study of the organism as a whole and how it functions to adapt to the environment.
- Criticized the concept of the reflex arc (the breaking of the process of reacting to stimulus of parts)

#### Paul Broca

- Examined the behavioral deficits of people with brain damage.
- 1<sup>st</sup> to demonstrate that specific functional impairments could be linked with specific brain lesions.
- Broca's Area = area related to speech production.

#### Phineas Gage

- Underwent PREFRONTAL CORTEX damage and his personality changed completely.

#### Johannes Müller

- Identified the law of specific nerve energies:
  - Each sensory nerve is excited by only one kind of energy
  - The brain interprets any stimulation of that nerve as being that kind of energy.
  - Sensation depends more on the part of the brain that the nerves stimulate than on the particular stimulus that activates them.
  - → Differences in experienced quality are not stimulus-based but nervous-system-based.
  - → Qualitative differences in the neural signals are due to the differences in the structures that the neural signals excite.
  - → Stimuli are dimensions that are coded/translated into neural signals that are relayed to the appropriate projection area in the brain.

# GRE SUBJECT TEST PSYCHOLOGY

- → There are several and unique ways in which each sense transduces or coded information about a stimulus, and then route that information to the final destination that is the brain.
- - All neurons have a specific receptive field and neurons are organized into systematic maps.

## Hermann von Helmholtz

- 1<sup>st</sup> to measure the speed of a nerve impulse.
- Studied visual perception
- CONSTRUCTIONIST

## Sir Charles Sherrington

- 1<sup>st</sup> to infer the existence of the synapse.
- Believed it was primarily a electrical process (its in fact, a chemical process)

## Walter Cannon

- Pioneering work in regard to the ANS.
- Developed the concept of homeostasis

## James Olds and Peter Milner

- Discovered the septum; primary pleasure centers in the brain.
- Mild stimulation in this area produces sexual arousing or aggression

## Klüver-Bucy Syndrome

- Performed studies with monkeys that linked the amygdala with defensive and aggressive behaviours.

## Phelogeny

- Term for evolutionary development in humans

## Sperry and Gazzaniga

- Studied the effects of severing the corpus callosum.
- "Split Brain"

## Erick Kandel

- Studied sea snails; aplysia
- Discovered the 'habituation' phenomenon
- Demonstrated that changes in synaptic transmission underlie changes in behavior.
- Discovered specific changes in the neuron that explain a simple learned behavior.
- Researched the formation of long term memories.

## A. R. Luria

- Russian neurologist
- Learned that brain damage leads to impairment in sensory, motor and language functions.



# GRE SUBJECT TEST PSYCHOLOGY

## Donald Hebb

- Neurons are co-strengthened if they co-occur.
- Neurons that fire together, wire together.
- Experiences leave a strong imprint in the neurogenesis of neurons.

## Brain Anatomy

- Brain structures associated with basic survival are located at the base of the brain.
- Brain structures associated with more complex functions are located higher up.
- Hindbrain and Midbrain → Brain Stem (first to develop in pregnancy)

## Autonomic Nervous System

- Parasympathetic Nervous System
  - “Resting and digesting”
    - Acetylcholine: neurotransmitter responsible for the responses of the PNS in the body.
- Sympathetic Nervous System
  - “Fight or Flight”
  - Increases heart rate, blood-sugar level, and respiration
  - Decreases the digestive system
  - Dilates the pupils.
    - Adrenaline: neurotransmitter responsible for the responses of the SNS

## Hindbrain

- Place where the Spinal Cord meets the brain.
- Primary Functions
  - Balance
  - Motor Coordination
  - Breathing
  - Digestion
  - General Arousal Processes
    - Sleeping
    - Walking

→ VITAL FUNCTIONS NECESSARY FOR SURVIVAL

- Medulla Oblongata: breathing, heartbeat, digestion (Vital Functioning)
- Pons: sensory motor tracks between cortex and Medulla
- Cerebellum: balance, refined body movements
- Reticular Formation: nerve fibers that regulate Arousal, Alertness, Attention.

## Midbrain

- Manages sensorimotor involuntary reflexes that also promote survival.
- Receives sensory and motor information
- Reflex responses triggered by visual or auditory stimuli

# GRE SUBJECT TEST PSYCHOLOGY

- Superior Colliculi: VISUAL
- Inferior Colliculi: AUDITORY

## Forebrain

- Associated with complex perceptual, cognitive and behavioral processes.
- Emotion
- Memory
  - Has the greatest influence on human behavior
- Thalamus
  - Relay station for incoming sensory information (all senses, minus smell) and transmits them to the appropriate areas of the cerebral cortex.
- Hypothalamus:
  - Drive Behaviours
    - Hunger
    - Thirst
    - Sexual Behaviour
  - Emotions
  - Endocrine/Hormone Functions
  - Autonomic Nervous System
    - Homeostatic Regulation
      - Metabolism
      - Temperature
      - Water Balance: Osmoregulation
  - FIGHT OR FLIGHT
    - Feeding
    - Fighting
    - Fleeing
    - Sexual Functioning
- Limbic System
  - Amygdala
  - Septum
  - Hippocampues
  - Structure that loops around the center of brain
  - 2<sup>nd</sup> to develop during pregnancy
  - Emotion
  - Memory
    - Aggression
    - Fear
    - Pleasure
    - Pain
- Basal Ganglia
  - Movement

# GRE SUBJECT TEST PSYCHOLOGY

- **CEREBRAL CORTEX**
  - Complex perceptual
  - Complex cognitive
  - Complex Behavioral processes

## Ventricles

- Fluid-filled cerebrospinal fluid cavities

## Septum

- Major Arousal section in the brain
- Aggression; septal rage
- Reward site

## Amygdala

- Defensive and aggressive behaviours
- Dual effect on behaviour
- Lesions produce docility and hypersexual states

## Hippocampus

- Vital for Memory and Learning processes
- Lesions produce anterograde amnesia (can't remember future things)
- When experiencing an event for the first time, a link is formed in the hippocampus allowing us to recall that event in the future.
  - **The Three Stage Model**
    - Eichenbaum
    - The hippocampus does three things with episodic memory:
      - Mediates the recording of episodic memories
      - Identifies common features between episodes
      - Links these common episodes in a memory space

## Cerebral Cortex

- Neocortex
  - F-POT
    - **Frontal**
      - Executive Function
        - Supervises processes associated with perception, memory, emotion, impulse control and directs the operations of other brain regions.
- It doesn't store memory, but it reminds the body one has something to remember.
- **Parietal**
    - Touch
    - Temperature
    - Pain
  - **Occipital**
    - "Striate cortex"
    - Vision

# GRE SUBJECT TEST PSYCHOLOGY

- **Temporal**
  - “Auditory Cortex”
  - Hearing
  - Wernike’s Area
    - Language reception and comprehension
  - Hippocampus

## Corpus Callosum

- Collection of fibers connecting the hemispheres
- Works by sharing and coordinating information from left and right hemispheres
- 

## Association Area

- Brain area that combines input from diverse brain regions.
- There are more association areas than projection areas.
  - Prefrontal Cortex

## Projection Area

- Brain area that receives incoming sensory information or sends out motor-impulsive commands.
  - Visual Cortex
    - Receives visual input from the retina
  - Motor Cortex
    - Sends out motor commands to the muscles

## Contralaterally

- Cerebral hemispheres communicate with the opposite side of the body.

## Ipsilaterally

- Cerebral hemisphere communicate with the same side of the body.

## Action Potentials and Electrical Conduction

- Resting Potential
  - Polarization (-70mV)
- Depolarization
  - Increase threshold potential (-50mV)
  - Actual firing of the neuron
- Action Potential Spike
  - Sodium ions in the cell are abundant
  - +50mV
  - Absolute Refractory Period
- Hyperpolarization
  - Farther away from the polarization potential
  - -90mV
  - Relative Refractory Period
- Resting potential

# GRE SUBJECT TEST PSYCHOLOGY

## Neurotransmitters

### Acetylcholine

- Found in central nervous system → hippocampus / Alzheimer's Disease / memory
- Parasympathetic (peripheral) nervous system → Transmits nerve impulses to the muscles

### Monoamine

- Epinephrine
  - Fight of Flight responses
  - Adrenaline
- Norepinephrine
  - Alertness and wakefulness
  - Depression
  - Mania
- Dopamine
  - Movement
  - Posture
  - Basal ganglia
  - Dopamine Hypothesis of Schizophrenia: too much dopamine in the brain or a oversensitivity to dopamine
  - Parkinson's Disease
    - Play important roles on the experience of EMOTIONS
- Serotonin
  - Mood, sleep eating, dreaming
  - Too much → mania
  - Too little → depression

### GABA

- Produces IPSP's
- Important to stabilize neural activity in the brain
- Causes hyperpolarization in the postsynaptic membrane
- Anxiety Disorders
  - Peptides: endorphins

