

1.5" binder

# AP® Psychology Syllabus

Mr. Siegeman

e-mail [b\\_siegeman@comcast.net](mailto:b_siegeman@comcast.net)

<http://siggyappsy.pbwiki.com/>

<http://www.mydvol.com/siegeman/>

Print out  -  
PowerPoints for  -  
each chapter  -

The purpose of AP' Psychology is to introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals. Students are exposed to the psychological facts, principles, and phenomena associated with each of the major sub fields within psychology.

## Course Objectives

1. Students will prepare to do acceptable work on the AP Psychology Examination.
2. Students will study the major core concepts and theories of psychology. They will be able to define key terms and use them in their everyday vocabulary.
3. Students will learn the basic skills of psychological research and be able to apply psychological concepts to their own lives.
4. Students will develop critical thinking skills.

- Notes  
- Books  
- Lecture ) (combs

## Textbook

Myers, David G. *Psychology*, 9th ed. New York: Worth, 2006. (Includes a study guide.)

## Teacher Resources

Bolt, Martin. *Instructor's Resource Manual*. New York: Worth, 2001.

Hock, Roger R. *Forty Studies that Changed Psychology: Explorations into the History of Psychological Research*, 4th ed. Upper Saddle River, N.J.: Prentice Hall, 2002.

Hunt, Morton. *The Story of Psychology*. New York: Doubleday, 1993.

## Homework Expectations

Ample notice will be given for any assignment, quiz, or exam. The amount of work depends on the unit being covered in class. There are assigned pages to read in the textbook every night.

Vocabulary terms are also given for each unit. Quizzes are administered frequently, at least once a unit. The quizzes range from using fill-in-the blank, short answer, and/or multiple-choice questions. Exams will be given at the end of each unit and will consist of 45 multiple-choice questions and one free-response question (simulating the AP Exam).

Other assignments given to students are class presentations, group projects, and papers. These assignments vary with the unit being covered.

## Course-Long Plan

### Unit I: History, Approaches and Research Methods –

- A. Logic, Philosophy, and History of Science
- B. Approaches/Perspectives [CR1]
- C. Experimental, Correlation, and Clinical Research
- D. Statistics [CR2]
- E. Research Methods and Ethics [CR16]

CR1]-Evidence of Curricular Requirement The course provides instruction in history and approaches

#### Objectives

- Define psychology and trace its historical development.
- Compare and contrast the psychological perspectives.
- Identify basic and applied research sub fields of psychology.
- Identify basic elements of an experiment (variables, groups, sampling, population, etc.).
- Compare and contrast research methods (case, survey, naturalistic observation).
- Explain correlational studies.
- Describe the three measures of central tendency and measures of variation.
- Discuss the ethics of animal and human research.

### Unit II: Biological Basis of Behavior [CR3]

#### Physiological Techniques (e.g., imagining, surgical)

- A. Neuroanatomy
- B. Functional Organization of Nervous System
- C. Neural Transmission
- D. Endocrine System
- E. Genetics Objectives

- Describe the structure of a neuron and explain neural impulses.
- Describe neuron communication and discuss the impact of neurotransmitters.
  - Classify and explain major divisions of the nervous system.
  - Describe the functions of the brain structures (thalamus, cerebellum, limbic system, etc.).
  - Identify the four lobes of the cerebral cortex and their functions. • Discuss the association areas.
    - Explain the split-brain studies.
    - Describe the nature of the endocrine system and its interaction with the nervous system.

CR2-The course provides instruction in research methods

CR16-The course provides instruction in ethics and research methods used in psychological science and practice

CR3-The course provides instruction in biological bases of behavior.

### Unit III: Developmental Psychology [CR9]

- A. Life-Span Approach
- B. Research Methods
- C. Heredity-Environment Issues
- D. Developmental Theories
- F. Dimensions of Development
- G. Sex Roles, Sex Differences *Objectives*



- Discuss the course of prenatal development.
- Illustrate development changes in physical, social, and cognitive areas.
- Discuss the effect of body contact, familiarity, and responsive parenting on attachments.
- Describe the benefits of a secure attachment and the impact of parental neglect and separation as well as day care on childhood development.
- Describe the theories of Piaget, Erikson, and Kohlberg.
- Describe the early development of a self-concept.
- Distinguish between longitudinal and cross-sectional studies. [CR15]

CR9--The course provides instruction in developmental psychology.

CR15--The course provides instruction in empirically supported psychological facts, research findings, terminology, associated phenomena, major figures, perspectives, and psychological experiments

#### Unit IV: States of Consciousness [CR5]

A. Sleep and Dreaming B. Hypnosis

C. Psychoactive Drug Effects Objectives

- Describe the cyclical nature and possible functions of sleep.
- Identify the major sleep disorders.
- Discuss the content and possible functions of dreams.
- Discuss hypnosis, noting the behavior of hypnotized people and claims regarding its uses.
- Discuss the nature of drug dependence.
- Chart names and effects of depressants, stimulants, and hallucinogenic drugs.
  - Compare differences between NREM and REM.
- Describe the physiological and psychological effects of depressants, stimulants, and hallucinogens. [CR15]

CR5--The course provides instruction in states of consciousness

CR15--The course provides instruction in empirically supported psychological facts, research findings, terminology, associated phenomena, major figures, perspectives, and psychological experiments.

#### Unit V Sensation & Perception [CR4]

A. Thresholds

B. Sensory Mechanisms

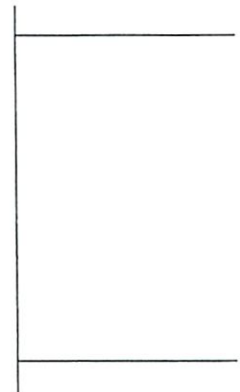
C. Sensory Adaptation

CR4--The course provides instruction in sensation and perception

D. Attention

E. Perceptual Processes *Objectives*

- Contrast the processes of sensation and perception.
- Distinguish between absolute and difference thresholds.
- Label a diagram of the parts of the eye and ear.
- Describe the operation of the sensory systems (five senses).
- Explain the Young-Helmholtz and opponent-process theories of color vision.
- Explain the place and frequency theories of pitch perception.
- Discuss Gestalt psychology's contribution to our understanding of perception.
- Discuss research on depth perception and cues. [CR15]



## Unit VI: Learning [CR6]

### A. Classical Conditioning

### B. Operant Conditioning

### C. Cognitive Processes in Learning D. Biological Factors

### E. Social Learning (Observational Learning) Objectives

- Describe the process of classical conditioning (Pavlov's experiments).
- Explain the processes of acquisition, extinction, spontaneous recovery, generalization, and discrimination.
- Describe the process of operant conditioning, including the procedure of shaping, as demonstrated by Skinner's experiments.
- Identify the different types of reinforcers and describe the schedules of reinforcement.
- Discuss the importance of cognitive processes and biological predispositions in conditioning.
- Discuss the effects of punishment on behavior.
- Describe the process of observational learning (Bandura's experiments).

CRF-The course provides instruction in learning

## Unit VII: Memory

### A. Memory Objectives

- Describe memory in terms of information processing, and distinguish among sensory memory, short-term memory, and long-term memory.
- Distinguish between automatic and effortful processing.
- Explain the encoding process (including imagery, organization, etc.).
- Describe the capacity and duration of long-term memory.
- Distinguish between implicit and explicit memory.
- Describe the importance of retrieval cues.
- Discuss the effects of interference and motivated forgetting on retrieval.
- Describe the evidence for the constructive nature of memory.

## Unit VIII: Thinking and Language

### A. Language

### B. Thinking

### C. Problem Solving and Creativity [CR7] Objectives

- Describe the nature of concepts and the role of prototypes in concept formation.
- Discuss how we use trial and error, algorithms, heuristics, and insight to solve problems.
- Explain how the representativeness and availability heuristics influence our judgments.
- Describe the structure of language (phonemes, morphemes, grammar).
- Identify language developmental stages (babbling, one word, etc.).
- Explain how the nature-nurture debate is illustrated in the theories of language development.
- Discuss Whorf's linguistic relativity hypothesis.
- Describe the research on animal cognition and communication.

CRT The course provides instruction in cognition.

## Unit IX: Motivation and Emotion [CR8]

### A. Biological Bases

### B. Theories of Motivation



C. Hunger, Thirst, Sex, and Pain

D. Social Motives

E. Theories of Emotion F. Stress

#### Objectives

- Define motivation and identify motivational theories.
- Describe the physiological determinants of hunger.
- Discuss psychological and cultural influences on hunger.
- Define achievement motivation, including intrinsic and extrinsic motivation.
- Identify the three theories of emotion (James-Lange, Cannon-Bard, Schachter-Singer).
- Describe the physiological changes that occur during emotional arousal.
- Discuss the catharsis hypothesis.
- Describe the biological response to stress.

CR8-The course provides instruction in motivation and emotion.

#### Unit X: Testing and Individual Differences [CR11]

A. Standardization and Norms

B. Reliability and Validity

C. Types of Tests

D. Ethics and Standards in Testing

E. Intelligence

F. Heredity/Environment and Intelligence

G. Human Diversity

#### Objectives

- Trace the origins of intelligence testing.
- Describe the nature of intelligence.
- Identify the factors associated with creativity.
- Distinguish between aptitude and achievement tests.
- Describe test standardization.
- Distinguish between the reliability and validity of intelligence tests.
- Describe the two extremes of the normal distribution of intelligence.
- Discuss evidence for both genetic and environmental influences on intelligence.
- Discuss whether intelligence tests are culturally biased.

CR11-The course provides instruction in testing and individual differences.

## Unit XI: Personality [CR10]

### A. Personality Theories and Approaches

### B. Assessment Techniques

### C. Self-concept/Self-esteem

### D. Growth and Adjustment Objectives

Describe personality structure in terms of the interactions of the id, ego, and superego.

Explain how defense mechanisms protect the individual from anxiety.

Describe the contributions of the neo-Freudians.

Explain how personality inventories are used to assess traits.

Describe the humanistic perspective on personality in terms of Maslow's focus on self-actualization and Rogers' emphasis on people's potential for growth.

- Describe the impact of individualism and collectivism on self-identity.
- Describe the social-cognitive perspective on personality.
- Discuss the consequences of personal control, learned helplessness, and optimism.

CR10-Evidence of Curricular Requirement. The course provides instruction in personality.

## Unit XII: Abnormal Psychology [CR12]

### A. Definitions of Abnormality

### B. Theories of Psychopathology

### C. Diagnosis of Psychopathology

CR12-Evidence of Curricular Requirement. The course provides instruction in abnormal psychology.

### D. Anxiety Disorders

### E. Somatoform Disorders F. Mood Disorders

### H. Schizophrenic Disorders H. Organic Disorders

### I. Personality Disorders

### J. Dissociative Disorders Objectives

- Identify the criteria for judging whether behavior is psychologically disordered.
- Describe the medical model of psychological disorders.

Describe the aims of DSM-IV, and discuss the potential dangers of diagnostic labels.

- Describe the symptoms of generalized anxiety disorder, phobias, obsessive-compulsive disorder, and posttraumatic stress disorder.
- Describe and explain the development of somatoform and mood disorders.
- Describe the various symptoms and types of schizophrenia.
- Describe the nature of organic and personality disorders.
- Describe the characteristics and possible causes of dissociative disorders.



## Unit XIII: Treatment of Psychological Disorders [CR13]

### A. Treatment Approaches

### B. Modes of Therapy (e.g., individual, group)

### D. Community and Preventive Approaches Objectives

- Discuss the aims and methods of psychoanalysis.
- Identify the basic characteristics of the humanistic therapies.
- Identify the basic assumptions of behavior therapy.
- Describe the assumptions and goals of the cognitive therapies.
- Discuss the benefits of group therapy and family therapy.
- Discuss the findings regarding the effectiveness of the psychotherapies.  
Discuss the role of values and cultural differences in the therapeutic process.
- Identify the common forms of drug therapy and the use of electroconvulsive therapy.

CR13-Evidence of Curricular

Requirement: The course provides instruction in treatment of psychological disorders.

## Unit XIV: Social Psychology [CR14]

### A. Group Dynamics

### B. Attribution Process

### C. Interpersonal Perception

### D. Conformity, Compliance, Obedience

### E. Attitudes and Attitude Change

CR14--Evidence of Curricular

Requirement: The course provides instruction in social psychology.

### F. Organizational Behavior

### G. Aggression/Antisocial Behavior *Objectives*

- Describe the importance of attribution in social behavior.
- Explain the effect of role-playing on attitudes in terms of cognitive dissonance theory.
- Discuss the results of Asch's experiment on conformity.
- Describe Milgram's controversial experiments on obedience.
- Discuss how group interaction can facilitate group polarization and groupthink.
- Describe the social, emotional, and cognitive factors that contribute to the persistence of cultural, ethnic, and gender prejudice and discrimination.
- Discuss the issues related to aggression and attraction.

- Explain altruistic; behavior in terms of social exchange theory and social norms.



Boneau's 100

Absolute Threshold  
Action Potential  
Adolescence  
Affective disorders  
Aggression  
Alcohol  
Algorithms  
Amnesia  
Anal stage | Anxiety  
Artificial Intelligence  
Attachment  
Attention  
Attitudes  
Autonomic nervous system  
Avoidance learning  
Axon(s)  
Behavior  
Behavior modification  
Behaviorism  
Binocular depth cues | Biofeedback  
Brain  
Case study  
Central nervous system | Cerebellum  
Cerebral cortex  
Cerebral hemispheres (split Brain)  
Chromosomes  
Classical conditioning  
Client-centered therapy  
Cochlea  
Cognitive development  
Cognitive dissonance  
Concrete operations  
Conditioned response

Conditioned stimulus  
Conditioning  
Conflict(s)  
Conformity  
Consciousness  
Control group  
Corpus callosum  
Correlation coefficient  
Correlation method  
Cross sectional research  
Cross sequential research  
Defense mechanisms  
Delusion(s)  
Dendrites  
Dependent variable  
Depression  
Depth perception  
Developmental stage theories  
Discrimination  
Distance cues  
Dreams  
Drug(s)  
Ego  
Electroencephalogram  
Emotion(s)  
Empiricism  
Experimental group  
Extinction  
Eye  
Fear  
Forgetting  
Formal operations  
Free association  
Fundamental attribution error  
Gene(s)



Genital stage  
Gestalt principles of perception  
Gestalt psychologists  
Hallucination  
Hearing  
Heredity  
Heuristics  
Humanistic psychology  
Hunger  
Hypnosis  
Hypothalamus  
Hypothesis testing  
Id  
Identification  
Imprinting  
Independent variable  
Information processing approach  
Intelligence  
Intelligence  
Intelligence quotient  
James-Lange theory  
Just noticeable difference (JND)  
Language  
Law of effect  
Learned helplessness  
Learning  
Limbic system  
Longitudinal research  
Long-term memory  
Love  
Memory  
Mental illness (models)  
M.M.P.I.  
Mnemonics  
Modeling

Motivation  
Multiple personality  
Nature nurture controversy  
Need(s)  
Negative reinforcement  
Nervous system  
Neuron  
Neurosis  
Neurotransmitters  
Normal distribution  
Obedience  
Oedipus Complex  
Operant conditioning (instrumental behavior)  
Oral stage  
Pain  
Parasympathetic nervous system  
Perception  
Peripheral nervous system  
Personality  
Personality  
Personality disorders  
Phallic stage  
Phobia  
Placebo  
Positive reinforcement  
Prejudice  
Preoperational stage  
Problem solving  
Projection  
Psychoanalysis  
Psychology  
Psychosis  
Psychotherapy  
Puberty  
Punishment

Rapid eye movements  
Rationalization  
Reaction formation  
Recall  
Recognition  
Regression  
Rehearsal  
Reinforcement  
Repression  
Retina  
Rods  
Rorschach Test  
Sample  
Schedules of reinforcement  
Schizophrenia  
Self-actualization  
Semantic memory  
Sensory-motor stage  
Serial position function  
Shaping  
Short term memory  
Significance level  
Significant difference  
Sleep  
Smell  
Social psychology  
Socialization  
Spontaneous recovery  
Stereotyping  
Stress  
Superego  
Sympathetic nervous system  
Synapse  
Systematic desensitization  
Taste



Thalamus  
Thematic Apperception Test  
Token economy  
Traits  
Transference  
Unconditioned response  
Unconditioned stimulus  
Unconscious  
Vision

## TEST TAKING SKILLS

### MULTIPLE-CHOICE QUESTIONS

1. If you encounter a question which you have absolutely no idea of the answer and you can not limit the choice between two choices, leave it blank. There are 1.25 points deducted for every wrong answer and only 1 for a blank.
2. When two out of four choices are opposites, pick one of those two as the best guess.
3. B, C, and D answers are best in a five answer (A-E) multiple-choice question.
4. Nonanswers ("Zero", "None of the above") are usually poor guesses.
5. In questions asking for the most or the least, pick the answer next to the most or the least. (Most: 5, 8, 9, 15, 30)
6. "All of the above" is generally a good guess.
7. Longest-multiple choice answer are good guesses.
8. If two out of four choices are almost identical, pick the longer of the two.
9. If a question asks for a plural or singular answer, make sure you pick the plural or singular.
10. When limiting words are used (all, never, always, must, etc.) "false" is usually the better answer.
11. When general terms are used (most, some, usually, could, might, etc.) "true" is usually the better answer.
12. Identify those questions you're not sure of with a mark. Review these on a second pass.
13. Reread directions before turning in an exam. Use the entire period to double-check.
14. First impressions (initial guesses) are often best. If an answer comes to you from out of the blue, it's probably your right brain at work. Don't fight this intuition unless you're sure it's wrong.
15. When a question is difficult to visualize, draw it.

• WHEN IN DOUBT, FOLLOW THE RULES FOR THE BEST EDUCATED GUESS •



AP Psychology

**Guidelines for Reviews  
Instructions for Written Reports**

Reviews may vary in length depending on the nature, content and length of the volume or article. Generally, five (double-spaced) pages for a book and half that amount for a scholarly article is an appropriate length. At the top of your review cite the author, full title, date and publisher, etc.

**Selecting a Title**

Outside reading is intended to furnish in palatable form information not available or less pleasantly accessible in your texts. Acquaintance with the great mass of psychological literature can and should be an enjoyable experience. All articles that are not contained in the list of approved publications below must be approved by the instructor. Do not hesitate to discard a work in favor of another if the reading seems disappointing.

**Reading the Account**

As you read, take note on what impresses you, favorably or unfavorably, as well as on material that confirms or challenges previously held prejudices. As you finish the interpretation ask yourself, "What is my reaction to this account?" would be considered trivial merely to state, "The article is interesting."

**Preparing the Review**

In general there are three functions of a review. (1) To describe content (2) To evaluate the article (3) To offer subjective reflections on the article. A good review is not a recitation of content word-for-word or chapter by chapter. Regurgitation of that type requires no special mental skills. The review should be informative, analytical and critical. It is not advisable to separate content from criticism; they should be interwoven. The following are questions you might consider when reviewing an article:

1. What was the writer's purpose in preparing the work? Did he/she achieve this goal?
2. Is the article convincing? Is it comprehensive? Does it neglect important phases of the topic?
3. Does the author appear biased?
4. What intellectual questions has the author raised in your mind?
5. What seem to be the unique aspects of the account?
6. Is the writing style popular or scholarly?
7. Does the author use primary or secondary sources? Are the sources fully cited?

You should attempt to be fair in your review. Criticisms should not be made in vague and general statements; they should be grounded in specific evidence from the content of the work. Give page numbers. Prepare your review to answer favorably the questions you raise.

Due Date \_\_\_\_\_

Possible Points \_\_\_\_\_



**Handout**

AP Psychology

**Essay Check Sheet**

Essay Topic \_\_\_\_\_

Student Author \_\_\_\_\_

Student Reviewer \_\_\_\_\_

**Part A Appearance**

- 1. Is the essay legible? (Easy or difficult to read)  
Easy 1 2 3 4 5 Difficult
- 2. Is the essay neat?  
Neat 1 2 3 4 5 Sloppy

**Part B Body**

- 1. Are all of the parts of the question answered? \_\_\_\_\_
- 2. Are there any factual or psychological inaccuracies that you detect?  
Yes No
- 3. List any inaccuracies or questionable facts. (Use separate paper if needed)  
A) \_\_\_\_\_  
B) \_\_\_\_\_  
C) \_\_\_\_\_  
D) \_\_\_\_\_  
E) \_\_\_\_\_
- 4. Is the body of the essay supported by examples? Yes No
- 5. List the major examples. (Use separate paper if needed)  
A) \_\_\_\_\_  
B) \_\_\_\_\_  
C) \_\_\_\_\_  
D) \_\_\_\_\_  
E) \_\_\_\_\_
- 6. Does the body of the essay prove and support the thesis?  
Strongly Supports 1 2 3 4 5 Weakly Supports

**Part C** Grammar & Punctuation

1. Can you detect any errors of punctuation or grammar? Yes No
2. Mark grammar or punctuation errors on the essay using a red pen or marker.
3. Are there any spelling errors? Yes No
4. Circle all misspelled words.
5. Are there sentences that are confusing or difficult to understand?  
Yes No
6. Put these sentences in brackets. [ ]
7. Rewrite these sentences so that they are clearer. (Use separate paper if needed)

**Part F** Impression

1. Readability  
Easy 1 2 3 4 5 Difficult
2. Logical Order of Ideas  
Logical 1 2 3 4 5 Illogical
3. Overall impression based on AP grade scale.  
Unfavorable 1 2 3 4 5 6 7 8 9 Favorable

**Part G** Miscellaneous Notes

1. List any comments you feel will be helpful to the author.  
(On separate sheet of paper)

AP Psychology

## Essay Writing Format

### General Rules

1. Students should use dark blue or black ink only.
2. Essays should be extremely legible. Sloppy essays may be subjectively down graded by the reader.
3. Students should use a "highlighter" to emphasize the major terms, studies or individuals included in the essay.
4. The AP Psychology essays may be classified as "racehorse questions." Students must immediately begin to outline and answer the questions. There is no time to waste. Remember you must write both essays in 45 minutes.
5. A maximum of five minutes should be used for outlining each question.
6. The most recent AP test question have not required students to develop a thesis only illustrate knowledge of the subject matter.

### Steps in Writing an Essay

#### 1. Analyze the Question

- A) Without a clear understanding of the questions, you cannot write an adequate answer.
- B) Understand key terms: assess, explain, etc.

#### 2. Writing the Body Paragraphs

- A) Provide factual information to prove your thesis.
- B) Facts should be organized in logical sequence.
- C) Each set of facts should be in a separate paragraph..
- D) Refute arguments contrary to your thesis.
- E) Be sure and answer all parts of the question.



# EVALUATIVE CRITERIA FOR A.P. ESSAYS

- 9-8** Strong analytical focus. Exhaustive breadth, responds to all elements asked in the question. In some cases, shows signs of original thinking and creativity.
- 7-6** Uses evidence in an organized fashion. Adequate in breadth in responding to most of the important issues raised in the question.
- 5** Discusses some of the major issues. Incorrect factual illustrations and or faulty or incomplete logic may be encountered. Argument appears incomplete.
- 4** Demonstrates comprehension of pertinent concept and facts. Presents descriptive narrative with little reference to an organizing principle. Responds to some of the issues raised in the question. May contain some factual errors.
- 3** Breadth of coverage and depth of information may be adequate but contains many factual errors.
- 2** Offers few, if any, factual illustrations to support answer. Includes irrelevant information.
- 1** Attempts to respond to question. However, fails to provide detail and breadth of coverage.
- 0** No attempt to answer the question in any meaningful way.

Michael Plasmeier

Siegerman

AP Psychology

2007 Sept 4

Wrote  
Job  
insightful  
9/8/07

*LoveSick* Character Analysis: Erica

Erica is one of the main characters in *LoveSick* by Jake Coburn. She is a freshman in college; the daughter of a very wealthy father who is overprotective of her. She is also bulimic. This worries her father, who, in *LoveSick*, hires Ted, a former basketball player whose hopes and scholarship for college basketball, vanished in a drunk driving accident. Ted is supposed to spy on Erica in her freshman year, in return for a free ride through college. The two find themselves at a snooty private college where, the only real friends they make, are each other.

Erica does not fare well the first time "alone" from her overprotective father, whose protection she despises. Erica's father is a rich man. He shows great concern for Erica, but is not around her much. Although, it's not clearly mentioned, Erica was probably well cared for in her childhood. However, not by her father, but by people he hired. Thus, Erica was always well looked after, probably even too well, but she didn't have access to the love of her father. Erica's father thinks he can solve the problem by throwing money at it; for example Erica says, "my father controls people/things/life with money because that's all he knows" (Coburn 212). This could have possibly lead Erica to turn towards an addiction in order to try and straighten out her life. She may have even gone out of her way, so that she should defy her father, whom she calls "The Ferret" (Coburn 159). The addiction could have started out, as doing something which he ca not control, in order to rub it in what a poor father he was to her. Because he restricts her so

much, Erica feels a great need to defy her father. By not playing a closer role in Erica's childhood, Erica's father created Erica's role in *LoveSick* a situation he tried to avoid.

So, possibly because of her father, Erica suffers from Bulimia. Bulimia is an eating disorder where Erica eats too much food and then throws it up. It is dangerous to her life because she must hide it, not wanting others to know about it. This makes her withdraw from being around people. Bulimia is also dangerous to the body. It can cause gastrointestinal problems and damage to the teeth because of the acidic nature of the regurgitated food (Encarta).

Ted is the boy Erica's father hired to spy on Erica. Erica is able to bond with Ted because he too is fighting an addiction while trying to hide it. Both do not fit in well with the other people at the collage. Ted is often at odds with his regularly drunk roommate, James. Ted and Erica live only a few doors away from each other and visit each other often. They develop a connection and a friendship. One thing Ted does to help Erica is that he brings her to his Alcoholics Anonymous meetings. This plants the seed in Erica's mind to consider checking into a rehab center, later in the book.

As the book progresses, Erica and Ted fall in love and kiss. Ted then realizes that he does not wish to continue spying on his girlfriend. He quits his spying job and also drinks a lot of alcohol, which he knows he shouldn't because that is what got him into this situation in the first place. While he is drunk, he also tells Erica that he was hired to spy on her by her father. This makes Erica very angry, because her only friend turned out to be working for her father and the world she hates so much. She borrows a car from a friend and leaves collage in a huff to go to New York City. In New York, she checks into rehab, to try and get her life back on track.

Ted and Erica then reconcile their feelings for each other. Eventually they understand how their lives are shaped by trying to overcome their respective addictions. They kiss and make



up, as well as decide to travel the world, instead of returning to collage. Erica's father realizes that strict supervision is not what his daughter needs.

Works Cited

"Bulimia." Encarta. Microsoft. 19 Aug 2007

<[http://encarta.msn.com/encyclopedia\\_761574868/Bulimia.html](http://encarta.msn.com/encyclopedia_761574868/Bulimia.html)>.

Coburn, Jack. LoveSick. New York: Dutton, 2005.

1 **absolute threshold** ('ab·sə'lüt 'thresh·höld)

(*physiology*) The minimum stimulus energy that an organism can detect.

2 **action potential**

*n.*

A momentary change in electrical potential on the surface of a cell, especially of a nerve or muscle cell, that occurs when it is stimulated, resulting in the transmission of an electrical impulse.

3 **ad·o·les·cence** (äd'l-ēs'əns)

*n.*

1. The period of physical and psychological development from the onset of puberty to maturity.
2. A transitional period of development between youth and maturity: *the adolescence of a nation.*

4 **affective disorder**

*n.*

A mental disorder characterized by a consistent, pervasive alteration in mood, and affecting thoughts, emotions, and behaviors.

5 **ag·gres·sion** (ə-grēsh'ən)

*n.*

1. The act of initiating hostilities or invasion.
2. The practice or habit of launching attacks.
3. Hostile or destructive behavior or actions.

6 **al·co·hol** (äl'kə-hōl', -hōl')

*n.*

1. A colorless volatile flammable liquid,  $C_2H_5OH$ , synthesized or obtained by fermentation of sugars and starches and widely used, either pure or denatured, as a solvent and in drugs, cleaning solutions, explosives, and intoxicating beverages. Also called *ethanol*, *ethyl alcohol*; Also called *grain alcohol*.
2. Intoxicating liquor containing alcohol.
3. Any of a series of hydroxyl compounds, the simplest of which are derived from saturated hydrocarbons, have the general formula  $C_nH_{2n+1}OH$ , and include ethanol and methanol.

7 **al·go·rithm** (ăl'gə-rĭTH'əm)  
*n.*

A step-by-step problem-solving procedure, especially an established, recursive computational procedure for solving a problem in a finite number of steps.

8 **amnesia**

Amnesia refers to the loss of memory. Memory loss may result from two-sided (bilateral) damage to parts of

the brain vital for memory storage, processing, or recall (the limbic system, including the hippocampus in the medial temporal lobe).

9 **anal stage**

According to psychoanalysis, the second social and sexual stage of an infant's development (after the oral stage), in which the infant learns to control bowel movements. Freudian psychology maintains that children gain pleasure from both passing and withholding their feces. Psychoanalysts believe that development of an anal personality is associated with frustration over toilet training. (*See also genital stage and pleasure principle.*)

10 **Anxiety**

Anxiety is a multisystem response to a perceived threat or danger. It reflects a combination of biochemical changes in the body, the patient's personal history and memory, and the social situation. As far as we know, anxiety is a uniquely human experience. Other animals clearly know fear, but human anxiety involves an ability, to use memory and imagination to move backward and forward in time, that animals do not appear to have. The anxiety that occurs in post-traumatic syndromes indicates that human memory is a much more complicated mental function than animal memory. Moreover, a large portion of human anxiety is produced by anticipation of future events. Without a sense of personal continuity over time, people would not have the "raw materials" of anxiety.

11 **artificial intelligence**

A system that makes it possible for a machine to perform functions similar to human intelligence. Computer technology produces many systems and functions that mimic and surpass some human capabilities, such as the ability to play chess.