## Psychopharmacology

- Sedatives
  - Benzodiazepines
  - Barbiturates
  - Alcohol
  - Valium
    - Facilitate and enhance the action of GABA (stabilize brain activity)
- Stimulants
  - Amphetamines → sympathetic nervous system
  - Tricyclics & monoamine oxidase inhibitors (MAO) → antidepressants
    - Facilitates the transmission of norepinephrine or serotonin in the synapse

# GRE SUBJECT TEST PSYCHOLOGY

- Narcolepsy
  - Selective Serotonin Reuptake Inhibitors (SSRIs)
    - Prozac
    - Inhibits the reuptake of serotonin
  - Methylphenidate
    - Ritalin
- Antipsychotic Drugs
  - Thorazine
  - Chlorpromazine
  - Phenothiazine
  - Haloperidol
    - Reduces hallucinations, delusional thinking and agitation
  - Lithium carbonate → Bipolar disorder (manic-depression)
    - Mood stabilizer
- Narcotics
  - Morphine
  - Opium
  - Heroin
    - Painkillers: endorphins

## Neurological Disorders

- Aphasia
  - Impairment of the language functions
    - Broca's Aphasia: can convey content, but their speech is unstructured and typically omits function words (the, with, and...)
    - Wernicke's Aphasia: can produce fluent speech that is largely devoid of meaning.
- Amnesia
  - Impairment of memory functions
- Agnosia
  - Impairment in perceptual recognition of objects
- Aphagia
  - Disturbance in eating
- Apraxia
  - Impairment of skilled motor movements

# GRE SUBJECT TEST PSYCHOLOGY

## Brain Waves

- Beta
  - Awake state
  - Fast EEG
- Alpha
  - Awake state; relaxed
  - Slower EEG
- Theta
  - Stage 1 Sleeping
  - Stage 2 Sleeping
    - K Complexes
- Delta
  - Stage 3 Sleeping
  - Stage 4 Sleeping
    - Slowest waveforms and steepest sleep
- REM
  - Paradoxical Sleep
  - Fast irregular EEG activity
  - Dreaming

## Perception of Emotion and Physiology

### James-Lange Theory

- We become aware of our emotions after we notice our physiological reactions to some external event
- You know you are sad because you are crying.

### Canon-Bard Theory

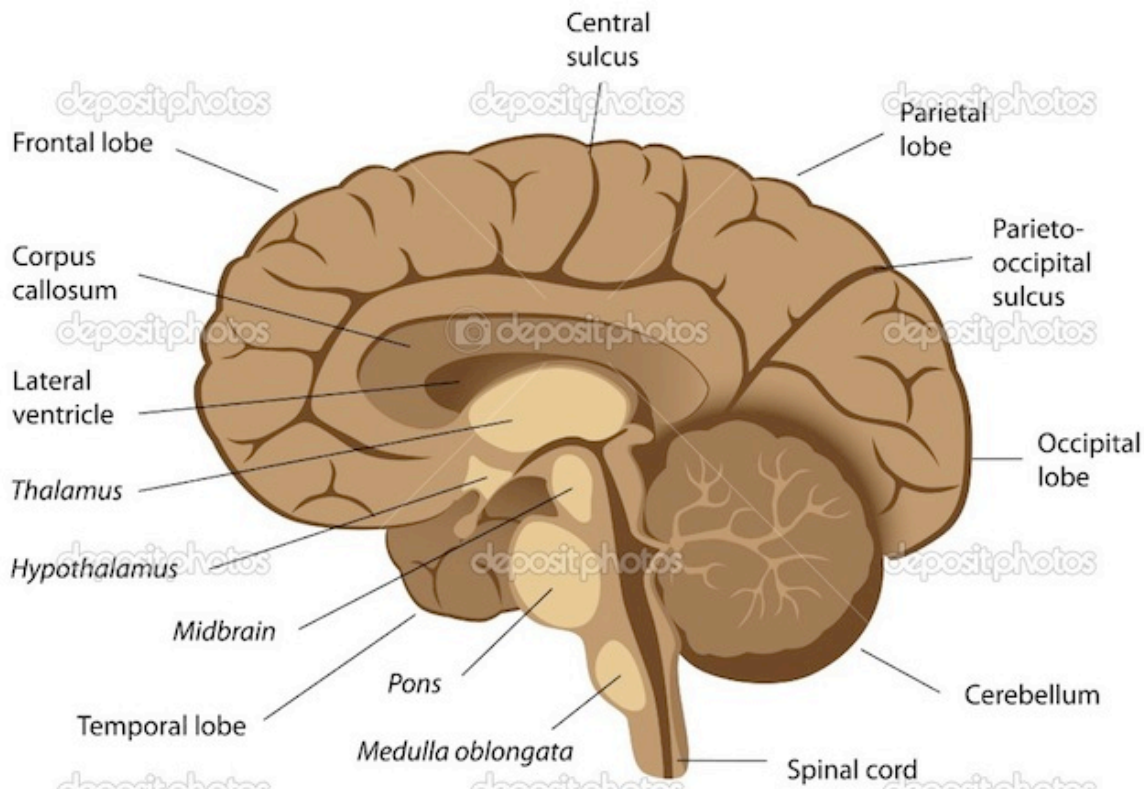
- Awareness of emotions reflects our physiological arousal and our cognitive experience of emotion.
- Bodily changes and emotional feelings occur simultaneously

### Schachter-Singer Theory

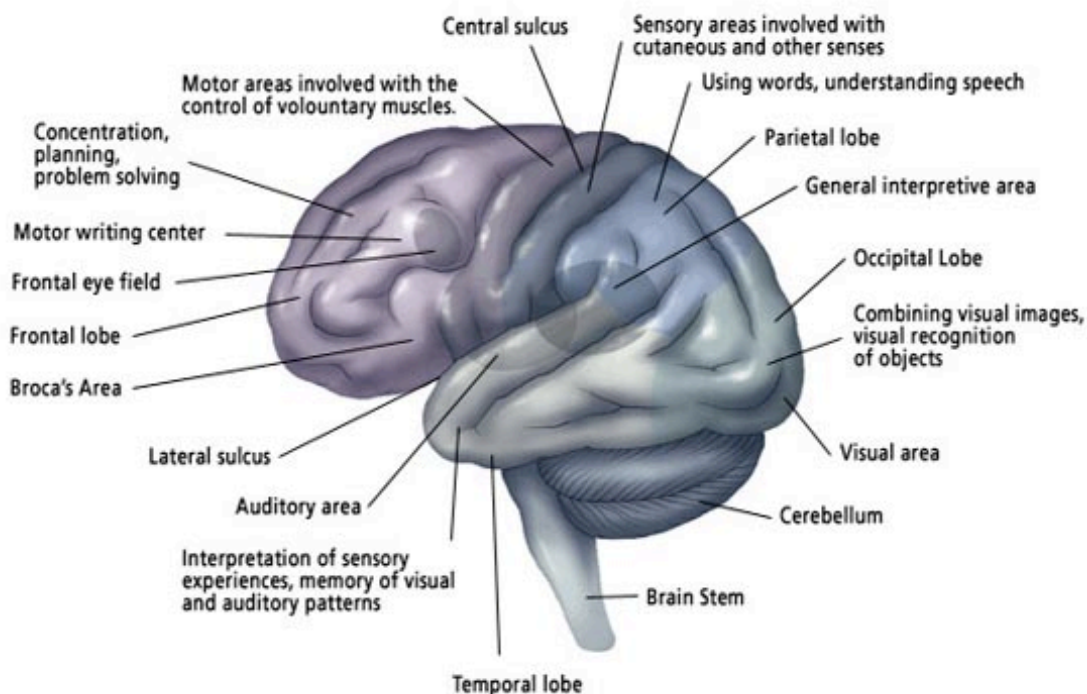
- Two-Factor Theory
  - Unspecified physiological arousal will be labeled as different emotions depending on mental response to environmental stimulation
  - When physiological arousal occurs without any obvious cause, a person will search the environment for something to explain the arousal and give it emotional meaning.
  - Emotions depend on individual interpretation