12 **at·tach·ment** (ə-tāch'mənt)  
*n.*

1. The act of attaching or the condition of being attached.



2. Something, such as a tie, band, or fastener, that attaches one thing to another.
3. A bond, as of affection or loyalty; fond regard.
4.
  - a. A supplementary part; an accessory: *bought a vacuum cleaner with several attachments*. See synonyms at appendage.
  - b. A supplementary document that is attached to a primary document: *stapled two attachments to the memorandum*.
5. *Law*.
  - a. Legal seizure of property or a person.
  - b. The writ ordering such a seizure.

13

**at·ten·tion (ə-tĕn'shən)**

*n.*

1. Concentration of the mental powers upon an object; a close or careful observing or listening.
2. The ability or power to concentrate mentally.
3. Observant consideration; notice: *Your suggestion has come to our attention*.
4. Consideration or courtesy: *attention to others' feelings*.
5. attentions Acts of courtesy, consideration, or gallantry, especially by a suitor.
6. A military posture, with the body erect, eyes to the front, arms at the sides, and heels together.

14

**at·ti·tude (ăt'i-tūd', -tyūd')**

*n.*

1. A position of the body or manner of carrying oneself: *stood in a graceful attitude*. See synonyms at posture.
2.
  - a. A state of mind or a feeling; disposition: *had a positive attitude about work*.
  - b. An arrogant or hostile state of mind or disposition.
3. The orientation of an aircraft's axes relative to a reference line or plane, such as the horizon.
4. The orientation of a spacecraft relative to its direction of motion.
5. A position similar to an arabesque in which a ballet dancer stands on one leg with the other raised either in front or in back and bent at the knee.

15

**autonomic nervous system**

*n.*

The part of the vertebrate nervous system that regulates involuntary action, as of the intestines, heart, and glands, and that is divided into the sympathetic nervous system and the parasympathetic nervous system.

16 **avoidance learning -> operant conditioning**  
*n. Psychology.*

A process of behavior modification in which the likelihood of a specific behavior is increased or decreased through positive or negative reinforcement each time the behavior is exhibited, so that the subject comes to associate the pleasure or displeasure of the reinforcement with the behavior.

17 **Axons -> nerve fiber**  
*n.*

A threadlike process of a neuron, especially the prolonged axon that conducts nerve impulses.

18 **be·hav·ior (bī-hāv'yər)**  
*n.*

1. The manner in which one behaves.
2.
  - a. The actions or reactions of a person or animal in response to external or internal stimuli.
  - b. One of these actions or reactions: "*a hormone . . . known to directly control sex-specific reproductive and parenting behaviors in a wide variety of vertebrates*" (Thomas Maugh II).
3. The manner in which something functions or operates: the faulty behavior of a computer program; the behavior of dying stars.

19 **behavior modification**  
*n.*

1. The use of basic learning techniques, such as conditioning, biofeedback, reinforcement, or aversion therapy, to alter human behavior.
2. See behavior therapy.

20 **be·hav·ior·ism (bī-hāv'yə-rīz'əm)**  
*n.*

A school of psychology that confines itself to the study of observable and quantifiable aspects of behavior and excludes subjective phenomena, such as emotions or motives.

21 **Binocular Depth Cues**

Properties of the visual system that facilitate depth perception by the nature of messages that are sent to the brain.

22 **Biofeedback**



Biofeedback, or applied psychophysiological feedback, is a patient-guided treatment that teaches an individual to control muscle tension, pain, body temperature, brain waves, and other bodily functions and processes through relaxation, visualization, and other cognitive control techniques. The name biofeedback refers to the biological signals that are fed back, or returned, to the patient in order for the patient to develop techniques of manipulating them.

23 **brain (brān)**  
*n.*

1.
  - a. The portion of the vertebrate central nervous system that is enclosed within the cranium, continuous with the spinal cord, and composed of gray matter and white matter. It is the primary center for the regulation and control of bodily activities, receiving and interpreting sensory impulses, and transmitting information to the muscles and body organs. It is also the seat of consciousness, thought, memory, and emotion.
  - b. A functionally similar portion of the invertebrate nervous system.
2.
  - a. Intellectual ability; mind: *a dull brain; a quick brain.*
  - b. Intellectual power; intelligence. Often used in the plural: *has brains and good looks.* See synonyms at mind.
3. A highly intelligent person.
4. The primary director or planner, as of an organization or movement. Often used in the plural.
5. The control center, as of a ship, aircraft, or spacecraft.

24 **case study**  
*n.*

1. A detailed analysis of a person or group, especially as a model of medical, psychiatric, psychological, or social phenomena.
2.
  - a. A detailed intensive study of a unit, such as a corporation or a corporate division, that stresses factors contributing to its success or failure.
  - b. An exemplary or cautionary model; an instructive example: "*Before they lost their independence, [the two companies] were case studies in unsuccessful long-term planning*" (T. Boone Pickens, Jr.).

25 **central nervous system**  
*n.* (*Abbr.* CNS)

The portion of the vertebrate nervous system consisting of the brain and spinal cord.

26 **cer·e·bel·lum (sēr'ə-bĕl'əm)**  
*n., pl.* -bel·lums or -bel·la (-bĕl'ə).



The trilobed structure of the brain, lying posterior to the pons and medulla oblongata and inferior to the occipital lobes of the cerebral hemispheres, that is responsible for the regulation and coordination of complex voluntary muscular movement as well as the maintenance of posture and balance.

27 **cerebral cortex**  
*n.*

The extensive outer layer of gray matter of the cerebral hemispheres, largely responsible for higher brain functions, including sensation, voluntary muscle movement, thought, reasoning, and memory.

28 **cerebral hemisphere**  
*n.*

Either of the two symmetrical halves of the cerebrum, as divided by the longitudinal cerebral fissure.

29 **chromosome** (krō'mə-sōm')  
*n.*

1. A threadlike linear strand of DNA and associated proteins in the nucleus of eukaryotic cells that carries the genes and functions in the transmission of hereditary information.
2. A circular strand of DNA in bacteria that contains the hereditary information necessary for cell life.

30 **classical conditioning**  
*n. Psychology.*

A process of behavior modification by which a subject comes to respond in a desired manner to a previously neutral stimulus that has been repeatedly presented along with an unconditioned stimulus that elicits the desired response.

31 **client-centered therapy** (klī'ənt-sēn'tərd)  
*n.*

A system of psychotherapy based on the assumption that the patient has the internal resources to improve and is in the best position to resolve his or her own personality dysfunction.

32 **coch·le·a** (kōk'lē-ə, kō'klē-ə)  
*n., pl. -le-ae (-lē-ē', -lē-ī')* also -le·as.

A spiral-shaped cavity of the inner ear that resembles a snail shell and contains nerve endings essential for hearing.

33 **Cognitive Development**

Cognitive development is the construction of thought processes, including remembering, problem solving, and decision-making, from childhood through adolescence to adulthood.

34 **cognitive dissonance**  
*n. Psychology.*

35 **Concrete operations**

A condition of conflict or anxiety resulting from inconsistency between one's beliefs and one's actions, such as opposing the slaughter of animals and eating meat.

The concrete operational stage begins around age seven and continues until approximately age eleven. During this time, children gain a better understanding of mental operations. Children begin thinking logically about concrete events, but have difficulty understanding abstract or hypothetical concepts.

36 **conditioned response**  
*n. Psychology.*

A new or modified response elicited by a stimulus after conditioning. Also called *conditioned reflex*.

37 **conditioned stimulus**  
*n. Psychology.*

A previously neutral stimulus that, after repeated association with an unconditioned stimulus, elicits the response effected by the unconditioned stimulus itself.

38 **con·di·tion·ing** (kən-dīsh'ə-nīng)  
*n. Psychology.*

A process of behavior modification by which a subject comes to associate a desired behavior with a previously unrelated stimulus.

39 **con·flict** (kɒn'flikt')  
*n.*

1. A state of open, often prolonged fighting; a battle or war.
2. A state of disharmony between incompatible or antithetical persons, ideas, or interests; a clash.
3. *Psychology.* A psychic struggle, often unconscious, resulting from the opposition or simultaneous functioning of mutually exclusive impulses, desires, or tendencies.



4. Opposition between characters or forces in a work of drama or fiction, especially opposition that motivates or shapes the action of the plot.

40

**con·form·i·ty (kən-fôr'mī-tē)**

*n.*, *pl.* -ties.

1. Similarity in form or character; agreement: *I acted in conformity with my principles.*
2. Action or behavior in correspondence with socially accepted standards, conventions, rules, or laws: *conformity to university regulations.*
3. *Geology.* The relationship between adjacent layers of sedimentary rock.

41

**con·scious·ness (kōn'shəs-nīs)**

*n.*

1. The state or condition of being conscious.
2. A sense of one's personal or collective identity, including the attitudes, beliefs, and sensitivities held by or considered characteristic of an individual or group: *Love of freedom runs deep in the national consciousness.*
3.
  - a. Special awareness or sensitivity: *class consciousness; race consciousness.*
  - b. Alertness to or concern for a particular issue or situation: *a movement aimed at raising the general public's consciousness of social injustice.*
4. In psychoanalysis, the conscious.

42

**control group (kən'trōl 'grüp)**

(*statistics*) A sample in which a factor whose effect is being estimated is absent or is held constant, in order to provide a comparison.

43

**corpus cal·lo·sum (kə-lō'səm)**

*n.*, *pl.* corpora cal·lo·sa (kə-lō'sə).

The arched bridge of nervous tissue that connects the two cerebral hemispheres, allowing communication between the right and left sides of the brain.

44

**correlation coefficient**

*n.*

A measure of the interdependence of two random variables that ranges in value from  $-1$  to  $+1$ , indicating perfect negative correlation at  $-1$ , absence of correlation at zero, and perfect positive correlation at  $+1$ . Also called *coefficient of correlation*.

45

**correlation method**



Different measures which compare and contrast certain points of data

46 **cross-sectional research design**

A basic type of research method in which a large cross-section of the population is studied at one specific time and the differences between individual groups within the population compared. It is commonly used by sports scientists to evaluate and compare a given physiological variable or fitness component in individuals already belonging to different groups. Compare longitudinal research design.

47 **cross-sequential research**

An approach that combines the longitudinal and cross-sectional methods by following individuals of different ages for abbreviated periods of time.

48 **defense mechanism**

*n.*

1. *Biology.* A physiological reaction of an organism used in self-protection, as against infection.
2. *Psychology.* Any of various usually unconscious mental processes, including denial, projection, rationalization, and repression, that protect the ego from shame, anxiety, conflict, loss of self-esteem, or other unacceptable feelings or thoughts.

49 **Delusions**

A delusion is an unshakable belief in something untrue. These irrational beliefs defy normal reasoning, and remain firm even when overwhelming proof is presented to dispute them. Delusions are often accompanied by hallucinations and/or feelings of paranoia, which act to strengthen confidence in the delusion. Delusions are distinct from culturally or religiously based beliefs that may be seen as untrue by outsiders.

50 **den-drite (dĕn'drīt')**

*n.*

1.
  - a. A mineral crystallizing in another mineral in the form of a branching or treelike mark.
  - b. A rock or mineral bearing such a mark or marks.
2. A branched protoplasmic extension of a nerve cell that conducts impulses from adjacent cells inward toward the cell body. A single nerve may possess many dendrites. Also called *dendron*.

51 **dependent variable**  
n.

1. *Mathematics*. A mathematical variable whose value is determined by the value assumed by an independent variable.
2. *Statistics*. The observed variable in an experiment or study whose changes are determined by the presence or degree of one or more independent variables.

52 **de·pres·sion (dī-prĕsh'ən)**  
n.

1.
  - a. The act of depressing.
  - b. The condition of being depressed.
2. An area that is sunk below its surroundings; a hollow.
3. The condition of feeling sad or despondent.
4. *Psychology*. A psychiatric disorder characterized by an inability to concentrate, insomnia, loss of appetite, anhedonia, feelings of extreme sadness, guilt, helplessness and hopelessness, and thoughts of death. Also called *clinical depression*.
5.
  - a. A reduction in activity or force.
  - b. A reduction in physiological vigor or activity: *a depression in respiration*.
  - c. A lowering in amount, degree, or position.
6. *Economics*.
  - a. A period of drastic decline in a national or international economy, characterized by decreasing business activity, falling prices, and unemployment.
  - b. Depression The worldwide economic depression from the late 1920s through the 1930s. In the United States, it began with the stock market crash in October, 1929.
7. *Meteorology*. A region of low barometric pressure.
8. The angular distance below the horizontal plane through the point of observation.
9. *Astronomy*. The angular distance of a celestial body below the horizon.

53 **depth perception**  
n.

The ability to perceive spatial relationships, especially distances between objects, in three dimensions.

54 **Developmental stage theories**



In Developmental psychology, a **stage** is a distinct phase in an individual's development. Many theories in psychology characterize development in terms of stages:

- Erik Erikson's stages of psychosocial development expanding on Freud's psychosexual stages, he defined eight stages that describes how individuals relate to their social world.
- James W. Fowler's stages of faith development theory
- Sigmund Freud's Psychosexual stages to describe the progression of an individual's unconscious desires.
- Lawrence Kohlberg's stages of moral development to describe how individuals develop in reasoning about morals.
- Jane Loevinger, Stages of ego development
- Margaret Mahler's psychoanalytic developmental theory contained three phases regarding the child's object relations.
- Jean Piaget's theory of cognitive development to describe how children reason and interact with their surroundings.
- James Marcia's theory of identity achievement and four identity statuses
- Maria Montessori's sensitive periods of development

55

**dis·crim·i·na·tion (dī-skrīm'ə-nā'shən)**

n.

1. The act of discriminating.
2. The ability or power to see or make fine distinctions; discernment.
3. Treatment or consideration based on class or category rather than individual merit; partiality or prejudice: *racial discrimination; discrimination against foreigners.*

56

**distance cues**

a listener's ability to identify the location or origin of a detected sound or the methods in acoustical engineering to simulate the placement of an auditory cue in a virtual 3D space (see binaural recording).

57

**dream (drēm)**

n.

1. A series of images, ideas, emotions, and sensations occurring involuntarily in the mind during certain stages of sleep.
2. A daydream; a reverie.
3. A state of abstraction; a trance.
4. A wild fancy or hope.
5. A condition or achievement that is longed for; an aspiration: *a dream of owning their own business.*
6. One that is exceptionally gratifying, excellent, or beautiful: *Our new car runs like a dream.*



58

**drug (drŭg)**

*n.*

1.
  - a. A substance used in the diagnosis, treatment, or prevention of a disease or as a component of a medication.
  - b. Such a substance as recognized or defined by the U.S. Food, Drug, and Cosmetic Act.
2. A chemical substance, such as a narcotic or hallucinogen, that affects the central nervous system, causing changes in behavior and often addiction.
3. *Obsolete.* A chemical or dye.

59

**e·go (ē'gō, ěg'ō)**

*n., pl. e·gos.*

1. The self, especially as distinct from the world and other selves.
2. In psychoanalysis, the division of the psyche that is conscious, most immediately controls thought and behavior, and is most in touch with external reality.
3.
  - a. An exaggerated sense of self-importance; conceit.
  - b. Appropriate pride in oneself; self-esteem.

60

**e·lec·tro·en·ceph·a·lo·gram (ĭ-lĕk'trō-ĕn-sĕf'ə-lə-grăm')**

*n. (Abbr. EEG)*

A graphic record of the electrical activity of the brain as recorded by an electroencephalograph. Also called *encephalogram*.

61

**e·mo·tion (ĭ-mō'shən)**

*n.*

1. A mental state that arises spontaneously rather than through conscious effort and is often accompanied by physiological changes; a feeling: *the emotions of joy, sorrow, reverence, hate, and love.*
2. A state of mental agitation or disturbance: *spoke unsteadily in a voice that betrayed his emotion.* See synonyms at feeling.
3. The part of the consciousness that involves feeling; sensibility: "*The very essence of literature is the war between emotion and intellect*" (Isaac Bashevis Singer).

62

**em·pir·i·cism (ĕm-pĭr'ĭ-sĭz'əm)**

*n.*

1. The view that experience, especially of the senses, is the only source of knowledge.
2.
  - a. Employment of empirical methods, as in science.

- b. An empirical conclusion.
3. The practice of medicine that disregards scientific theory and relies solely on practical experience.

63 **experimental group**

n

The group of participants in a clinical study who receive the actual drug or treatment being studied. See also *controlled clinical trial*.

64 **extinction (psychology)**

Extinction in psychology refers to the lowering of the probability of a learned response. In Classical conditioning, this refers to the decline of a conditioned response when a conditioned stimulus repeatedly occurs without the presence of the unconditioned stimulus it had been paired with. In Operant conditioning, extinction is the decline of an operant response when it is no longer reinforced in the presence of its discriminative stimulus.

65 **eye (i)**

n.

1. An organ of vision or of light sensitivity.
2.
  - a. Either of a pair of hollow structures located in bony sockets of the skull, functioning together or independently, each having a lens capable of focusing incident light on an internal photosensitive retina from which nerve impulses are sent to the brain; the vertebrate organ of vision.
  - b. The external, visible portion of this organ together with its associated structures, especially the eyelids, eyelashes, and eyebrows.
  - c. The pigmented iris of this organ.
3. The faculty of seeing; vision.
4. The ability to make intellectual or aesthetic judgments: *has a good eye for understated fashion*.
5.
  - a. A way of regarding something; a point of view: *To my eye, the decorations are excellent*.
  - b. Attention: *The lavish window display immediately got my eye*.
  - c. Watchful attention or supervision: *always under his boss's eye; kept an eye on her valuables*.
6. Something suggestive of the vertebrate organ of vision, especially:
  - a. An opening in a needle.
  - b. The aperture of a camera.
  - c. A loop, as of metal, rope, or thread.
  - d. A circular marking on a peacock's feather.



Plaz

- e. *Chiefly Southern U.S.* The round flat cover over the hole on the top of a wood-burning stove. Also called regionally *cap*, *griddle*.
- 7. A photosensitive device, such as a photoelectric cell.
- 8. *Botany*.
  - a. A bud on a twig or tuber: *the eye of a potato*.
  - b. The often differently colored center of the corolla of some flowers.
- 9.
  - a. *Meteorology*. The circular area of relative calm at the center of a cyclone.
  - b. The center or focal point of attention or action: *right in the eye of the controversy*.
- 10. *Informal*. A detective, especially a private investigator.
- 11. A choice center cut of meat, as of beef: *eye of the round*.

66 **fear (fir)**

n.

- 1.
  - a. A feeling of agitation and anxiety caused by the presence or imminence of danger.
  - b. A state or condition marked by this feeling: *living in fear*.
- 2. A feeling of disquiet or apprehension: *a fear of looking foolish*.
- 3. Extreme reverence or awe, as toward a supreme power.
- 4. A reason for dread or apprehension: *Being alone is my greatest fear*.

67 **Forgetting**

In *The Psychopathology of Everyday Life* (1901b), Freud discussed forgetting under the rubric of psychosis. The typical example is awareness of having forgotten a proper noun (a name, for example). Like amnesia (where one is unaware that one has forgotten), forgetting is the result of repression. The forgotten name inhabits the preconscious and quickly returns to consciousness. It is attracted by an unconscious mental complex that primarily operates by displacement.

68 **formal operations**

One of the skills that humans become awesome at is manipulating the world in their minds, without any actual touching turning or moving of worldly objects. This is not an inborn ability, but must be developed over time. The leap from Concrete to Formal Operations is basically that of moving from thought processes that depend upon physical manipulation to those that are free of it. (Age 11 and up)

69 **free association**

n.

- 1. A spontaneous, logically unconstrained and undirected association of ideas, emotions, and feelings.



2. A psychoanalytic technique in which a patient's articulation of free associations is encouraged in order to reveal unconscious thoughts and emotions, such as traumatic experiences that have been repressed.

## 70 **fundamental attribution error**

In attribution theory, the **fundamental attribution error** (also known as **correspondence bias** or **overattribution effect**) is the tendency for people to over-emphasize dispositional, or personality-based, explanations for behaviors observed in others while under-emphasizing situational explanations. In other words, people have an unjustified tendency to assume that a person's actions depend on what "kind" of person that person is rather than on the social and environmental forces that influence the person. Overattribution is less likely, perhaps even inverted, when people explain their *own* behavior; this discrepancy is called the actor-observer bias.

## 71 **gene (jēn)** *n.*

A hereditary unit consisting of a sequence of DNA that occupies a specific location on a chromosome and determines a particular characteristic in an organism. Genes undergo mutation when their DNA sequence changes.

## 72 **Genital Stage** *n.*

A stage or phase of psychosexual development, the genital stage is characterized by the organization of the component instincts under the primacy of the genital zone. It is divided into two periods separated by the latency period: first, the infantile genital organization, or phallic phase, dominated by the phallus, that is, by the male genital organ alone, and, secondly, the genital organization properly so-called, which is established at puberty.

## 73 **Gestalt Principles of Perception**

Gestalt theory first arose in 1890 as a reaction to the prevalent psychological theory of the time - atomism. Atomism examined parts of things with the idea that these parts could then be put back together to make wholes. Atomists believed the nature of things to be absolute and not dependent on context. Gestalt theorists, on the other hand, were intrigued by the way our mind perceives wholes out of incomplete elements [1, 2]. "To the Gestaltists, things are affected by where they are and by what surrounds them...so that things are better described as "more than the sum of their parts."" [1, p. 49]. Gestaltists believed that context was very important in perception. An essay by Christian von Ehrenfels discussed this belief using a musical example. Take a 12 note melody. Play it in one key, say the key of C. Now change to another key, say the key of A flat. There might not be any notes the same in the two songs, yet a person listening to it knows that it



is the same tune. It is the relationships between the notes that give us the tune, the whole, not which notes make up the tune.

74

**Gestalt psychology (gestaltism)**

*n.*

The school or theory in psychology holding that psychological, physiological, and behavioral phenomena are irreducible experiential configurations not derivable from a simple summation of perceptual elements such as sensation and response.

75

**hallucination**

*n.*

Hallucinations are false or distorted sensory experiences that appear to be real perceptions. These sensory impressions are generated by the mind rather than by any external stimuli, and may be seen, heard, felt, and even smelled or tasted.

A hallucination occurs when environmental, emotional, or physical factors such as stress, medication, extreme fatigue, or mental illness cause the mechanism within the brain that helps to distinguish conscious perceptions from internal, memory-based perceptions to misfire. As a result, hallucinations occur during periods of consciousness. They can appear in the form of visions, voices or sounds, tactile feelings (known as haptic hallucinations), smells, or tastes.

Patients suffering from dementia and psychotic disorders such as schizophrenia frequently experience hallucinations. Hallucinations can also occur in patients who are not mentally ill as a result of stress overload or exhaustion, or may be intentionally induced through the use of drugs, meditation, or sensory deprivation. A 1996 report, published in the British Journal of Psychiatry, noted that 37% of 4,972 people surveyed experienced hypnagogic hallucinations (hallucinations that occur as a person is falling to sleep). Hypnopomic hallucinations (hallucinations that occur just upon waking) were reported by 12% of the sample.

76

**hearing**

*vb.*

Sounds are rapid variations in pressure, which are propagated through the air away from a vibrating object, such as a loudspeaker cone or the human vocal cords. Our sense of hearing allows us to detect and identify the myriad sounds present in our environment, and to determine their whereabouts. In humans and other animals with a poorly-developed sense of smell, hearing plays a particularly important role in alerting the listener to novel events in the environment. Through speech and music, human hearing also makes an extremely important contribution to social communication.

77

**heredity**

*n.*

1. The genetic transmission of characteristics from parent to offspring.
2. The sum of characteristics and associated potentialities transmitted genetically to an individual organism.

78 **Heuristics** (hyu'ristiks)

(psychology) The study of the mental processes involved in problem solving.

79 **humanistic psychology**

Twentieth-century movement in psychology, developed largely in reaction against behaviourism and psychoanalysis, that emphasizes the importance of values, intentions, and meaning in the compass of the individual. The concept of the "self" is a central focus for most humanistic psychologists. Architects of the humanistic approach included Abraham H. Maslow, Carl R. Rogers, and Rollo May (1909 – 94). Types of humanistic therapies have included sensory awareness, encounter groups, existential analysis, Gestalt therapy, logotherapy, and various transpersonal, human-potential, holistic-health, and addiction-recovery schools.

80 **Hunger** (hüng'gər)

*n.*

1.
  - a. A strong desire or need for food.
  - b. The discomfort, weakness, or pain caused by a prolonged lack of food.
2. A strong desire or craving: *a hunger for affection.*

81 **Hypnosis** (hīp-nō'sīs)

*n., pl. -ses (-sēz).*

1. An artificially induced altered state of consciousness, characterized by heightened suggestibility and receptivity to direction.
2. Hypnotism.
3. A sleeplike condition.

82 **Hypothalamus** (hī'pō-thäl'ə-məs)

*n.*

The part of the brain that lies below the thalamus, forming the major portion of the ventral region of the diencephalon and functioning to regulate bodily temperature, certain metabolic processes, and other autonomic activities.

83 **hypothesis testing**



Plaz

In statistics, a method for testing how accurately a mathematical model based on one set of data predicts the nature of other data sets generated by the same process. Hypothesis testing grew out of quality control, in which whole batches of manufactured items are accepted or rejected based on testing relatively small samples. An initial hypothesis (null hypothesis) might predict, for example, that the widths of a precision part manufactured in batches will conform to a normal distribution with a given mean (*see* mean, median, and mode). Samples from new batches either confirm or disprove this hypothesis, which is refined based on these results.

84

**Id** (īd)

*n.*

In Freudian theory, the division of the psyche that is totally unconscious and serves as the source of instinctual impulses and demands for immediate satisfaction of primitive needs.

85

**Identification** (ī-dēn'tə-fī-kā'shən)

*n.*

1.
  - a. The act of identifying.
  - b. The state of being identified.
2. (*Abbr.* ID) Proof or evidence of identity.
3. *Psychology.* A person's association with or assumption of the qualities, characteristics, or views of another person or group.

86

**Imprinting** (īm'prīn'tīng)

*n.*

A rapid learning process by which a newborn or very young animal establishes a behavior pattern of recognition and attraction to another animal of its own kind or to a substitute or an object identified as the parent.

87

**independent variable**

*n.*

1. *Mathematics.* A variable whose value determines the value of other variables.
2. *Statistics.* A manipulated variable in an experiment or study whose presence or degree determines the change in the dependent variable.

88

**Information Processing Approach**



As stated in the introduction to this section, cognitive psychology represents the dominant approach in psychology today. A primary focus of this approach is on memory (the storage and retrieval of information), a subject that has been of interest for thousands of years. The most widely accepted theory is labeled the "stage theory," based on the work of Atkinson and Shrifin (1968). The focus of this model is on how information is stored in memory; the model proposes that information is processed and stored in 3 stages. In this theory, information is thought to be processed in a serial, discontinuous manner as it moves from one stage to the next. This theory is discussed in more detail below.

The first is the **assumption of a limited capacity** of the mental system. This means that the amount of information that can be processed by the system is constrained in some very important ways. Bottlenecks, or restrictions in the flow and processing of information, occur at very specific points.

A second principle is that a **control mechanism is required** to oversee the encoding, transformation, processing, storage, retrieval and utilization of information. That is, not all of the processing capacity of the system is available; an executive function that oversees this process will use up some of this capability. When one is learning a new task or is confronted with a new environment, the executive function requires more processing power than when one is doing a routine task or is in a familiar environment.

A third principle is that there is a **two-way flow of information** as we try to make sense of the world around us. We constantly use information that we gather through the senses (often referred to as bottom-up processing) and information we have stored in memory (often called top-down processing) in a dynamic process as we construct meaning about our environment and our relations to it. This is somewhat analogous to the difference between inductive reasoning (going from specific instances to a general conclusion) and deductive reasoning (going from a general principle to specific examples.) A similar distinction can be made between using information we derive from the senses and that generated by our imaginations.

A fourth principle generally accepted by cognitive psychologists is that the human organism has been **genetically prepared to process and organize information in specific ways**. For example, a human infant is more likely to look at a human face than any other stimulus. Given that the field of focus of a human infant is 12 to 18 inches, one can surmise that this is an important aspect of the infant's survival. Other research has discovered additional biological predispositions to process information. For example, language development is similar in all human infants regardless of language spoken by adults or the area in which they live (e.g., rural versus urban, Africa versus Europe.) All human infants with normal hearing babble and coo, generate first words, begin the use of telegraphic speech (e.g., ball gone), and overgeneralize (e.g., using "goed to the store" when they had previously used "went to the store") at approximately the same ages. The issue of language development is an area where cognitive and behavioral psychologists as well as cognitive psychologists with different viewpoints have fought many battles



regarding the processes underlying human behavior. Needless to say the disussion continues.

89

**Intelligence** (ɪn-tel'ə-jəns)

n.

1.
  - a. The capacity to acquire and apply knowledge.
  - b. The faculty of thought and reason.
  - c. Superior powers of mind. See synonyms at mind.
2. An intelligent, incorporeal being, especially an angel.
3. Information; news. See synonyms at news.
4.
  - a. Secret information, especially about an actual or potential enemy.
  - b. An agency, staff, or office employed in gathering such information.
  - c. Espionage agents, organizations, and activities considered as a group:  
"Intelligence is nothing if not an institutionalized black market in perishable commodities" (John le Carré).

90

**intelligence quotient**

n. (Abbr. IQ)

The ratio of tested mental age to chronological age, usually expressed as a quotient multiplied by 100.

91

**James-Lange theory of emotion**

The theory first published by James in *Mind* in 1884 and by the Dutch psychologist C. G. Lange (1834-1900) in 1885 that, rather than causing bodily and visceral responses, an emotion is itself a perception of these specific reactions.

92

**just-noticeable difference** (ʤəst 'nɒdəsəbəl 'dɪfrəns)

(psychology) The smallest difference between luminances or colors of areas, usually adjacent to each other, that can be easily discerned or is obvious from ordinary observation. Also known as difference limen; difference threshold. Abbreviated jnd.

93

**Language** (læŋ'gwɪj)

n.

1.
  - a. Communication of thoughts and feelings through a system of arbitrary signals, such as voice sounds, gestures, or written symbols.