# GRE SUBJECT TEST PSYCHOLOGY

## Median section of the brain



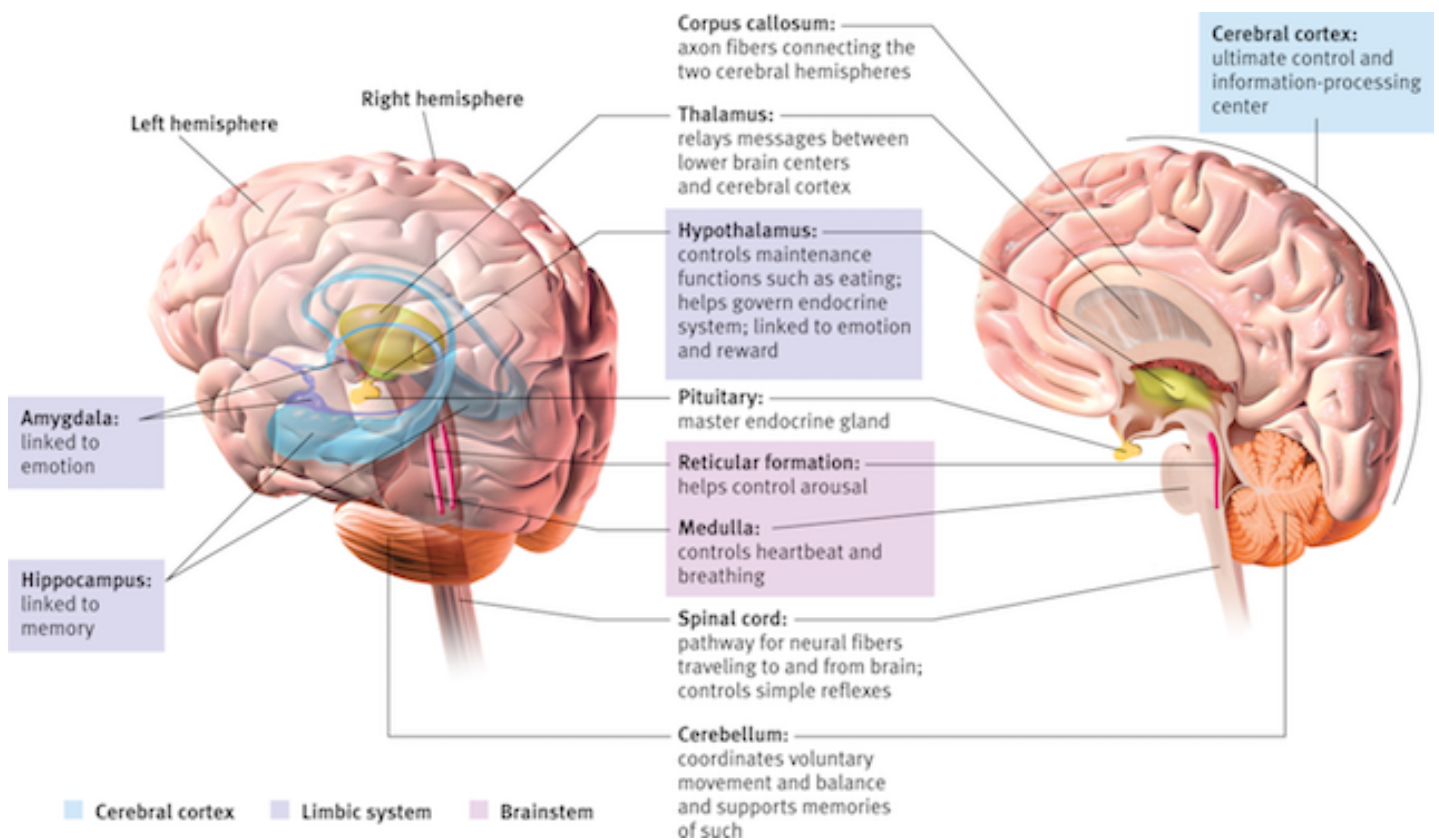
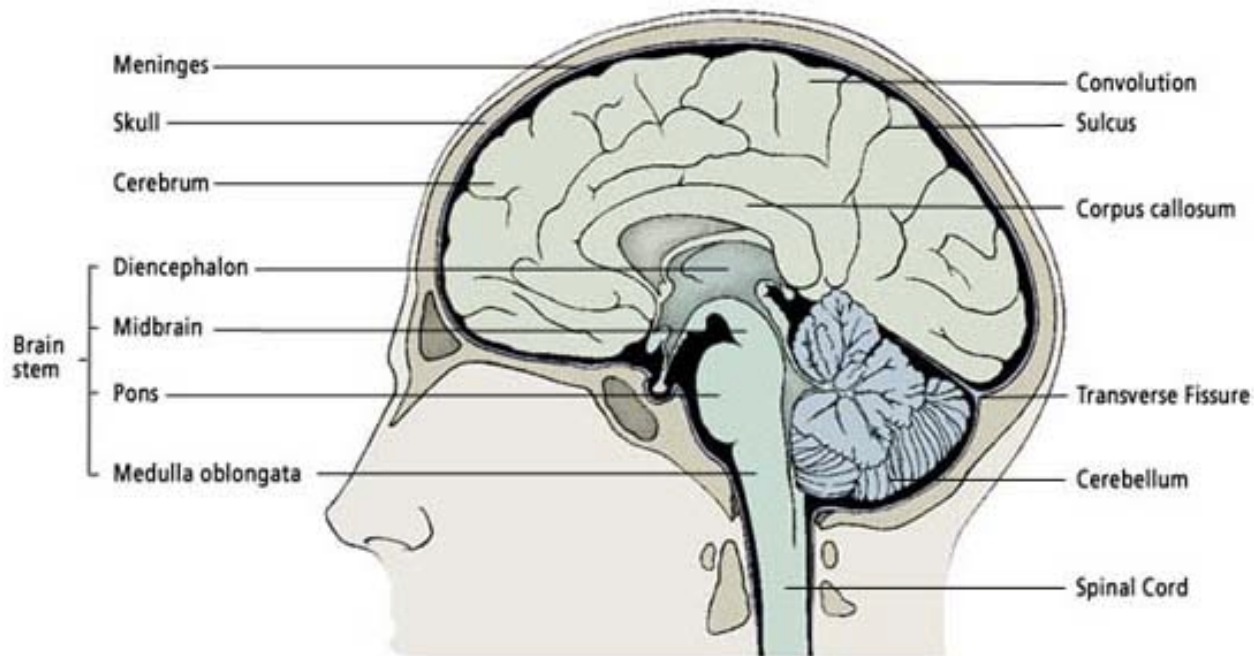
## Some Motor, Sensory, and Association Areas of the Cerebral Cortex





# GRE SUBJECT TEST PSYCHOLOGY

The Major Portions of the Brain Include the Cerebrum, Cerebellum and Brain Stem



# GRE SUBJECT TEST PSYCHOLOGY

## PERCEPTION-SENSATION

### Historical Perspective

#### Perception

- How we see things and how they fool us... Is our mental organization of what is out there
- Our senses are all primed and ready to receive input, and our past experiences and learning determine what we truly perceive. Expectations and past experiences make all the difference
- Reasoned that our perceptual experience must be the result of unconscious inferences; we combine the incomplete data we received from our eyes with assumptions based on our experiences in the world in order to reach a hypothesis about what we are seeing (INFERENCE)

#### Bayes' Theorem:

1. formalism used by vision scientists to characterize this inference process for deriving a perception from sensory information.

#### Weber Law Just Noticeable Difference (JND)

- Investigation of muscle sensation; the relationship between physical stimuli and another psychological responses to stimuli.
- Attempted to describe the relationship between the physical magnitudes of stimuli and the perceived intensity of the stimuli.
- Weber found that the just noticeable difference (jnd) between two weights was approximately proportional (ratio) to the mass of the weights
  - **JND is the minimal change in a physical stimulus that corresponds to a change in the perception of an observer.**
- Weber's law does not hold at perception of higher intensities.

#### Sir Francis Galton

- Measured the sensory abilities of nearly 10,000.

#### Max Wertheimer

- Founder of Gestalt psychology.
- Phi phenomenon: experience of this visual illusion has a wholeness about it that is different from the sum of its parts.

#### The Phi-Phenomenon

- is an optical illusion defined by Max Wertheimer in the Gestalt psychology.
- The phi phenomenon is an optical illusion of our brains and eyes that allows us to perceive constant movement instead of a sequence of images.
- We are supplying information that does not exist (between image and image) that creates the illusion of a smooth movement.
- The phi phenomenon, is only a limitation of the human eye, which depends on the persistence of visual sensations.
- In other words, it occurs in response to sequentially flashing lights.

# GRE SUBJECT TEST PSYCHOLOGY

## Psychophysics

- Concerned with measuring the relationship between physical stimuli and psychological responses to the stimuli.

## Absolute Thresholds

- Minimum physical energy that will activate a sensory system.
- Limen = another word for threshold.

## Subliminal Perception

- Refers to perception of stimuli below a threshold
- Below the threshold of conscious awareness

## Difference Thresholds

- Just Noticeable Difference.
- How different 2 stimuli must be before they are perceived to be different
- The amount of change necessary to predict the difference between 2 stimuli
  - The important part of determining difference thresholds is their ratio.
  - $\Delta I/I = K$ ?
  - $\Delta S/S = K$

## Fechner's Law

- Devised an equation to relate the intensity of the stimulus to the intensity of the sensation.
- Determined the sensation increases more slowly as intensity increases.

## Steven's Power Law

- Proved Fechner's Equation wrong

## Signal Detection theory

- Cognitive bias or expectations of what senses a person.
- Other, non-sensory factors influence what the subject says it senses.
  - Experiences
  - Motives
  - Expectations
- Response Bias:
  - Tendency of subjects to respond in a particular way due to nonsensory factors.
  - Measures how risky the subject is in sensory decision-making.
- Receiver Operating Characteristic (ROC)
  - Used to graphically summarize a subject's responses in a signal detection experiment

# GRE SUBJECT TEST PSYCHOLOGY

## Sensory Information Processing

### Reception

- Receptors around the body

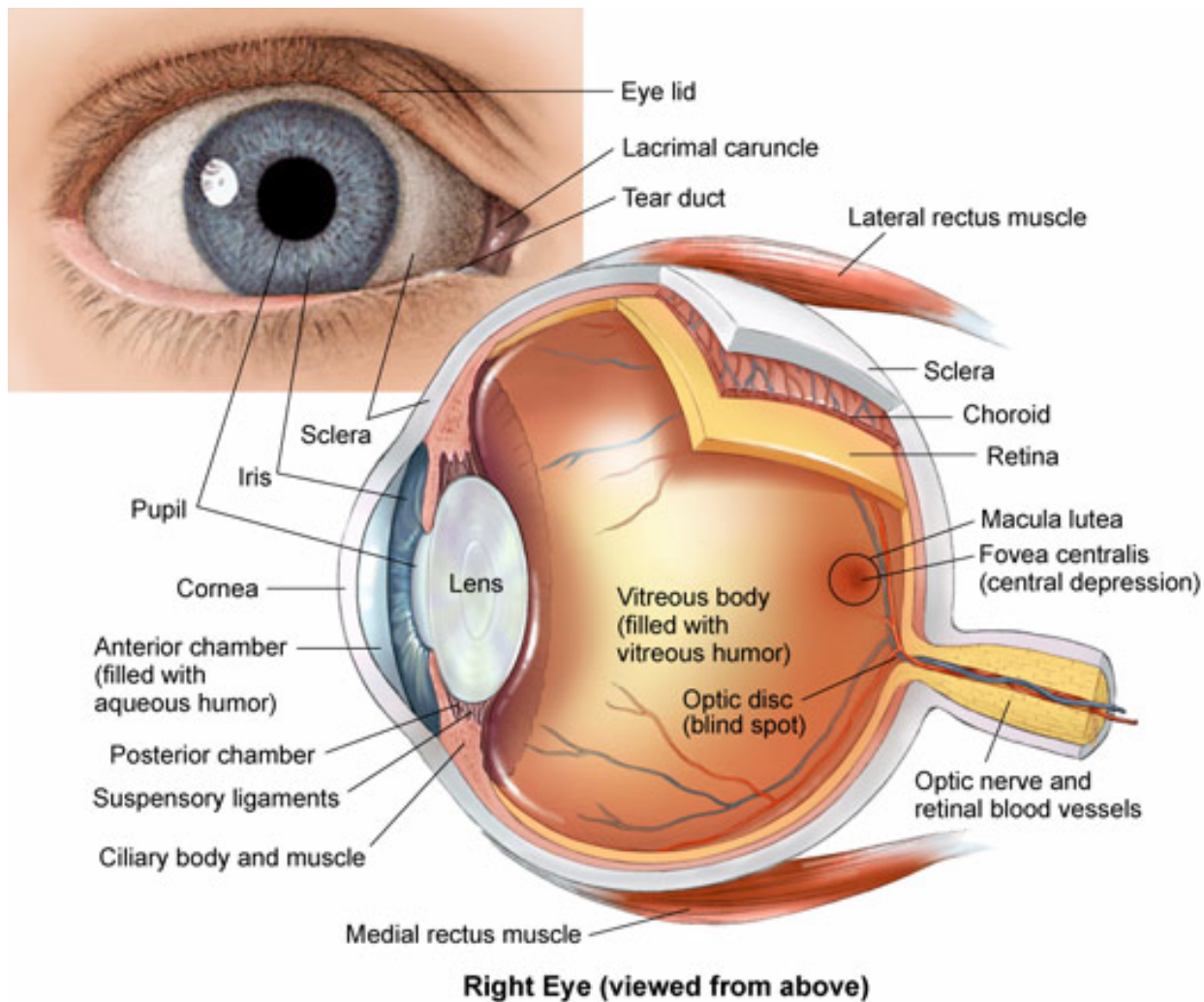
### Transduction

- Translation of physical energy into neural impulses or action potentials

### Reception

- Once transduction finishes, electrochemical energy is sent to various projection areas in the brain along various neural pathways.
- Further analyze of sensory input.

## VISION



# GRE SUBJECT TEST PSYCHOLOGY

## Duplicity Theory of Vision

- Retina contains two types of photoreceptors
  - Rods
    - Low sensitivity to detail
    - No color
    - More numerous
    - Found in the periphery of the retina
  - Cones
    - Color vision
    - Fine detail
    - Found in the FOVEA

Rods and cones connect→

Bipolar neurons →

ganglion cells →

optic nerve →

Optic Chiasm →

→ There is always a loss of detail because there are more receptors than ganglion cells.

## Optic Chiasm

- Fibers from the retina –nasal fibers- cross paths.
- Temporal Fibers do not cross paths.

VISUAL →

Optic Chiasm →

Lateral Geniculate Nucleus →

Thalamus →

Visual Cortex →

Superior Collutis →

oCCipital Lobe

## Hubel and Wiesel: Feature Detection Theory

- Certain cells in the cortex are maximally sensitive to certain features of stimuli.
  - Simple → Orientation & boundaries
  - Complex → Movement
  - Hypercomplex → Shape (abstract)



# GRE SUBJECT TEST PSYCHOLOGY

- Work on physiology of visual perception
- Researchers understand the visual cortex (occipital lobe) better than any other brain region.
- Used electrodes to record electrical activity in the brain.

**Illumination: Objective measurement of light on a surface**

**Brightness: Subjective impression of the intensity of a stimulus**

**Dark Adaptation**

- Photopigment in the rods: Rhodopsin
- Vitamin A retinal and protein opsin
- When a molecule of rhodopsin absorbs a photon of light, the pigment begins to decompose, into retinene and opsin. → Bleaching.

**Lateral inhibition**

- Adjacent retinal cells inhibit one another' sharpens and highlights borders between light and dark areas

**Depth Perception: The image on our retina is only 2-dimensional but we see 3-D.**

**Color in order of increasing Light Wavelength (nm)**

Blue →

Green →

Yellow →

Orange →

Red →

**Young-Helmholtz: Trichromatic Theory**

- Three types of color receptors in the retina: RED – BLUE – GREEN
- All colors are produced by combined stimulation of these receptors varying degrees
- Ratio of activity that determines color

**Hering: Opponent Process Theory**

- Three opposing pairs of colors
  - Red-Green
  - Blue-Yellow
  - Black-White
- Afterimages
  - Concept that lead to the theory.
  - Is a visual sensation that appears after a prolonged or intense exposure to a stimuli.

# GRE SUBJECT TEST PSYCHOLOGY

## Cues for Depth Perception

- Interposition (Overlap)
  - One object covers another; partially hidden object is seen as farther away
- Relative Size
  - Comparison of retinal size of object to actual size of objects gives cue to depth
- Linear Perspective
  - Parallel lines appear to converge as they recede into the distance
- Texture gradients
  - As scene recedes from viewer, the surface texture of the object appears to change
- Motion parallax
  - When observer moves, objects in a stationary environment appear to move relative to distance from observer
- Binocular disparity (Stereopsis)
  - Each eye sees a slightly different scene; when brain combines the scenes, we get perception of depth

## Perception of Form

1. Perceptual objects exist only in your mind.
2. Figure: integrated visual experience that stands out at the center of attention
3. Ground: simply the background against which the figure appears.

## Gestalt Laws of Organization

- Proximity → elements close to one another tend to be perceived as a unit
- Similarity → Elements similar to one another tend to be grouped together
- Good Continuation → Elements that appear to follow in the same direction tend to be grouped together
- Closure → Tendency to see incomplete figures as being complete
- Law of Prägnanz → Perceptual organization will always be as 'good' as possible

# GRE SUBJECT TEST PSYCHOLOGY

## Wolfgang Kohler: Theory of Isomorphism

- There is a 1 to 1 correspondence between the object in the perceptual field and the pattern of stimulation in the brain.

## Types of Processing

### Bottom-Up → Data-driven processing

- Responds directly to the components of incoming stimulus on the basis of fixed rules and then sums up components to arrive at the whole pattern
- Would not be good for recognizing objects
- BOTTOM → EARTH → REALITY → CONCEPT

### Top-Down Processing → Conceptually driven processing

- Guided by conceptual processes such as memories and expectation that allow the brain to recognize whole objects and *then* the components
- TOP → BRAIN → CONCEPT

## Motion Perception

- Apparent Motion (Phi) → When 2 or more stationary lights flicker in succession they tend to be perceived as a single moving light
- Induced Motion → Stationary point of light appears to move when the background moves
- Autokinetic Effect → Stationary point of light when viewed in an otherwise totally dark room appears to move; probably caused by involuntary eye movements
  - Conformity Study I - Muzafer Sherif
- Motion Aftereffect → If a moving object is viewed for an extended period of time, it will appear to move in an opposite direction when the motion stops

## Distal stimulus

- Refers to an actual external object or event in the world

## Proximal stimulus

- Refers to the information our sensory receptor receives about the object.