- b. Such a system including its rules for combining its components, such as words.
  - c. Such a system as used by a nation, people, or other distinct community; often contrasted with *dialect*.
- 2.
- a. A system of signs, symbols, gestures, or rules used in communicating: *the language of algebra*.
  - b. *Computer Science*. A system of symbols and rules used for communication with or between computers.
3. Body language; kinesics.
4. The special vocabulary and usages of a scientific, professional, or other group: "*his total mastery of screen language—camera placement, editing—and his handling of actors*" (Jack Kroll).
5. A characteristic style of speech or writing: *Shakespearean language*.
6. A particular manner of expression: *profane language; persuasive language*.
7. The manner or means of communication between living creatures other than humans: *the language of dolphins*.
8. Verbal communication as a subject of study.
9. The wording of a legal document or statute as distinct from the spirit.

94

#### law of effect

The view formulated by the psychologist E. L. Thorndike (1874-1949) that actions that lead immediately to pleasure are remembered and repeated, eventually fossilizing into habits, whereas actions leading to pain are suppressed or avoided. It is notable that the law explains actions in terms of the past, not in terms of expected pleasure or pain. Although it formed a major tenet of the theory that learning is essentially a matter of conditioning, and hence suffered with the eclipse of behaviourism, the law is commonly held to encapsulate something essential to the nature of pain and pleasure, which is their function in controlling learning. A version of the law of effect governs neural networks, or artificial parallel distributed processing systems, which are trained by the 'back propagation of error'; see connectionism.

95

#### learned helplessness

In psychology, a mental state in which a laboratory subject forced to bear aversive stimuli becomes unable or unwilling to avoid subsequent applications, even if they are "escapable," presumably through having learned that situational control is generally out of one's hands. Experiments, first on dogs and later on humans, led some researchers, including Martin E.P. Seligman (b. 1928) in *Helplessness* (1975), to believe that chronic failure, depression, and similar conditions are forms of learned helplessness. Critics have argued that different conclusions can be drawn from such tests and that broad generalizations are unwarranted.

96

#### Learning (lûr'nîng)

*n.*

1. The act, process, or experience of gaining knowledge or skill.
2. Knowledge or skill gained through schooling or study. See synonyms at knowledge.
3. *Psychology*. Behavioral modification especially through experience or conditioning.

97

### **limbic system**

*n.*

A group of interconnected deep brain structures, common to all mammals, and involved in olfaction, emotion, motivation, behavior, and various autonomic functions.

98

### **longitudinal study** ('länjə'tüdənəl 'stədə)

(*psychology*) The study of a group of individuals at regular intervals over a relatively long period of time.

99

### **long-term memory**

(*psychology*) The storage of information indefinitely so that it can be used again and again at a later time.

100

### **Love** (lūv)

*n.*

1. A deep, tender, ineffable feeling of affection and solicitude toward a person, such as that arising from kinship, recognition of attractive qualities, or a sense of underlying oneness.
2. A feeling of intense desire and attraction toward a person with whom one is disposed to make a pair; the emotion of sex and romance.
3.
  - a. Sexual passion.
  - b. Sexual intercourse.
  - c. A love affair.
4. An intense emotional attachment, as for a pet or treasured object.
5. A person who is the object of deep or intense affection or attraction; beloved. Often used as a term of endearment.
6. An expression of one's affection: *Send him my love.*
7.
  - a. A strong predilection or enthusiasm: *a love of language.*
  - b. The object of such an enthusiasm: *The outdoors is her greatest love.*



8. Love *Mythology*. Eros or Cupid.
9. often Love *Christianity*. Charity.
10. *Sports*. A zero score in tennis.

101 **Memory** (mēm'ə-rē)

*n., pl.* -ries.

1. The mental faculty of retaining and recalling past experience.
2. The act or an instance of remembering; recollection: *spent the afternoon lost in memory.*
3. All that a person can remember: *It hasn't happened in my memory.*
4. Something remembered: *pleasant childhood memories.*
5. The fact of being remembered; remembrance: *dedicated to their parents' memory.*
6. The period of time covered by the remembrance or recollection of a person or group of persons: *within the memory of humankind.*
7. *Biology*. Persistent modification of behavior resulting from an animal's experience.
8. *Computer Science*.
  - a. A unit of a computer that preserves data for retrieval.
  - b. Capacity for storing information: *two gigabytes of memory.*
9. *Statistics*. The set of past events affecting a given event in a stochastic process.
10. The capacity of a material, such as plastic or metal, to return to a previous shape after deformation.
11. *Immunology*. The ability of the immune system to respond faster and more powerfully to subsequent exposure to an antigen.

102 **mental illness**

*n.*

Any of various conditions characterized by impairment of an individual's normal cognitive, emotional, or behavioral functioning, and caused by social, psychological, biochemical, genetic, or other factors, such as infection or head trauma. Also called *emotional illness, mental disease*; Also called *mental disorder*.

103 **MMPI**

abbr.

Minnesota Multiphasic Personality Inventory

104 **Mnemonics** (nī-mōn'iks)

*n. (used with a sing. verb)*

A system to develop or improve the memory.



105

**Modeling** (mōd'l-īng)

*n.*

1. The act or art of sculpturing or forming in a pliable material, such as clay or wax.
2.
  - a. Representation of depth and solidity in painting, drawing, or photography.
  - b. Visual shape and texture of something regarded aesthetically, especially the human face or form.
3. The act or profession of being a model.

106

**Motivation** (mō'tə-vā'shən)

*n.*

1.
  - a. The act or process of motivating.
  - b. The state of being motivated.
2. Something that motivates; an inducement or incentive.

107

**multiple personality**

*n.*

A highly disputed psychological disorder in which a person exhibits two or more disassociated personalities, each functioning as a distinct entity. Also called *dissociative disorder*.

108

**nature-nurture controversy**

A traditional and long-standing disagreement over whether heredity or environment is more important in the development of living things, especially human beings.

**Need** (nēd)

*n.*

1. A condition or situation in which something is required or wanted: *crops in need of water; a need for affection.*
2. Something required or wanted; a requisite: "*Those of us who led the charge for these women's issues ... shared a common vision in the needs of women*" (Olympia Snowe).
3. Necessity; obligation: *There is no need for you to go.*
4. A condition of poverty or misfortune: *The family is in dire need.*

109

**negative reinforcement**

A form of reinforcement in which the removal of a negative or aversive stimulus, such as a loud noise or an unpleasant event, results in an increased probability that a particular behavioural response will occur in the future. Compare punishment, positive reinforcement.

110 **nervous system**

*n.*

The system of cells, tissues, and organs that regulates the body's responses to internal and external stimuli. In vertebrates it consists of the brain, spinal cord, nerves, ganglia, and parts of the receptor and effector organs.

111 **Neuron** (nŪr'ōn', nyŪr'-)

*n.*

Any of the impulse-conducting cells that constitute the brain, spinal column, and nerves, consisting of a nucleated cell body with one or more dendrites and a single axon. Also called *nerve cell*.

112 **Neurosis** (nŪ-rō'sīs, nyŪ-)

*n., pl. -ses (-sēz).*

Any of various mental or emotional disorders, such as hypochondria or neurasthenia, arising from no apparent organic lesion or change and involving symptoms such as insecurity, anxiety, depression, and irrational fears, but without psychotic symptoms such as delusions or hallucinations. No longer in scientific use.

113 **neurotransmitters**

After Galvani had shown, in 1742, that electrical stimulation of the nerve to the muscle of a frog's leg caused the muscle to twitch, the idea gained ground that transmission from nerves to the 'end organ' was an electrical process. Today we know that only in very rare instances is transmission across a synapse — that is, between the end of a nerve and whatever it innervates — an electrical event. Virtually all neurotransmission is chemical. Nerves release one or more neurotransmitters, which act chemically on receptors in the membrane of the cells across the synaptic cleft. To detect neurotransmitters is a difficult task as the amounts released are minute and mechanisms exist that quickly remove the transmitter, leaving the system in a state of readiness for the arrival of the next nerve impulse. The first steps came from finding chemicals which could mimic the action of neurotransmitters. Muscarine was able to mimic the effects of stimulation of the heart by the vagus nerves, and its actions were blocked by atropine. Similarly, nicotine mimicked the effect of stimulating motor nerves to skeletal muscle, and this was blocked by curare.



114

### normal distribution

*n.*

A theoretical frequency distribution for a set of variable data, usually represented by a bell-shaped curve symmetrical about the mean. Also called *Gaussian distribution*.

115

### Obedience (ō-bē'dē-əns)

*n.*

1.
  - a. The quality or condition of being obedient.
  - b. The act of obeying.
2.
  - a. A sphere of ecclesiastical authority.
  - b. A group of people under such authority.

The conformity of one person to the will of another by the implementation of that person's orders and instructions. Unquestioning obedience involves a willingness to implement instructions without exceptions. In despotisms and absolute governments, as well as in certain religious and military organizations, such obedience has been considered a virtue, but in liberal, individualist societies it is considered morally reprehensible and dangerous. In experiments published in *Obedience to Authority* in 1974, the psychologist Stanley Milgram claimed to show that people in modern Western societies (principally, the United States, West Germany, and Australia) were far more obedient than they ought to be according to established ethical theories. In a variety of social situations people obeyed orders, involving the apparent infliction of harm on others, which they ought to have disobeyed according to doctrines of the limits of authority inherent in prevailing ideas about rights, law, and liberty. Milgram offered his experimental evidence as an insight on acquiescence to the Third Reich, *inter alia*. He diagnosed a 'fatal flaw' in mankind, an excessive propensity to obey others, probably developed during the hunter-gatherer stage of human society. Others have criticized his use of data as far-fetched and excessively generalized.

— Lincoln Allison

116

### Oedipus complex

*n.*

In psychoanalysis, a subconscious sexual desire in a child, especially a male child, for the parent of the opposite sex, usually accompanied by hostility to the parent of the same sex.

117

### operant conditioning



*n. Psychology.*

A process of behavior modification in which the likelihood of a specific behavior is increased or decreased through positive or negative reinforcement each time the behavior is exhibited, so that the subject comes to associate the pleasure or displeasure of the reinforcement with the behavior.

118 **oral stage**

According to psychoanalysis, the first social and sexual stage of an infant's development, during which the infant focuses on satisfying hunger. Psychoanalysts believe that during this stage, the mouth is the focus of the libido; eating, sexual, and aggressive drives are satisfied by chewing, suckling, and biting. (See also anal stage, genital stage, and pleasure principle.)

119 **Pain**

Pain is an unpleasant feeling that is conveyed to the brain by sensory neurons. The discomfort signals actual or potential injury to the body. However, pain is more than a sensation, or the physical awareness of pain; it also includes perception, the subjective interpretation of the discomfort. Perception gives information on the pain's location, intensity, and something about its nature. The various conscious and unconscious responses to both sensation and perception, including the emotional response, add further definition to the overall concept of pain.

120 **parasympathetic nervous system**

*n.*

The part of the autonomic nervous system originating in the brain stem and the lower part of the spinal cord that, in general, inhibits or opposes the physiological effects of the sympathetic nervous system, as in tending to stimulate digestive secretions, slow the heart, constrict the pupils, and dilate blood vessels.

121 **Perception** (pər-sĕp'shən)

*n.*

1. The process, act, or faculty of perceiving.
2. The effect or product of perceiving.
3. *Psychology.*
  - a. Recognition and interpretation of sensory stimuli based chiefly on memory.
  - b. The neurological processes by which such recognition and interpretation are effected.
- 4.

- a. Insight, intuition, or knowledge gained by perceiving.
- b. The capacity for such insight.

122 **peripheral nervous system**

*n.*

The part of the vertebrate nervous system constituting the nerves outside the central nervous system and including the cranial nerves, spinal nerves, and sympathetic and parasympathetic nervous systems.

123 **Personality** (pûr'sə-nāl'ĭ-tē)

*n., pl. -ties.*

1. The quality or condition of being a person.
2. The totality of qualities and traits, as of character or behavior, that are peculiar to a specific person.
3. The pattern of collective character, behavioral, temperamental, emotional, and mental traits of a person: *Though their personalities differed, they got along as friends.*
4. Distinctive qualities of a person, especially those distinguishing personal characteristics that make one socially appealing: *won the election more on personality than on capability.* See synonyms at disposition.
5.
  - a. A person as the embodiment of distinctive traits of mind and behavior.
  - b. A person of prominence or notoriety: *television personalities.*
6. An offensively personal remark. Often used in the plural: *Let's not engage in personalities.*
7. The distinctive characteristics of a place or situation: *furnishings that give a room personality.*

124 **Personality Disorders**

Personality disorders are a group of mental disturbances defined by the fourth (1994) edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* as "enduring pattern[s] of inner experience and behavior" that are sufficiently rigid and deep-seated to bring a person into repeated conflicts with his or her social and occupational environment. *DSM-IV* specifies that these dysfunctional patterns must be regarded as non-conforming or deviant by the person's culture, and cause significant emotional pain and/or difficulties in relationships and occupational performance. In addition, the patient usually sees the disorder as being consistent with his or her self image (ego-syntonic) and may blame others.

125 **Phallic Stage**



The phallic stage is an infantile organization of libido which follows the oral and anal stages and is characterized by a unification of the component instincts under the primacy of the genital organs. During this period the child, whether boy or girl, conceives, according to Freud, of but one genital organ, the male one, and the antithesis between the sexes is experienced by him or her as one between phallic and castrated. The phallic stage coincides with the culmination and decline of the Oedipus complex. It disintegrates under the pressure of the castration complex.

126 **Phobias**

A phobia is an intense, unrealistic fear, which can interfere with the ability to socialize, work, or go about everyday life, that is brought on by an object, event or situation.

127 **Placebo** (plə-sē'bō)

*n., pl.* -bos or -boes.

1.
  - a. A substance containing no medication and prescribed or given to reinforce a patient's expectation to get well.
  - b. An inactive substance or preparation used as a control in an experiment or test to determine the effectiveness of a medicinal drug.
2. Something of no intrinsic remedial value that is used to appease or reassure another.
3. (plä-chā'bō) *Roman Catholic Church*. The service or office of vespers for the dead.

128 **positive reinforcement**

*n*

A technique used to encourage a desirable behavior. Also called *positive feedback*, in which the patient or subject receives encouraging and favorable communication from another person.

129 **Prejudice** (prēj'ə-dīs)

*n.*

1.
  - a. An adverse judgment or opinion formed beforehand or without knowledge or examination of the facts.
  - b. A preconceived preference or idea.
2. The act or state of holding unreasonable preconceived judgments or convictions. See synonyms at predilection.
3. Irrational suspicion or hatred of a particular group, race, or religion.

4. Detriment or injury caused to a person by the preconceived, unfavorable conviction of another or others.

*tr. v.*, -diced, -dic·ing, -dic·es.

1. To cause (someone) to judge prematurely and irrationally. See synonyms at bias.
2. To affect injuriously or detrimentally by a judgment or an act.

130

### **Preoperational Stage of Cognitive Development**

The preoperational stage occurs between ages two and six. Language development is one of the hallmarks of this period. Piaget noted that children in this stage do not yet understand concrete logic, cannot mentally manipulate information, and are unable to take the point of view of other people, which he termed egocentrism.

During the preoperational stage, children also become increasingly adept at using symbols, as evidenced by the increase in playing and pretending. For example, a child is able to use an object to represent something else, such as pretending a broom is a horse. Role playing also becomes important during the preoperational stage. Children often play the roles of "mommy," "daddy," "doctor," and many others.

131

### **problem solving**

Process involved in finding a solution to a problem. Many animals routinely solve problems of locomotion, food finding, and shelter through trial and error. Some higher animals, such as apes and cetaceans, have demonstrated more complex problem-solving abilities, including discrimination of abstract stimuli, rule learning, and application of language or languagelike operations. Humans use not only trial and error but also insight based on an understanding of principles, inductive and deductive reasoning (see deduction; induction; and logic), and divergent or creative thinking (see creativity). Problem-solving abilities and styles may vary considerably by individual.

132

### **Projection** (prə-jĕk'shən)

*n.*

1. The act of projecting or the condition of being projected.
2. A thing or part that extends outward beyond a prevailing line or surface: *spiky projections on top of a fence; a projection of land along the coast.*
3. A plan for an anticipated course of action: "*facilities [that] are vital to the projection of U.S. force . . . in the Pacific*" (Alan D. Romberg).
4. A prediction or an estimate of something in the future, based on present data or trends.
5.
  - a. The process of projecting a filmed image onto a screen or other viewing surface.



- b. An image so projected.
6. *Mathematics*. The image of a geometric figure reproduced on a line, plane, or surface.
7. A system of intersecting lines, such as the grid of a map, on which part or all of the globe or another spherical surface is represented as a plane surface.
8. *Psychology*.
  - a. The attribution of one's own attitudes, feelings, or suppositions to others: *"Even trained anthropologists have been guilty of unconscious projection—of clothing the subjects of their research in theories brought with them into the field"* (Alex Shoumatoff).
  - b. The attribution of one's own attitudes, feelings, or desires to someone or something as a naive or unconscious defense against anxiety or guilt.

133

### Psychoanalysis

Psychoanalysis is a form of psychotherapy used by qualified psychotherapists to treat patients who have a range of mild to moderate chronic life problems. It is related to a specific body of theories about the relationships between conscious and unconscious mental processes, and should not be used as a synonym for psychotherapy in general. Psychoanalysis is done one-on-one with the patient and the analyst; it is not appropriate for group work.

134

### Psychology (sī-kōl'ə-jē)

*n., pl.* -gies.

1. The science that deals with mental processes and behavior.
2. The emotional and behavioral characteristics of an individual, group, or activity: *the psychology of war*.
3. Subtle tactical action or argument used to manipulate or influence another: *He used poor psychology on his employer when trying to make the point*.
4. *Philosophy*. The branch of metaphysics that studies the soul, the mind, and the relationship of life and mind to the functions of the body.

135

### Psychosis

Psychosis is a symptom or feature of mental illness typically characterized by radical changes in personality, impaired functioning, and a distorted or non-existent sense of objective reality.

136

### Psychotherapy (sī'kō-thēr'ə-pē)

The treatment of mental and emotional disorders through the use of psychological techniques designed to encourage communication of conflicts and insight into problems, with the goal being relief of symptoms, changes in behavior leading to improved social and vocational functioning, and personality growth.

137 **Puberty**

**Definition**

Puberty is the period of human development during which physical growth and sexual maturation occurs.

**Description**

Beginning as early as age eight in girls—and two years later, on average, in boys—the hypothalamus (part of the brain) signals hormonal change that stimulates the pituitary. In turn, the pituitary releases its own hormones called gonadotrophins that stimulate the gonads and adrenals. From these glands come a flood of sex hormones—androgens and testosterone in the male, estrogens and progestins in the female—that regulate the growth and function of the sex organs. It is interesting to note that the gonadotrophins are the same for males and females, but the sex hormones they induce are different.

In the United States, the first sign of puberty occurs on average at age 11 in girls, with menstruation and fertility following about two years later. Boys lag behind by about two years. Puberty may not begin until age 16 in boys and continue in a desultory fashion on past age 20. In contrast to puberty, adolescence is more of a social/cultural term referring to the interval between childhood and adulthood.

— J. Ricker Polsdorfer, MD

138 **Punishment** (pūn'ish-mənt)

*n.*

1.
  - a. The act or an instance of punishing.
  - b. The condition of being punished.
2. A penalty imposed for wrongdoing: *"The severity of the punishment must . . . be in keeping with the kind of obligation which has been violated"* (Simone Weil).
3. Rough handling; mistreatment: *These old skis have taken a lot of punishment over the years.*

139 **REM (rapid eye movements)** (rēm)

*n.*

The rapid, periodic, jerky movement of the eyes during certain stages of the sleep cycle when dreaming takes place.

140 **Rationalization** (rāsh'ə-nə-lī-zā'shən)

*n.*



1. The act, process, or practice of rationalizing.
2. An instance of rationalizing.

141 **Reaction formation**

*n.*

A psychological defense mechanism by which an objectionable impulse is expressed in an opposite or contrasting behavior.

142 **Recall** (rĭ-kôl')

*tr. v.*, -called, -call·ing, -calls.

1. To ask or order to return: *recalled all workers who had been laid off.*
2. To summon back to awareness of or concern with the subject or situation at hand.
3. To remember; recollect. See synonyms at remember.
4. To cancel, take back, or revoke.
5. To bring back; restore.
6. To request return (of a product) to the manufacturer, as for necessary repairs or adjustments.

*n.* (also rē'kôl')

1. The act of recalling or summoning back, especially an official order to return.
2. A signal, such as a bugle call, used to summon troops back to their posts.
3. The ability to remember information or experiences.
4. The act of revoking.
5.
  - a. The procedure by which a public official may be removed from office by popular vote.
  - b. The right to employ this procedure.
6. A request by the manufacturer of a product that has been identified as defective to return it, as for necessary repairs or adjustments.

143 **Recognition** (rĕk'əg-nĭsh'ən)

*n.*

1. The act of recognizing or condition of being recognized.
2. An awareness that something perceived has been perceived before.
3. An acceptance as true or valid, as of a claim: *a recognition of their civil rights.*
4. Attention or favorable notice: *She received recognition for her many achievements.*
5. Official acceptance of the national status of a new government by another nation.

6. *Biology*. The ability of one molecule to attach itself to another molecule having a complementary shape, as in enzyme-substrate and antibody-antigen interactions.

144 **Regression** (rĭ-grĕsh'ən)

*n.*

1. Reversion; retrogression.
2. Relapse to a less perfect or developed state.
3. *Psychology*. Reversion to an earlier or less mature pattern of feeling or behavior.
4. *Medicine*. A subsidence of the symptoms or process of a disease.
5. *Biology*. The return of a population to an earlier or less complex physical type in successive generations.
6. *Statistics*. The relationship between the mean value of a random variable and the corresponding values of one or more independent variables.
7. *Astronomy*. Retrograde motion of a celestial body.
8. *Geology*. A relative fall in sea level resulting in deposition of terrestrial strata over marine strata.

145 **Rehearsal** (rĭ-hŭr'səl)

*n.*

1. The act of practicing in preparation for a public performance.
2. A session of practice for a performance, as of a play.
3. A detailed enumeration or repetition: *a long rehearsal of his woes*.

146 **Reinforcement** (rĕ'ĭn-fŏrs'mənt, -fŏrs'-)

*n.*

1. The act or process of reinforcing or the state of being reinforced.
2. Something that reinforces.
3. Additional personnel or equipment sent to support a military action. Often used in the plural.
4. *Psychology*.
  - a. The occurrence or experimental introduction of an unconditioned stimulus along with a conditioned stimulus.
  - b. The strengthening of a conditioned response by such means.
  - c. An event, a circumstance, or a condition that increases the likelihood that a given response will recur in a situation like that in which the reinforcing condition originally occurred.

147 **Repression** (rĭ-prĕsh'ən)

*n.*



1. The act of repressing or the state of being repressed.
2. *Psychology*. The unconscious exclusion of painful impulses, desires, or fears from the conscious mind.

148 **Retina** (rĕt'n-ə)

*n., pl.* ret-i-nas or ret-i-nae (rĕt'n-ĕ').

A delicate, multilayered, light-sensitive membrane lining the inner eyeball and connected by the optic nerve to the brain.

149 **Rod** (rōd)

*n.*

1. A thin straight piece or bar of material, such as metal or wood, often having a particular function or use, as:
  - a. A fishing rod.
  - b. A piston rod.
  - c. An often expandable horizontal bar, especially of metal, used to suspend household items such as curtains or towels.
  - d. A leveling rod.
  - e. A lightning rod.
  - f. A divining rod.
  - g. A measuring stick.
2. A shoot or stem cut from or growing as part of a woody plant.
3.
  - a. A stick or bundle of sticks or switches used to give punishment by whipping.
  - b. Punishment; correction.
4. A scepter, staff, or wand symbolizing power or authority.
5. Power or dominion, especially of a tyrannical nature: "*under the rod of a cruel slavery*" (John Henry Newman).
6. (*Abbr.* rd)
  - a. A linear measure equal to 5.5 yards or 16.5 feet (5.03 meters). Also called *pole*.
  - b. The square of this measure, equal to 30.25 square yards or 272.25 square feet (25.30 square meters).
7. *Bible*. A line of family descent; a branch of a tribe.
8. *Anatomy*. Any of various rod-shaped cells in the retina that respond to dim light.
9. *Microbiology*. An elongated bacterium; a bacillus.
10. *Slang*. A pistol or revolver.
11. A portion of the undercarriage of a train, especially the drawbar under a freight car. Often used in the plural: *ride the rods*.

150 **Rorschach test** (rôr'shāk', -shäKH')

*n.*

A psychological test in which a subject's interpretations of a series of standard inkblots are analyzed as an indication of personality traits, preoccupations, and conflicts.

151

**Sample** (sām'pəl)

*n.*

1.
  - a. A portion, piece, or segment that is representative of a whole.
  - b. An entity that is representative of a class; a specimen. See synonyms at example.
2. *Statistics*. A set of elements drawn from and analyzed to estimate the characteristics of a population. Also called *sampling*.
3. A usually digitized audio segment taken from an original recording and inserted, often repetitively, in a new recording.

*tr.v.*, -pled, -pling, -ples.

1. To take a sample of, especially to test or examine by a sample: *the restaurant critic who must sample a little of everything*.
2. To use or incorporate (an audio segment of an original recording) in a new recording: *a song that samples the bass line of a 1970s disco tune*.

*adj.*

Serving as a representative or example: *sample test questions; a sample piece of fabric*.

152

**Reinforcement** (rē'in-fōrs'mənt, -fōrs'-)

*n.*

1. The act or process of reinforcing or the state of being reinforced.
2. Something that reinforces.
3. Additional personnel or equipment sent to support a military action. Often used in the plural.
4. *Psychology*.
  - a. The occurrence or experimental introduction of an unconditioned stimulus along with a conditioned stimulus.
  - b. The strengthening of a conditioned response by such means.
  - c. An event, a circumstance, or a condition that increases the likelihood that a given response will recur in a situation like that in which the reinforcing condition originally occurred.

153

**Schizophrenia**



Schizophrenia is a psychotic disorder (or a group of disorders) marked by severely impaired thinking, emotions, and behaviors. Schizophrenic patients are typically unable to filter sensory stimuli and may have enhanced perceptions of sounds, colors, and other features of their environment. Most schizophrenics, if untreated, gradually withdraw from interactions with other people, and lose their ability to take care of personal needs and grooming.

154

**self-actualization**

The realization of a person's full potential whatever it may be and regardless of the rewards involved; doing what one is best suited to do. According to Maslow's hierarchy of needs, self-actualization is only attainable when all other needs have been met. There is a great deal of anecdotal evidence supporting the positive effect of sport participation on self-actualization. However, attempts by sport psychologists to quantitatively prove that sport promotes self-actualization have been equivocal.

155

**semantic memory** (sə'mantik 'memrē)

(*psychology*) Memory of generic, context-free knowledge.

156

**sensory-motor stage**

The Sensory-Motor Stage is a non-linguistic period in which critical pre-language concepts are developed.

157

**Serial Position Function**

The predictable patterns of memory and forgetting of lists of stimuli.

When a person attempts to recall a set of stimuli that exceeds about seven items, there is a high likelihood that he or she will forget some of them. The generally accepted limit to memory for material that is not rehearsed is referred to as "the magic number seven" (plus or minus two items). Most studies in this area have employed lists of words or nonsense syllables, but the research results hold true for a wide range of stimuli.

158

**shaping**

(*psychology*) Therapeutic reinforcement of those responses that increasingly approximate sought-after behaviors.

159

**short-term memory** ('shört 'tärm 'memrē)

(*psychology*) Conscious, brief retention of information that is currently being processed in a person's mind.

160

**level of significance**

*n., pl.* levels of significance.

The probability of a false rejection of the null hypothesis in a statistical test. Also called *significance level*.

161 **significant difference**

(Not found) Me: If a change is big enough to make a difference

162 **Sleep (slēp)**

*n.*

1.
  - a. A natural periodic state of rest for the mind and body, in which the eyes usually close and consciousness is completely or partially lost, so that there is a decrease in bodily movement and responsiveness to external stimuli. During sleep the brain in humans and other mammals undergoes a characteristic cycle of brain-wave activity that includes intervals of dreaming.
  - b. A period of this form of rest.
  - c. A state of inactivity resembling or suggesting sleep; unconsciousness, dormancy, hibernation, or death.
2. *Botany.* The folding together of leaflets or petals at night or in the absence of light.
3. A crust of dried tears or mucus normally forming around the inner rim of the eye during sleep.

*v., slept (slēpt), sleep·ing, sleeps.*

*v.intr.*

1. To be in the state of sleep or to fall asleep.
2. To be in a condition resembling sleep.

*v.tr.*

1. To pass or get rid of by sleeping: *slept away the day; went home to sleep off the headache.*
2. To provide sleeping accommodations for: *This tent sleeps three comfortably.*

163 **Smell (smēl)**

*v., smelled or smelt (smēlt), smell·ing, smells.*

*v.tr.*



1. To perceive the scent of (something) by means of the olfactory nerves.
2. To sense the presence of by or as if by the olfactory nerves; detect or discover: *We smelled trouble ahead. The committee tried to smell out corruption in law enforcement.*

v. *intr.*

1. To use the sense of smell; perceive the scent of something.
2. To have or emit an odor: "*The breeze smelled exactly like Vouvray—flowery, with a hint of mothballs underneath*" (Anne Tyler).
3. To be suggestive; have a touch of something: *a cave that smells of terror.*
4. To have or emit an unpleasant odor; stink: *This closet smells.*
5. To appear to be dishonest; suggest evil or corruption.

n.

1. The sense by which odors are perceived; the olfactory sense.
2. That quality of something that may be perceived by the olfactory sense.
3. The act or an instance of smelling.
4. A distinctive enveloping or characterizing quality; an aura or trace: *the smell of success.*

164 **social psychology**

n.

The branch of human psychology that deals with the behavior of groups and the influence of social factors on the individual.

165 **Socialization** ('sōshələ'zāshən)

(*psychology*) The process whereby a child learns to get along with and to behave similarly to other people in the group, largely through imitation as well as group pressure.