## Visual Consistencies

- Size Consistency
  - Tendency for the perceived size of an object to remain constant despite variations in the size of its retinal image
  - Visual angle determines the size of the image in the retina



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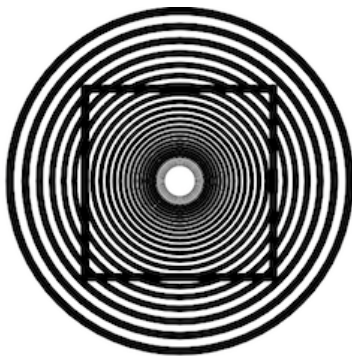
- Size consistency depends on apparent distance
  - Ames room
  - Moon illusion
- Shape Consistency
  - Tendency for the perceived shape of an object to remain constant despite variations in the shape of its retinal image
  - How we judge the relative depth of the different parts of the stimulus
- Lightness Consistency
  - Tendency for the perceived lightness of an object to remain constant despite change in illumination
- Color Consistency
  - Tendency for the perceived color of an object to remain constant despite changes in the spectrum of light falling on it

## Visual Illusions

### Müller-Lyer

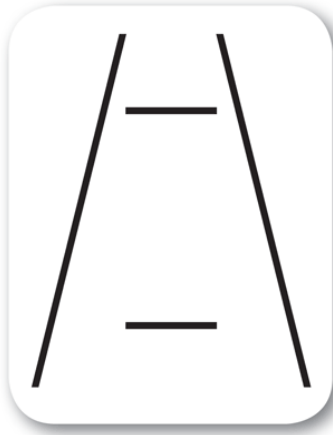


### Hering

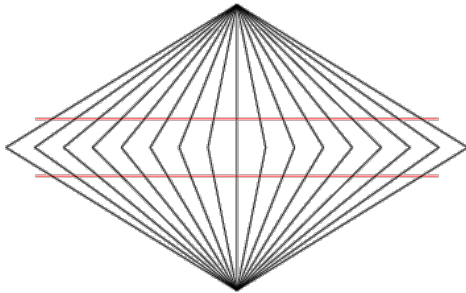


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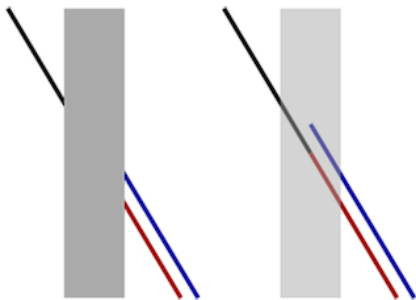
## Ponzo



## Wundt



## Poggendorff



## Visual Perception and Experience

### Preferential Looking

- Fantz
- Difference in time spent looking at each stimuli
- Inferred that infants can discriminate between 2 stimuli; the longest looked at is the preferred.

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- Infants prefer to look at complex and socially relevant stimuli
- Patterns instead of uniform faces

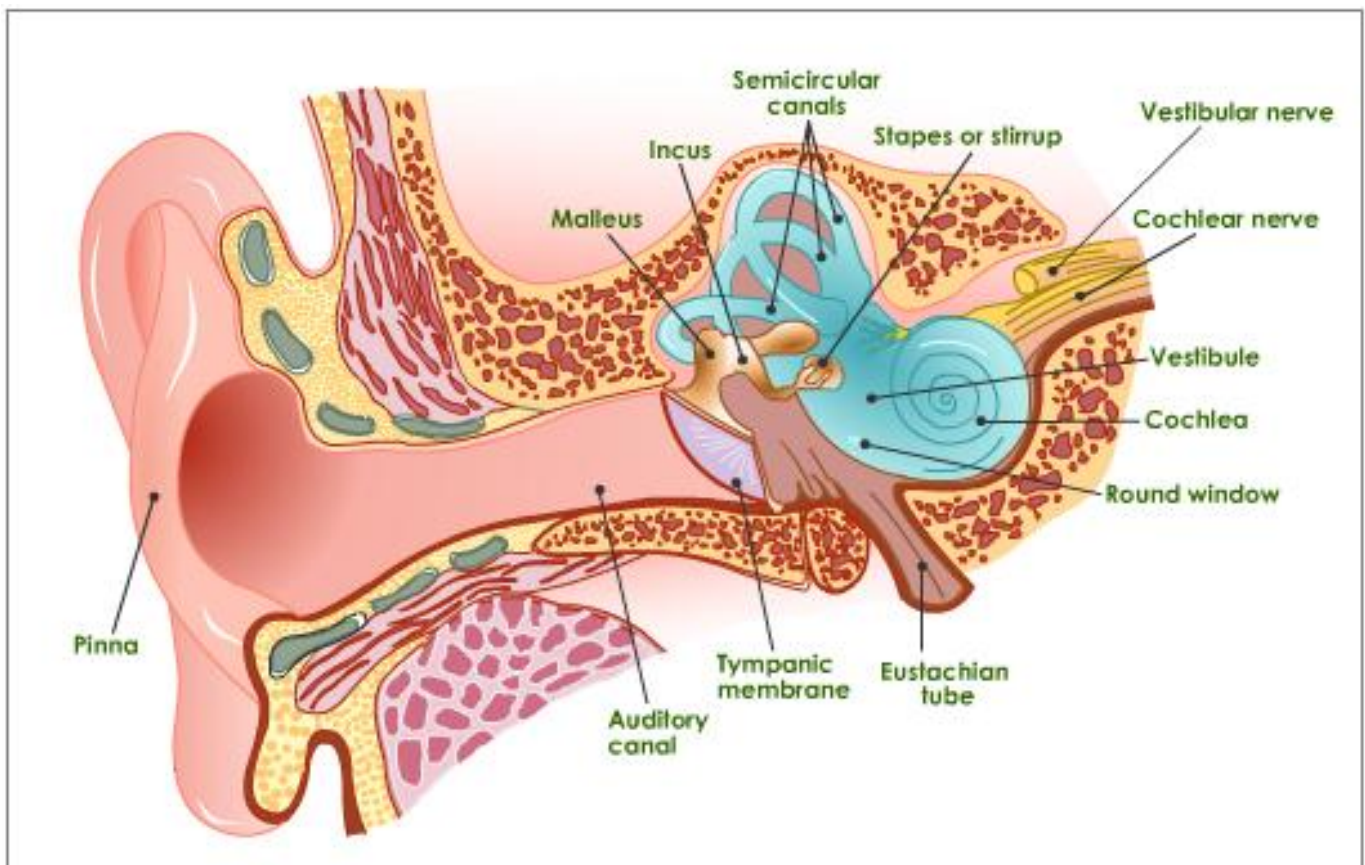
## Habituation

- Decrease in an elicited behavior (response) resulting from the repeated presentation of an eliciting stimulus (a simple form of learning).
- Infants can discriminate between old and new stimuli.

## Visual Cliff

- Gibson and Walk
- Apparatus designed to assess infant depth perception

## Auditory System



Malleus → hammer - Incus → Anvil

# GRE SUBJECT TEST PSYCHOLOGY

## SOUND →

- Cochlea: basilar membrane
  - Organ of Corti (hair cells; analogous to the cones and rods)
    - Auditory Nerve
      - Superior Olive
        - Inferior colliculus
          - Medial Geniculate Nucleus
            - TEMPORAL CORTEX

## Dimensions of Sound

### Objective Dimensions

- Frequency → # of cycles per second (measured in Hertz; Hz)
  - Short wavelength; higher frequency
- Intensity → Amplitude of the sound wave (measured in decibels) LOUDNESS

### Subjective Dimensions

- Pitch → subjective frequency
- Loudness → subjective intensity of sound
- Timbre → quality of sound

## Helmholtz's Place Resonance Theory

- The movement of the Basilar membrane (Cochlea) determines pitch
- Different pitch causes a different place in the basilar membrane to vibrate

## Frequency Theory

- Basilar membrane vibrates as a whole.
- The rate of vibration equals the frequency of the stimulus

## Békésy's Traveling Wave

- Movement on the basilar membrane is maximal at a different place along the basilar membrane for each different frequency.

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## Taste

- Chemical Sense → it requires receptors to have ACTUAL contact with the molecules that make up the stimulus.
- Taste Buds: bumps in the tongue (papillae)

FOOD →

Papillae →

Taste Center →

Thalamus →

## Smell

- Chemical Sense → it requires receptors to have ACTUAL contact with the molecules that make up the stimulus.

SMELL →

Olfactory Epithelium →

Olfactory Bulb →

## Touch

- Pressure
- Pain
- Warmth
- Cold

Tactile Information Receptors

- Pacinian Corpuscles → Deep Pressure
- Meissner Corpuscles → Touch
- Merkel Discs → Warmth
- Ruffini Endings → Warmth

## Touch Perception

- Two-Point Thresholds
  - Minimum distance necessary between 2 points of stimulation on the skin that it will be perceived as 2 distinct stimuli
  - Depends on the density of nerves in particular areas of the skin
- Physiological Zero
  - Neutral temperature perceived to be neither hot nor cold.
- Gate Theory of Pain
  - There are gating mechanisms in the Spinal Cord that turns pain signals on and off
  - The Spinal Cord is able to block sensory input from large sensory fibers before the brain is able to receive pain signals

# GRE SUBJECT TEST PSYCHOLOGY

## Yerkes-Dogson Law

- Performance & Arousal
- Performance is worst at extremely low and high levels of arousal.

## Learning and Ethology

### Law of Effect: Thorndike

- States that “responses that produce a satisfying effect in a particular situation become more likely to occur again in that situation, and responses that produce a discomforting effect become less likely to occur again in that situation. In addition to practice, the role of reinforcement is central to learning.
- Basis for Operant Conditioning
- Experiment of Cat in Puzzle Box
- All problem solving is of the trial and error type.

### Wolfgang Köhler – Gestalt Psychology

- Learning by insight (an alternative to simple conditioning model)
- Experiments with chimpanzees; place foods out of reach
- Experiments of problem solving
- Contrasted Thorndike’s assertion that all learning was trial-and-error
- Demonstrated that some animals in some situations can solve problems not by trial-and-error, but by insight

### Cognitive Map

- Edward Tolman
- Experiments with rats and mazes
- Cognitive Map → Mental representation of a physical space.
- Latent Learning

### Biological Constraints

- Biological Predispositions of learning certain things in different ways.

### Clark Hull’s Theory of Motivation: Drive Reduction Theory

- The goal of behaviour is to reduce biological drives.
- Reinforcement occurs whenever a biological drive is reduced.

### John García

- Classical Conditioning is affected by the animal’s biological make-up
- Taste-Adversion Experiment
- Rats learn to associate foods with illness
  - Animals have instinctual predispositions to associate certain stimuli and not others.

### Premack Principle

- A more preferred activity could be used to reinforce a less-preferred activity

# GRE SUBJECT TEST PSYCHOLOGY

## Cognitive Psychology

### Research Methods

- Reaction Time
  - Elapse time between stimulus presentation and response
- Eye Movements
  - “on-line” measure of information processing
- Brain Imaging
  - Associate various cognitive processes with various parts of the brain

### Memory

#### Ebbinghaus Forgetting Curve

- METHOD OF SAVINGS
- hypothesizes the decline of memory retention in time.
- A related concept is the strength of memory that refers to the durability that memory traces in the brain.
- The stronger the memory, the longer period of time that a person is able to recall it; there is a steep initial drop in retention followed by a gradual line.
- A typical graph of the forgetting curve purports to show that humans tend to halve their memory of newly learned knowledge in a matter of days or weeks unless they consciously review the learned material.
- This conclusion is not currently supported by evidence since the only studies done by Ebbinghaus are on himself. This does not meet the standards for scientific research.
- Ebbinghaus studied material for memory that was intentionally learned.
- He used nonsense syllables to study memory for items devoid of meaning or other associations.

#### Memory Processes:

Encoding:

- Putting information into memory.

Storage

- Retention of memories for a period of time.

Retrieval

- Recovery of information.
  - Recall → Independently reproducing the information that you have been previously exposed to.
  - Recognition → Realizing that a certain stimulus effect is one you’ve seen or heard before

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- Generation-Recognition → Attempt to explain why you can usually recognize more than you can recall; model suggests that recall involves the same mental process involved in recognition plus another process not required for recognition

## Stage Theory of Memory

- There are several different memory systems
- Each system has a different function
- Memories enter various systems in a specific order
  - Sensory Memory
  - Short-Term (working memory)
  - Long-Term

## Levels of Processing Theory

- Craik and Lockhart
- What determines how long you will remember material is not what memory system it goes to, but the way in which you process the material
- There is only ONE memory system
- 3 Ways Memory is Processed
  - Physical → Visual; appearance of the information [less energy]
  - Acoustical → sound combinations words have [more energy]
  - Semantic → Focusing on the meaning of the word [most energy]
- 3 ways demand different amounts of mental effort
- The deeper the processing and the greater the effort, the better your memory will be of the material

## Paivio's Dual-Code Hypothesis

- Information can be encoded in 2 ways
  - ∞ Visual
  - ∞ Verbally
- Abstract Memory → verbal
- Concrete Memory → visual and verbal

## Sensory Memory

- Visual memory → Iconic Memory
- Auditory Memory → Echoic Memory

## Short-Term Memory

- Stay 20 seconds
- Link between sensory memory of long term memory

### Maintenance Rehearsal

1. Repeating the information to keep it in short-term memory

## Long-Term Memory

- a. Permanent Store-house of experiences, knowledge, skills.



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## 2 Types of Long-Term Memory

- Procedural Memory → how to do things
  - Declarative memory → Explicit information
    - Semantic Memory: general knowledge
    - Episodic Memory: Particular events personally experienced
- Although many psychologists believe that the entire brain is involved with memory, the hippocampus and surrounding structures appear to be most important in declarative memory specifically

### **Elaborative Rehearsal**

2. Organizing the information and associating it with information already in long-term memory
3. Getting information into long-term memory

### **Spreading Activation Model**

- a. Collins and Loftus
- b. The shorter the distance between two words, the closer the words are related in the semantic memory
- c. Semantic memory organized into map of interconnected concepts; the key is the distance between the concepts

### **Forgetting**

- Decay Theory
  - Information that is not used or rehearsed will eventually be forgotten.
- Inhibition Theory → activities taken place between original learning and later learning
  - Retroactive Inhibition → forget what you learned earlier as you learn something new
  - Proactive Inhibition → What you learn earlier interferes with what you learn later
- Misinformation effect
  - memories can be distorted by things that happened or that are said after an event occurs. (eyewitness testimonies)

### **Factors that influence memory:**

1. Serial Position effect: advantage in memory due to the position of an item (first or last).
2. Von Restorff effect: memory may be better for unusual or novel things.
3. Flashbulb memories: emotionally charged events.

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4. Rehearsal: studying.
5. Elaborative rehearsal: things we make vivid through imagery or rich associations are processed more deeply and are better remembered.
6. Maintenance rehearsal: mere repetition.

## Facilitating Memory

### Encoding Specificity

- Recalling memory will improve if the context at the time of retrieval closely resembles the context during encoding

### State-Dependence Learning

- Recalling memory will improve if the context at the time of retrieval closely resembles an emotional or physical state during encoding.

### Mnemonics

- Learning strategies and aids that are meaningful in their elaboration
  - Acronyms
  - Chunking
  - Mental imagery
  - Method of loci → System of associating information with some sequence of places with which you are familiar

## Reconstructive Memory – Sir Frederick Bartlett

- Prior knowledge and expectations influence recall

## Eyewitness Memory – Elizabeth Loftus

- Tendency for eyewitnesses to be influenced or confused by misleading information
- Eyewitness memory and testimony can be erroneous for a myriad of reasons

## Zeigarnik Effect (Gestalt psychology - Lewin)

- An interrupted task is more likely to be remembered than a completed one
  - The automatic system signals the conscious mind, which may be focused on new goals, that a previous activity was left incomplete. It seems to be human nature to finish what we start and, if it is not finished, we experience dissonance.
  - In Gestalt psychology, the Zeigarnik effect has been used to demonstrate the general presence of Gestalt phenomena: not just appearing as perceptual effects, but also present in cognition.
  - The Zeigarnik effect suggests that students who suspend their study, during which they do unrelated activities, will remember material better than students who complete study sessions without a break.

## Gestalt psychology

- The school or theory in psychology holding that psychological, physiological, and behavioral phenomena are irreducible experiential configurations not

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derivable from a simple summation of perceptual elements such as sensation and response.

## Problem Solving – Luchins

- Water Jar Experiment
- Mental Sets: Tendency to keep repeating solutions that worked in other solutions

## Heuristic

- Refers to experience-based techniques for problem solving, learning, and discovery. Where an exhaustive search is impractical, heuristic methods are used to speed up the process of finding a satisfactory solution.
- Short-cuts and rules of thumb we can use in making decisions
  - Availability Heuristic
    - Making decisions about frequencies based upon how easy it is to imagine the items involved
  - Representativeness Heuristic
    - Categorizing things on the basis of whether they fit the prototypical image of the category
  - Base-rate Fallacy
    - Ignoring the numerical information about the items being referred to when categorizing them

## Language

- → Syntax: word order and inflection.
- → Semantics: meaning and interpretation.
- → Phonology: word structure.