166 **spontaneous recovery**

In classical conditioning, **spontaneous recovery** or **resurgence** in operant conditioning, is the reemergence of a conditioned response after the conditioning stimulus has been extinguished. Spontaneous recoveries tend to yield somewhat muted responses in which extinction occurs more readily.

For example, a dog's conditioned response of salivating to a bell will often, after it has been extinguished, reappear when the dog later hears the sound of a bell. This phenomenon is known as "spontaneous recovery."

Spontaneous recovery helps explain why it is so hard to overcome drug addictions. For example, cocaine addicts who are thought to be "cured" can experience an irresistible impulse to use the drug again if they are subsequently confronted by a stimulus with strong connections to the drug, such as a white powder (O'Brien et al., 1992; Drummond et al., 1995; DiCano & Everitt, 2002).

167

**Stereotype** (stēr'ē-ə-tīp', stīr'-)

*n.*

1. A conventional, formulaic, and oversimplified conception, opinion, or image.
2. One that is regarded as embodying or conforming to a set image or type.
3. *Printing.* A metal printing plate cast from a matrix molded from a raised printing surface, such as type.

*tr. v.*, -typed, -typ·ing, -types.

1. To make a stereotype of.
2. To characterize by a stereotype: "*Elderly Americans are the neglected sector of the fashion industry, stereotyped by blue hair and polyester pantsuits*" (American Demographics).
3. To give a fixed, unvarying form to.
4. To print from a stereotype.

168

**Stress**

Stress is defined as an organism's total response to environmental demands or pressures. When stress was first studied in the 1950s, the term was used to denote both the causes and the experienced effects of these pressures. More recently, however, the word stressor has been used for the stimulus that provokes a stress response. One recurrent disagreement among researchers concerns the definition of stress in humans. Is it primarily an external response that can be measured by changes in glandular secretions, skin reactions, and other physical functions, or is it an internal interpretation of, or reaction to, a stressor; or is it both?

169

**Superego** (sū'pər-ē'gō, -ĕg'ō)

In Freudian theory, the division of the unconscious that is formed through the internalization of moral standards of parents and society, and that censors and restrains the ego.

170

**sympathetic nervous system**

*n.*



The part of the autonomic nervous system originating in the thoracic and lumbar regions of the spinal cord that in general inhibits or opposes the physiological effects of the parasympathetic nervous system, as in tending to reduce digestive secretions, speeding up the heart, and contracting blood vessels.

171 **Synapse** (sīn'āps', sī-nāps')

*n.*

The junction across which a nerve impulse passes from an axon terminal to a neuron, muscle cell, or gland cell.

172 **systematic desensitization** ('sistə'madik dē'sensətə'zāshən)

(*psychology*) A behavior therapy technique that is used to modify phobic behaviors by constructing a hierarchy of anxiety-producing stimuli and gradually presenting them to the individual until they no longer produce anxiety.

173 **Taste** (tāst)

*v.*, tast·ed, tast·ing, tastes.

*v.tr.*

1. To distinguish the flavor of by taking into the mouth.
2. To eat or drink a small quantity of.
3. To partake of, especially for the first time; experience.
4. To perceive as if by the sense of taste.
5. *Archaic.* To appreciate or enjoy.

*v.intr.*

1. To distinguish flavors in the mouth.
2. To have a distinct flavor: *The stew tastes salty.*
3. To eat or drink a small amount.
4. To have experience or enjoyment; partake: *tasted of the life of the very rich.*

*n.*

1.
  - a. The sense that distinguishes the sweet, sour, salty, and bitter qualities of dissolved substances in contact with the taste buds on the tongue.
  - b. This sense in combination with the senses of smell and touch, which together receive a sensation of a substance in the mouth.
2.
  - a. The sensation of sweet, sour, salty, or bitter qualities produced by or as if by a substance placed in the mouth.

- b. The unified sensation produced by any of these qualities plus a distinct smell and texture; flavor.
- c. A distinctive perception as if by the sense of taste: *an experience that left a bad taste in my mouth.*
3. The act of tasting.
4. A small quantity eaten or tasted.
5. A limited or first experience; a sample: "*Thousands entered the war, got just a taste of it, and then stepped out*" (Mark Twain).
6. A personal preference or liking: *a taste for adventure.*
7.
  - a. The faculty of discerning what is aesthetically excellent or appropriate.
  - b. A manner indicative of the quality of such discernment: *a room furnished with superb taste.*
8.
  - a. The sense of what is proper, seemly, or least likely to give offense in a given social situation.
  - b. A manner indicative of the quality of this sense.
9. *Obsolete.* The act of testing; trial.

174

### **Thalamus** (thāl'ə-məs)

*n., pl. -mi (-mī').*

1. *Anatomy.* A large ovoid mass of gray matter situated in the posterior part of the forebrain that relays sensory impulses to the cerebral cortex.
2. *Botany.* The receptacle of a flower.

175

### **Thematic Apperception Test**

#### Definition

The thematic apperception test (TAT) is a projective personality test that was designed at Harvard in the 1930s by Christiana D. Morgan and Henry A. Murray. Along with the MMPI and the Rorschach, the TAT is one of the most widely used psychological tests. A projective test is one in which a person's patterns of thought, attitudes, observational capacity, and emotional responses are evaluated on the basis of responses to ambiguous test materials. The TAT consists of 31 pictures that depict a variety of social and interpersonal situations. The subject is asked to tell a story about each picture to the examiner. Of the 31 pictures, 10 are gender-specific while 21 others can be used with adults of either sex and with children. As of 2001, the TAT is distributed by Harcourt Brace Educational Measurement.

#### Description

There is no standardized procedure or set of cards for administering the TAT, except that it is a one-on-one test. It cannot be administered to groups. In one common method of



administration, the examiner shows the subject only 10 of the 31 cards at each of two sessions. The sessions are not timed, but average about an hour in length.

— Rebecca J. Frey, PhD

176 **token economy**

a form of behavior therapy that has been used in some mental institutions; patients are rewarded with tokens for appropriate behavior and the tokens may be cashed in for valued rewards

177 **traits**

*n.*

1. A distinguishing feature, as of a person's character. See synonyms at quality.
2. A genetically determined characteristic or condition: *a recessive trait*.
3.
  - a. A stroke with or as if with a pencil.
  - b. A slight degree or amount, as of a quality; a touch or trace: *a sermon with a trait of humor*.

178 **Transference** (trăns-fûr'əns, trăns'fər-əns)

*n.*

1.
  - a. The act or process of transferring.
  - b. The fact of being transferred.
2. In psychoanalysis, the process by which emotions and desires originally associated with one person, such as a parent or sibling, are unconsciously shifted to another person, especially to the analyst.

179 **unconditioned response**

*n. Psychology.*

A natural, usually unvarying response evoked by a stimulus in the absence of learning or conditioning.

180 **unconditioned stimulus**

*n. Psychology.*

A stimulus that evokes an unconditioned response.

181  
**Unconscious** (ün-kön'shəs)

adj.

1. Lacking awareness and the capacity for sensory perception; not conscious.
2. Temporarily lacking consciousness.
3. Occurring in the absence of conscious awareness or thought: *unconscious resentment; unconscious fears.*
4. Without conscious control; involuntary or unintended: *an unconscious mannerism.*

n.

The division of the mind in psychoanalytic theory containing elements of psychic makeup, such as memories or repressed desires, that are not subject to conscious perception or control but that often affect conscious thoughts and behavior.

182  
**Vision** (vīzh'ən)

n.

1.
  - a. The faculty of sight; eyesight: *poor vision.*
  - b. Something that is or has been seen.
2. Unusual competence in discernment or perception; intelligent foresight: *a leader of vision.*
3. The manner in which one sees or conceives of something.
4. A mental image produced by the imagination.
5. The mystical experience of seeing as if with the eyes the supernatural or a supernatural being.
6. A person or thing of extraordinary beauty.

tr. v., -sioned, -sion·ing, -sions.

To see in or as if in a vision; envision.



# Chapt

How can we best use Psyc - to understand why people think, feel, + act as they do.

## PSYCHOLOGY (8th Edition) David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

Worth Publishers, © 2006



## Thinking Critically with Psychological Science

### Chapter 1

- 1/29
- impressions
  - what we see/do
  - perception
  - relative
  - observations

America  
sensational  
TV → people suffering

### Thinking Critically ...

#### Description

- The Case Study
- The Survey
- Naturalistic Observation

### Thinking Critically ...

#### Correlation

- Correlation and Causation
- Illusory Correlation
- Perceiving Order in Random Events

we want to see  
a pattern +  
reason  
stats  
part of big picture -  
need more info

### Thinking Critically ...

#### Statistical Reasoning

- Describing Data
- Making Inferences

#### FAQs About Psychology

### Impression of Psychology

With hopes of satisfying curiosity, many people listen to talk-radio counselors and psychics to learn about others and themselves.



Dr. Crane (radio-shrink)



Psychic (ball gazing)

- what happens to  
Football players  
after they retire

### Thinking Critically with Psychological Science

#### The Need for Psychological Science

- The limits of Intuition and Common Sense
- The Scientific Attitude
- The Scientific Method

I can't just  
rely on  
- need science

### Thinking Critically ...

#### Experimentation

- Exploring Cause and Effect
- Evaluating Therapies
- Independent and Dependent Variables

### The Need for Psychological Science

#### Intuition & Common Sense

Many people believe that intuition and common sense are enough to bring forth answers regarding human nature.

Intuition and common sense may aid queries, but they are not free of error.

need science  
judgement errors  
how do you get more info

Can you relate to them?  
 people have different thoughts

### Limits of Intuition

Personal interviewers may rely too much on their "gut feelings" when meeting with job applicants.



### Errors of Common Sense

Try this!

Fold a piece of paper (0.1 mm thick) 100 times. How thick will it be?

800,000,000,000,000 times the distance between the sun and the earth.

### Hindsight Bias

Hindsight Bias is the "I-knew-it-all-along" phenomenon.

After learning the outcome of an event, many people believe they could have predicted that very outcome. We only knew the dot.com stocks would plummet after they actually did plummet.

hindsight is 20/20  
 people will agree w/ stuff - if told its true  
 - explain how it is true  
 - but can't predict  
 may be wrong however

aura seer - won't go for a test -> faking

### Overconfidence

Sometimes we think we know more than we actually know.

How long do you think it would take to unscramble these anagrams?

People said it would take about 10 seconds, yet on average they took about 3 minutes (Goranson, 1978).

Anagram	
WREAT	WATER
ETYRN	ENTRY
GRABE	BARGE

- people don't actually do what they say they will  
 - people convinced they were right

### Psychological Science

1. How can we differentiate between uniformed opinions and examined conclusions?
2. The science of psychology helps make these examined conclusions, which leads to our understanding of how people feel, think, and act as they do!

- don't want to recognize  
 - rat is always right  
 - society's afraid to  
 - questions we ask relate to answers

### The Scientific Attitude

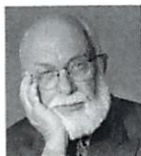
The scientific attitude is composed of curiosity (passion for exploration), skepticism (doubting and questioning) and humility (ability to accept responsibility when wrong).

why do things happen "question"  
 why do people want to be the best

### Critical Thinking

Critical thinking does not accept arguments and conclusions blindly.

It examines assumptions, discerns hidden values, evaluates evidence and assesses conclusions.



The Amazing Randi

be open minded  
 look for facts  
 talk with people who disagree

### Scientific Method

Psychologists, like all scientists, use the scientific method to construct theories that organize, summarize and simplify observations.

### Theory

A Theory is an explanation that integrates principles and organizes and predicts behavior or events.

For example, low self-esteem contributes to depression.

must be able to replicate results

must be able to predict



**Hypothesis**

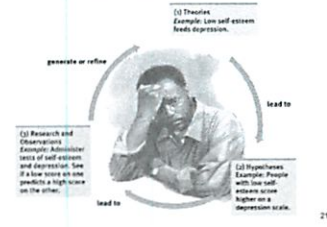
A Hypothesis is a testable prediction, often prompted by a theory, to enable us to accept, reject or revise the theory.

People with low self-esteem are apt to feel more depressed.

**Research Observations**

Research would require us to administer tests of self-esteem and depression. Individuals who score low on a self-esteem test and high on a depression test would confirm our hypothesis.

**Research Process**



let people recreate it to verify findings

- ① organizes observations
- ② implies clear predictions

1/29/08

**Description**

**Case Study**

A technique in which one person is studied in depth to reveal underlying behavioral principles.



Is language uniquely human?

**Case Study**

**Clinical Study**

A clinical study is a form of case study in which the therapist investigates the problems associated with a client.



**Survey**

A technique for ascertaining the self-reported attitudes, opinions or behaviors of people usually done by questioning a representative, random sample of people.



in depth studies of an individual  
 - may not be true for everyone  
 - anecdotal  
 - fruitful ideas

more in depth

- asking a lot of people

**Survey**

**Wording Effect**

Wording can change the results of a survey.

Q: Should cigarette ads and pornography be allowed on television? (not allowed vs. forbid)

Not censor

to show universal principles

**Survey**

**False Consensus Effect**

A tendency to overestimate the extent to which others share our beliefs and behaviors.

I think most people think Iraq war is stupid  
 - irresistibly

**Survey**

**Random Sampling**

If each member of a population has an equal chance of inclusion into a sample, it is called a random sample (unbiased). If the survey sample is biased, its results are not valid.



The fastest way to know about the marble color ratio is to blindly transfer a few into a smaller jar and count them.

? will skew results

### Naturalistic Observation

Observing and recording the behavior of animals in the wild and recording self-seating patterns in a multiracial school lunch room constitute naturalistic observation.



describes it - doesn't explain it

may change if people are watching - observer bias  
Hawthorn effect

### Scatterplots



Perfect positive correlation (+1.00)

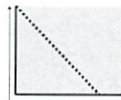
Scatterplot is a graph comprised of points that are generated by values of two variables. The slope of the points depicts the direction, while the amount of scatter depicts the strength of the relationship.

### Descriptive Methods

#### Summary

Case studies, surveys, and naturalistic observation describe behaviors.

### Scatterplots



Perfect negative correlation (-1.00)

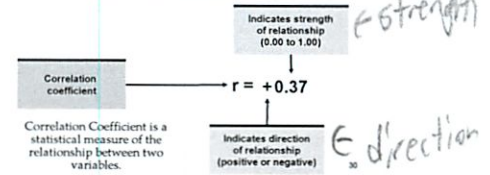


No relationship (0.00)

The Scatterplot on the left shows a negative correlation, while the one on the right shows no relationship between the two variables.

### Correlation

When one trait or behavior accompanies another, we say the two correlate.



Correlation Coefficient is a statistical measure of the relationship between two variables.

does not prove causation

### Data

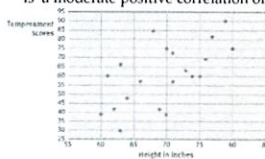
Data showing height and temperament in people.