## Components of language:

Phoneme →

Morpheme →

Word →

Preposition/Phrase/Constituents →

→ Sentence

## Phonemes

- are the smallest structural units of sound in speech.
- Thus a phoneme is a sound or a group of different sounds perceived to have the same function by speakers of the language or dialect in question.
- Field: 'f' sound. 'i' sound. 'e' sound. 'l' sound. 'd' sound.

## Morphemes

- is the smallest semantically meaningful unit in a language.

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- A morpheme is not entical to a word, and the principal difference between the two is that a morpheme may or may not stand alone, whereas a word, by definition, is a freestanding unit of meaning.
- Every word comprises one or more morphemes.
- Walked: 'walk' and 'ed' (2 morphemes)

**Bound morphemes:** a morpheme like 'ing' that add meaning or grammatical information to another morpheme.

## Constituents

- smaller units of a sentence. People process the meaning of sentences one constituent at a time.

## Parsing

- language comprehension whereby words in a spoken or written message are transformed into a mental representation of the meaning of the message.

## Garden-path sentences

- grammatically correct sentence that starts in such a way that the readers' most likely interpretation will be incorrect
- they are lured into a parse that turns out to be a dead end.
- Psycholinguistics to illustrate the fact that when they read, human beings process language one word at a time.
- "Garden path" refers to the saying "to be led down the garden path", meaning "to be misled".

- *The ability to understand language comes before (precedes) the ability to produce language.*

## Noam Chomsky

- Nativist Theory of Language Acquisition
  - There must be a innate, biologically based mechanism for language acquisition
- LAD = Language Acquisition Device
  - Surface Structure
    - SINTAX:
    - actual order of words in a sentence
  - Deep Structure
    - SEMTANTICS
    - Underlying form that specifies the meaning of the sentence. Interpretation of a sentence.
  - Transformational Rules
    - How we can change from one sentence form to another

## Whorfian Hypothesis – Linguistic Relativity Theory

- Hypothesis that language determines how reality is perceived
- The content of language determines the way we think about the world

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## Eleanor Macoby and Carol Jacklin

- Found gender differences in gender
  1. Girls have better abilities

## Intelligence

### Charles Spearman

- Individual differences in intelligence are largely due to variations in the amount of a general, unitary factor; G.

### Louis Thurstone

- 7 Primary Mental Abilities

### Sternberg's Triarchic Theory

- 3 Aspects to intelligence
  1. Componential (Performance)
  2. Experimental (Creativity)
  3. Contextual (Street Smarts)

### Theory of Multiple Intelligences – Gardner

- Linguistic Ability
- Logical-Mathematic
- Spatial Ability
- Musical Ability
- Bodily-Kinesthetic
- Interpersonal
- Intrapersonal

### Cattell - Fluid Intelligence

→ Ability to quickly grasp relationships in novel situations and make correct deductions from them.

- Increases throughout childhood and adolescence
- Levels off in young adulthood
- Steady decline in advanced health

### Cattell - Crystallized Intelligence

→ Ability to understand relationships or solve problems that depend on knowledge acquired as a result of schooling or other life experiences.

- Increases throughout lifespan

### Arthur Jensen

- IQ Tests
  - Aptitude test → predict what one can accomplish through training; predict future performance
  - Uses an equation comparing mental age to chronological age
    - IQ is

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- Mental age DIVIDED Chronological Age MULTIPLIED by 100
- Mental Age is
  - Chronological Age MULTIPLIED by IQ DIVIDED by 100

## Learning-curve

- is a graphical representation of the changing rate of learning (in the average person) for a given activity or tool. Typically, the increase in retention of information is sharpest after the initial attempts, and then gradually evens out, meaning that less and less new information is retained after each repetition.
  - **"steep learning curve"** may refer to either of two aspects of a pattern in which the marginal rate of required resource investment is initially low, perhaps even decreasing at the very first stages, but eventually increases without bound.
    - **"Asymptote"** refers to when learning reaches its all-time peak (which the function grows without bound).

## Latent learning

- Tolman
- Learning is when an organism learns a new concept in its life, however, the knowledge is not immediately expressed. Instead, it remains dormant, and may not be available to consciousness, until specific events/experiences might need this knowledge to be demonstrated.
- For instance a child may observe a parent setting the table or tightening a screw, but does not act on this learning for a year; then he finds out later on that he knows how to do these.

## Guilford's Model of Structure of Intellect

- Describes divergent production as the ability to generate a variety of hypotheses in a given problem situation.
- An individual's performance on intelligence tests can be traced back to the underlying mental abilities or factors of intelligence.
- SI theory comprises up to 150 different intellectual abilities organized along three dimensions—Operations, Content, and Products.

## Modularity position

- language is independent from other cognitive systems, like perception.

# METHODOLOGY

## Research Design

- Hypothesis
  - tentative and testable explanation of the relationship between 2 or more variables
- Variable
  - Factor that varies in amount or kind and can be measured
- Operational Definitions
  - State how the researcher will measure the variables

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- Null-Hypothesis:
  - the hypothesis that will be disproven or rejected during research.
  - Reading speed is not affected one way or the other by carrot eating
  - There is no difference between ...
- Independent Variable
  - Variable whose effect is being studied
  - Scientist manipulates this variable
- Dependent Variable
  - Variable expected to change due to variations in the independent variable
  - It 'depends' on the action
  - Usually has a some scoring, because it is being measured.
- Confounding Variables
  - Unintended independent variables
  - Variables that could differentially effect the DV

## Types of Research

- True Experiment
- I.V. manipulated; subjects randomly selected
  - Quasi-Experiment
- I.V. manipulated; subjects not randomly selected
  - Correlational
- IV not manipulated
  - Naturalistic Observation
- No intervention

## Populations and Samples

- Representative Sample → Miniature Version of the population
- Random Sample → Every population member has an equal chance to be selected
- Stratified Random Sample → Relevant subgroups of the population are randomly sampled in proportion to size

## Between-Subjects Design

- Each subject is exposed to only one level of each independent variable.

## Matched-Subjects Design

- Each group has matching subjects on the matter of a variable.

## Within-Subjects Design

- Each subject is exposed to more than one condition, allowing the researcher to separate the effects of individual differences

## Nonequivalent Group Design

- The control group is not necessarily similar to the experimental group since the researcher doesn't use random assignment

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## Potential Problems in Research Design

- Experimenter Bias → Inadverted manipulation of groups
- Double-Blinding → Neither the experimenter or subjects know if they are the control or the experimental group
- Single-Blind → Only the subjects don't know if they are the control or experimental group.
- Demand Characteristics → Cues in research situation that suggests to the subject what is expected
- Placebo Effect → Type of demand characteristic where a placebo has a beneficial effect on the subjects
- Hawthorne Effect → Tendency of people to behave differently if they know they are being observed

## Descriptive Statistics

- Organize, describe, quantify and summarize a collection of actual observations.

## Inferential Statistics

- Generalize beyond observations.
- Provide an estimate of popular characteristics using the information collected from the sample

## Frequency Distributions

- Charts and graphs to illustrate the data collected.

## Measures of Central Tendency

- Mode:
  - Most frequent score
  - There can be more than one mode.
    - 2 modes: bimodal
- Median:
  - Midpoint of the sample score
  - Divides the distribution in half
  - There can only be one median
- Mean:
  - Average of the scores in the sample
  - Add all the scores on your data set and divide the sum by the number of scores
  - The measure of central tendency most sensitive to extreme scores (outliers)
  - There can only be one mean

## Measures of Variability

- **Range**
  - Highest score minus lowest score
- **Standard Deviation (SD)**
  - Provides an index of the average scattered away from the mean
    - The greater the variability, the greater the scatter



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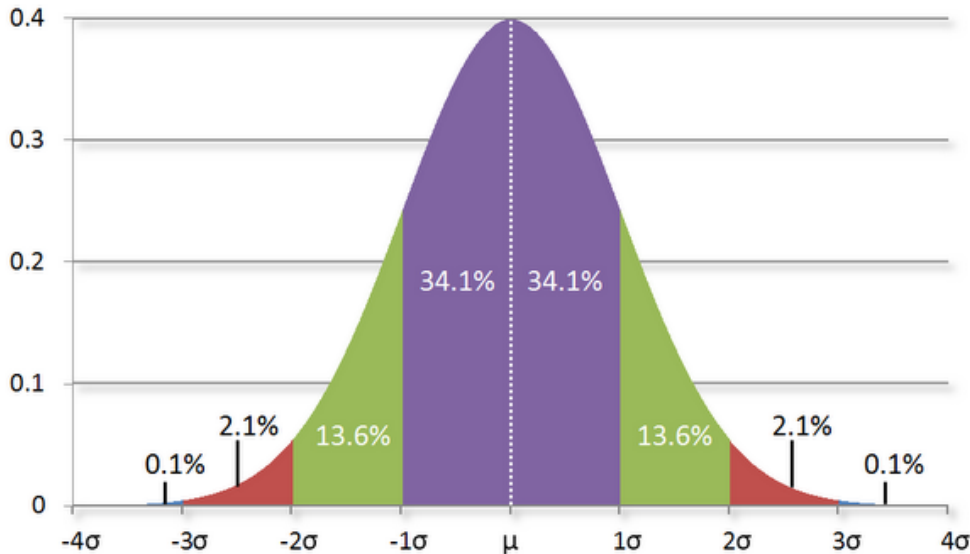
- The square root of the variance
- Must be 0 or positive #
- If a distribution has a lot of variability, the SD will be relatively high.

## ▪ Variance

- The square of the standard deviation

→ If the standard deviation is 5... The variance is 25.

## Normal Distributions



- 68% → 1 SD
- 96% → 2 SD
- 4% → Beyond 2 SD

## Percentile

- Indicates the % of scores that fall at or below a given score

## z-Score

- Number of SD a given score is away from the mean
- A distribution of z-scores always has a mean of 0 and a SD of 1.

→  $\text{Score} - \text{Mean} \div \text{Standard Deviation} = \text{Z-Score}$

## Correlation Coefficients

- Used to determine whether there is any systematic relationship between two sets of measurements or observations.
- Positive Correlation → Both variables change towards the same direction
- Negative Correlation → A relationship between two variables in which one variable increases as the other decreases, and vice versa.
- Scatterplot → Graphical representation of correlation data
  - Best-Fitting Straight Line: the direction or slope

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→ Correlation does not mean causation.

- Numerical Correlation tells how strong the relationship and the prediction is.
  - 0 = no relationship
  - +1.0 = positive relationship
  - -1.0 = negative relationship
  - -1.1 = computational error
    - IT IS IMPOSSIBLE TO HAVE A CC ABOVE +1.00 or BELOW -1.00.

## Factor Analysis

- Attempts to account for the interrelationships found among various variables by seeing how variables “hang together”

## Inferential Statistics

### Significance Testing

- Tool researchers use to draw conclusions about populations based upon research conducted on samples.
  - Experimental hypothesis are confirmed by disconfirming the null hypothesis
    - By showing that it is not supported by the data
    - Null Hypothesis us that the population mean is the same as the sample mean
    - Test the null hypothesis against the data obtained from the sample.

### Criterion of Significance Level or Alpha Level

- .05 (5 times in each 100 cases)
- .01 (1 every 100 cases)
- Significance levels are set before statistics are computed.
- If the computation is larger than the number found in the table for the significance level (usually 5%)
  - Reject the null hypothesis → This is what every experimenter wants to find.

### Errors in Significance Testing

- Probability Type I Error = erroneously **rejecting** the null hypothesis
- Probability Type II Error = erroneously **accepting** the null hypothesis
  - BETA ERROR

### Types of Significance Tests

#### T-Tests

- Compares the means of two groups.

#### ANOVA

- Compares the means for more than 2 groups.
- F Ratio = between-group variance estimate / within-group variance estimate
- Determine if there is any interaction between two or more IVs.

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## Chi-Squared

- Nonparametric method; works with categorical, rather than numerical data.
- Seeks to determine whether two variables are independent in a population from which a sample has been obtained.
  - Deals with variables that are discrete categories rather than continuous measurements.

## Tests and Measurements

### Score Interpretation

### Norm-Referenced Testing

- Assessing an individual's performance in terms of how that individual performs in comparison to others.

### Domain-Referenced Testing

- What an individual knows on a given domain.

## Reliability

- Consistency with which a test measures whatever it is that the test measures.
- The consistency of a set of measurements or of a measuring instrument, often used to describe a test.

## Validity

- The extent to which a test actually measure what it purports to measure.
  - Content Validity
    - The extent to which a measure represents all facets of a given social construct → Considered when constructing a test
    - For example, a depression scale may lack content validity if it only assesses the affective dimension of depression but fails to take into account the behavioral dimension.
    - Determined BEFORE a test items are administered.
    - Strong statistical scrutiny
  - Face Validity
    - Assesses whether the test "looks valid" to the examinees who take it, the administrative personnel who decide on its use, and other technically-untrained observers.
    - Intuitive judgment
    - The appearance → "face"
  - Criterion Validity
    - A measure of how well one variable or set of variables predicts an outcome based on information from other variables.
  - Construct Validity
    - the extent to which what was to be measured was actually measured related to the theoretical ideas behind the trait under consideration.

# GRE SUBJECT TEST PSYCHOLOGY

## Scales of Measurement

### Nominal/Categorical

- Numbers used as labels/names
- Categorizing function.
- No arithmetic operation
- Ex: political affiliation

### Ordinal

- Numbers involving a rank ordering
- Can indicate more of a quality than a quantity
- No arithmetic operation
- Ex: Order of a horse race

### Interval

- Concerns the quantitative aspect of number usage
- Addition/subtraction
- Ex: Temperature

### Ratio

- Equal intervals + presumes an absolute zero point.
- All arithmetic operations
- Ex. Income

- Sampling Statistics: analyzing data collected from the smaller group that needs to be representative of the population
- Statistical inference refers to sampling statistics and the process through which inference is made to whole populations through sampling procedures. RANDOMNESS
- Parameters: values obtained from populations.
- Statistics: values obtained from samples.
- Non-parametric measures: tests that are not dependent upon this normal distribution assumption.
- **Spearman Rank-Order Correlation Coefficient:** is a non-parametric measure of statistical dependence between two variables.
  - It assesses how well the relationship between two variables can be described using a monotonic function. If there are no repeated data values, a perfect Spearman correlation of +1 or -1 occurs when each of the variables is a perfect monotone function of the other.
- **Pearson Product-Moment Correlation:** is a measure of the correlation (linear dependence) between two variables X and Y, giving a value between +1 and -1 inclusive. It is widely used in the sciences as a measure of the strength of linear dependence between two variables.

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- Point-Biserial Correlation: used to correlate dichotomous scenarios. It is a correlation coefficient used when one variable (e.g. Y) is dichotomous; Y can either be "naturally" dichotomous, like gender, or an artificially dichotomized variable. In most situations it is not advisable to artificially dichotomize variables. When you artificially dichotomize a variable the new dichotomous variable may be conceptualized as having an underlying continuity

## HISTORY AND SYSTEMS

### Schools

- **Structuralism**

- Wundt funded the first psychological laboratory in Leipzig, Germany in 1879
  - Cultural Psychology
  - Experimental psychology was limited to study higher mental processes such as memory, thinking, and language.
  - There could be no thought without an mental image
- Studies the mind through introspection (observe your own conscious experience)
- Lacked objectivity
- Titchener was the American to lead this school of thought
- with the goal to describe the structure of the mind in terms of the most primitive elements of mental experience.
- This theory focused on three things: the individual elements of consciousness, how they organized into more complex experiences, and how these mental phenomena correlated with physical events.
- The mental elements structure themselves in such a way to allow conscious experience.
- Titchener believed that the goal of psychology was to study mind and consciousness. He defined consciousness as the sum total of mental experience at any given moment, and the mind as the accumulated experience of a lifetime.
- He believed that if the basic components of the mind could be defined and categorized, then the structure of mental processes and higher thinking could be determined.
- What each element of the mind is (what), how those elements interact with each other (how), and why they interact in the ways that they do (why) was the basis of reasoning that Titchener used in trying to find structure to the mind.

- **Functionalism**

- Darwin, Dewey, James, Thorndike
- Emphasized adaptation to one's environment
- The mind is an adaptative tool
- Emphasized behavior and adjustment over introspection and isolated mental states.
- As such, it provides the general basis for developing psychological theories not readily testable by controlled experiments and for applied psychology.

# GRE SUBJECT TEST PSYCHOLOGY

- Functionalism arose in the U.S. in the late 19th century as an alternative to structuralism.
- While functionalism never became a formal school, it built on structuralism's concern for the anatomy of the mind and led to greater concern over the functions of the mind, and later to behaviorism

- **Behaviorism**

- Pavlov, Watson, Skinner, Thorndike, Guthrie, Hull
- Insisted in objective observation, excluded the conscious experience.
- A more 'objective functionalism'
- Based on the proposition that all things that organisms do—including acting, thinking, and feeling—can and should be regarded as behaviors, and that psychological disorders are best treated by altering behavior patterns or modifying the environment.
- Watson = Experiment with Little Albert
- Classical Conditioning
- Operant Conditioning

- **Gestalt**

- Wertheimer, Köhler, Koffka, Kant
- Reaction to behaviorism and its reduction to behavior as a muscle-twitch element.
- Emphasized studying the whole person.
- The whole is greater than the sum of its parts.
- Gestalt psychologists stipulate that perception is the product of complex interactions among various stimuli.
- Contrary to the behaviouralist approach to understanding the elements of cognitive processes, gestalt psychologists sought to understand their organization.
- Insight: the perception of the inner relationships between factors that is essential to solving a problem.
- Learning comes from having an insight