HEIGHT AND TEMPERAMENT OF 10 MEN			HEIGHT AND TEMPERAMENT OF 10 MEN		
Subject	Height in Inches	Temperament	Subject	Height in Inches	Temperament
1	80	75	11	64	68
2	67	65	12	78	69
3	62	60	13	71	72
4	79	88	14	66	57
5	74	66	15	72	89
6	69	83	16	70	75
7	83	87	17	69	78
8	75	60	18	75	57
9	77	81	19	68	74
10	68	59	20	70	88

Correlation - but not true for everyone

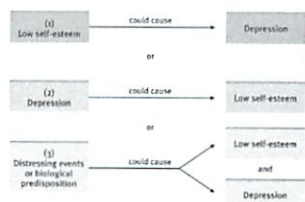
### Scatterplot

The Scatterplot below shows the relationship between height and temperament in people. There is a moderate positive correlation of +0.63.



← doesn't really

### Correlation and Causation



try to find reason  
want to find cause

### Illusory Correlation

The perception of a relationship where no relationship actually exists. Parents conceive children after adoption.

	Conceive	Do not conceive
Adopt	Confirming evidence	Disconfirming evidence
Do not adopt	Disconfirming evidence	Confirming evidence



can correlate → correlation - but does it cause  
but 3rd thing involved  
shows possibility of relationship

- superstitions  
- tend to note + recall when it is proved true  
- try to correlate stuff



### Order in Random Events

Given random data, we look for order and meaningful patterns.



Your chances of being dealt either of these hands is precisely the same: 1 in 2,598,960.

Same chance but remember 1st pair

### Order in Random Events

Given large numbers of random outcomes, a few are likely to express order.



Angelo and Maria Gallina won two California lottery games on the same day.

### Experimentation

Exploring Cause and Effect

Like other sciences, experimentation is the backbone of psychology research. Experiments isolate causes and their effects.

### Exploring Cause & Effect

Many factors influence our behavior. Experiments (1) manipulate factors that interest us, while other factors are kept under (2) control.

Effects generated by manipulated factors isolate cause and effect relationships.

Cause → effect

### Independent Variable

An Independent Variable is a factor manipulated by the experimenter. The effect of the independent variable is the focus of the study.

For example, when examining the effects of breast feeding upon intelligence, breast feeding is the independent variable.



Experiments manipulate variables to find a pattern

### Dependent Variable

A Dependent Variable is a factor that may change in response to an independent variable. In psychology, it is usually a behavior or a mental process.

For example, in our study on the effect of breast feeding upon intelligence, intelligence is the dependent variable.

what testing

### Evaluating Therapies

Double-blind Procedure

In evaluating drug therapies, patients and experimenter's assistants should remain unaware of which patients had the real treatment and which patients had the placebo treatment.

old days → blood letting seemed effective - but coincidence  
 can't tip off people  
 negates placebo effect  
 non correlation  
 Only a few people know

### Evaluating Therapies

Random Assignment

Assigning participants to experimental (Breast-fed) and control (formula-fed) conditions by random assignment minimizes pre-existing differences between the two groups.

↑ = lizes out the differences

Only correlation studies may miss other factors

### Experimentation

A summary of steps during experimentation.

Random assignment (controlling for other variables such as parental intelligence and environment)



Condition	Independent variable	Dependent variable
Experimental	Breast milk	Intelligence score, age 8
Control	Formula	Intelligence score, age 8

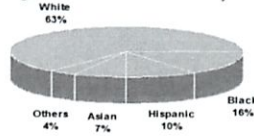
## Comparison

Below is a comparison of different research methods.

Comparing Research Methods	Survey	Case Studies	Interviews	Focus Groups	Observation	Case Studies	Interviews	Focus Groups	Observation
Strengths	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics
Weaknesses	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics	Can be used to study a wide range of topics

## Statistical Reasoning

Statistical procedures analyze and interpret data allowing us to see what the unaided eye misses.

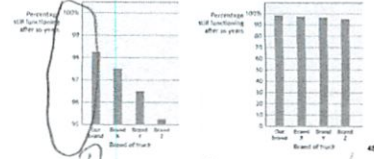


Composition of ethnicity in urban locales

Apply statistics to every day reasoning.

## Describing Data

A meaningful description of data is important in research. Misrepresentation may lead to incorrect conclusions.



read the scales

## Measures of Central Tendency

Mode: The most frequently occurring score in a distribution.

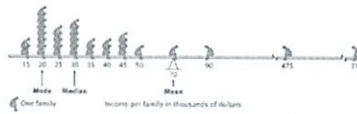
Mean: The arithmetic average of scores in a distribution obtained by adding the scores and then dividing by the number of scores that were added together.

Median: The middle score in a rank-ordered distribution.

Avg

## Measures of Central Tendency

A Skewed Distribution

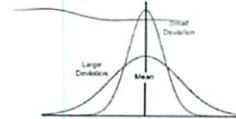


makes the fulcrum height

## Measures of Variation

Range: The difference between the highest and lowest scores in a distribution.

Standard Deviation: A computed measure of how much scores vary around the mean.



## Standard Deviation

Group	Mean	Standard Deviation	Score	Standard Deviation
Group 1	10	2	12	2
Group 2	10	2	14	2
Group 3	10	2	16	2
Group 4	10	2	18	2
Group 5	10	2	20	2

Sum of (deviations)<sup>2</sup> / # of scores

## Making Inferences

A statistical statement of how frequently an obtained result occurred by experimental manipulation or by chance.

## Making Inferences

When is an Observed Difference Reliable?

1. Representative samples are better than biased samples.
2. Less variable observations are more reliable than more variable ones.
3. More cases are better than fewer cases.

the more the better

E get more control as much as you can



must find odd by chance  
 $< 5\%$

**Making Inferences**

When is a Difference Significant?

When sample averages are reliable and the difference between them is relatively large, we say the difference has statistical significance.

For psychologists this difference is measured through alpha level set at 5 percent.

when data from 1 group is close, but data between groups is great = statistical significance

**FAQ**

Q3. Does behavior vary with gender?

Ans: Yes. Biology determines our sex, and culture further bends the genders. However, in many ways woman and man are similarly human.



**FAQ**

Q6. Is it ethical to experiment on people?

Ans: Yes. Experiments that do not involve any kind of physical or psychological harm beyond normal levels encountered in daily life may be carried out.

- guidelines  
 - some done out of the lab

**FAQ**

Q1. Can laboratory experiments illuminate everyday life?

Ans: Artificial laboratory conditions are created to study behavior in simplistic terms. The goal is to find underlying principles that govern behavior.

resulting principles that explain behavior - not specific findings

↳ likely hood event happens - not importance

**FAQ**

Q4. Why do psychologists study animals?

Ans: Studying animals gives us the understanding of many behaviors that may have common biology across animals and humans.



can do experiments only allowed on animals  
 - we are animals  
 - animals → more simplistic

**FAQ**

Q7. Is psychology free of value judgments?

Ans: No. Psychology emerges from people who subscribe to a set of values and judgments.



example: discreet vs secretive

**FAQ**

Q2. Does behavior depend on one's culture?

Ans: Even when specific attitudes and behaviors vary across cultures, as they often do, the underlying processes are much the same.



culture matters though dyslexia is in any language hunger + taste is the same

**FAQ**

Q5. Is it ethical to experiment on animals?

Ans: Yes. To gain insights to devastating and fatal diseases. All researchers who deal with animal research are required to follow ethical guidelines in caring for these animals.

- less than eating + shelters  
 - morality of people vs animals  
 - we are nicer to animals that are like humans  
 - are guidelines in place  
 - some studies help us help animals

**FAQ animals**

Q8. Is psychology potentially dangerous?

Ans: It can be, but it is not. The purpose of psychology is to help humanity with problems such as war, hunger, prejudice, crime, family dysfunction, etc.

knowledge can be used for good + evil

- 1  **Chapter 1**
  - Thinking critically with psychological science
- 2  **Hindsight bias**
  - o The tendency to believe after learning an outcome, that one would have foreseen it.
  - o This is also known as I knew it all along phenomenon.
- 3  **Critical thinking**
  - o Thinking that does not blindly accept arguments and conclusions. Rather, it examines assumptions, discerns and values, evaluates evidence, and assesses conclusions.
- 4  **Theory**
  - o An explanation using an integrated set of principles that organizes observations and predict behaviors or events.
- 5  **Hypothesis**
  - o A testable prediction, Often implied by a theory.
- 6  **Operational definition**
  - o A statement of the procedures used to define research variables.
  - o For example, human intelligence may be operationally define as what an intelligent test measures.
- 7  **Replication**
  - o Repeating the essence of a research study, usually with different participants in different situations, to see whether the basic findings extends to other participants in circumstances.
- 8  **The scientific method**
  - o A self-correcting process for asking questions and observing nature's answer.
- 9  **Case study**
  - o An observation technique in which one person is study in depth in the hope of revealing universal principles.
- 10  **Survey**
  - o A technique for ascertaining the self-reported attitudes or behaviors of people, usually by questioning a representative, random sample of them.
- 11  **False consensus effect**
  - o The tendency to overestimate the extent to which others share our beliefs and behaviors. she is pretty
- 12  **Population**
  - o All the cases in the group, for which samples may be drawn for a study.
- 13  **Random sample**
  - o A sample of the fairly represents a population because each member has an equal chance of inclusion.



- 14  **Naturalistic observation**
  - o Observing and recording behavior naturally occurring situations without trying to manipulate and control the situation.
- 15  **Correlation**
  - o A measure of the extent to which two factors vary together, and us of how well either factor predicts the other.
- 16  **Correlation coefficient**
  - o Is the mathematical expression of the relationship, ranging from -1 to +1
- 17  **Scatterplot**
  - o A graph cluster of dots, each of which represents the value of two variables. The slope of the points are just the direction of the relationship between the two very most. The amount of scattered suggest the strength of the correlation.
- 18  **Double-blind procedure**
  - o And experimental procedure would put the research participants in the research staff are ignorant about whether the research participants have received the treatment or a placebo.
- 19  **Placebo effect**
  - o Experimental results caused by expectations alone; and the effect on behavior caused by the ministration of an inner substance or condition which is assumed to be an active agent.
- 20  **Experimental condition**
  - o The condition of an experiment that exposes participants to the treatment, that is, to one version of the independent variable.
- 21  **Control condition**
  - o The condition of experiment that contrasts with the experimental condition and serves as a comparison to evaluating the effects of the treatment.
- 22  **Random assignment**
  - o Assigning participants to an experimental and control condition by chance, plus minimizing pre-existing differences between those assigned to the different groups.
- 23  **Independent variable**
  - o The experimental factor that is manipulated; the variable whose effect is being studied.
- 24  **Dependent variable**
  - o The outcome factor; the variable that may change in response to manipulation of the independent variable.
- 25  **Mode**
  - o The most frequent occurrence score in a distribution
- 26  **Mean**

- The arithmetic average of distribution, obtained by adding the scores and then divided by the number of scores.
- 27  **Median**
  - The middle score distribution; half the scores are above it and half are below.
- 28  **Range**
  - The difference between the highest and lowest scores in a distribution.
- 29  **Standard deviation**
  - A computed measure of how much scores vary around the mean score.
- 30  **Statistical significance**
  - A statistical statement of how likely it is that an obtained result occurred by chance.
- 31  **Culture**
  - The enduring behaviors, ideas, attitudes, and tradition shared by a large group of people transmitted from one generation to the next.



# Chap 1

1. Which of the following *best* describes the hindsight bias?

- A) Events seem more predictable before they have occurred.
- B) Events seem more predictable after they have occurred.
- C) A person's intuition is usually correct.
- D) A person's intuition is usually not correct.

Ans: B

Page: 20

2. Juwan eagerly opened an online trading account, believing that his market savvy would allow him to pick stocks that would make him a rich day trader. This belief best illustrates:

- A) the false consensus effect.
- B) illusory correlation.
- C) hindsight bias.
- D) overconfidence.

Ans: D

Page: 22

3. To say that "psychology is a science" means that:

- A) psychologists study only observable behaviors.
- B) psychologists study thoughts and actions with an attitude of skepticism and derive their conclusions from direct observations.
- C) psychological research should be free of value judgments.
- D) all of the above are true.

Ans: B

Page: 23

4. The scientific attitude of humility is based on the idea that:

- A) researchers must evaluate new ideas and theories objectively rather than accept them blindly.
- B) scientific theories must be testable.
- C) simple explanations of behavior make better theories than do complex explanations.
- D) researchers must be prepared to reject their own ideas in the face of conflicting evidence.

Ans: D

Page: 23

5. The scientific attitude of skepticism is based on the belief that:

- A) people are rarely candid in revealing their thoughts.
- B) mental processes can't be studied objectively.
- C) the scientist's intuition about behavior is usually correct.
- D) ideas need to be tested against observable evidence.

Ans: D

Page: 23

6. Theories are defined as:

- A) testable propositions.
- B) factors that may change in response to manipulation.
- C) statistical indexes.
- D) principles that help to organize, predict, and explain facts.

Ans: D

Page: 24

7. You decide to test your belief that men drink more soft drinks than women by finding out whether more soft drinks are consumed per \_\_\_\_\_ in the men's dorm than in the women's dorm. Your belief is a(n) \_\_\_\_\_, and your research prediction is a(n) \_\_\_\_\_.

- A) hypothesis; theory
- B) theory; hypothesis
- C) independent variable; dependent variable

D) dependent variable; independent variable

Ans: B

Page: 24, 25

8. Which of the following is true, according to the text?

- A) Because laboratory experiments are artificial, any principles discovered cannot be applied to everyday behaviors.
- B) No psychological theory can be considered a good one until it produces testable predictions.
- C) Psychology's theories reflect common sense.
- D) Psychology has few ties to other disciplines.

Ans: B

Page: 25

9. Which of the following is *not* a basic research strategy used by psychologists?

- A) description
- B) replication
- C) experimentation
- D) correlation

Ans: B

Page: 25

10. To ensure that other researchers can repeat their work, psychologists use:

- A) control groups.
- B) random assignment.
- C) double-blind procedures.
- D) operational definitions.

Ans: D

Page: 25

11. After detailed study of a gunshot wound victim, a psychologist concludes that the brain region destroyed is likely to be important for memory functions. Which research strategy did the psychologist use to deduce this?

- A) the case study
- B) a survey
- C) correlation
- D) experimentation

Ans: A

Page: 26

12. Your roommate is conducting a survey to learn how many hours the typical college student studies each day. She plans to pass out her questionnaire to the members of her sorority. You point out that her findings will be flawed because:

- A) she has not specified an independent variable.
- B) she has not specified a dependent variable.
- C) the sample will probably not be representative of the population of interest.
- D) of all the above reasons.

Ans: C

Page: 28

13. One reason researchers base their findings on representative samples is to avoid the false consensus effect, which refers to our tendency to:

- A) overestimate the extent to which others share our belief.
- B) falsely perceive a relationship between two events when none exists.
- C) underestimate errors in our judgment.
- D) make all of the above reasoning errors.

Ans: A



14. Well-done surveys measure attitudes in a representative subset, or \_\_\_\_\_, of an entire group, or \_\_\_\_\_.
- A) population; random sample
  - B) control group; experimental group
  - C) experimental group; control group
  - D) random sample; population

Ans: D

Page: 28

15. A professor constructs a questionnaire to determine how students at the university feel about nuclear disarmament. Which of the following techniques should be used in order to survey a random sample of the student body?

- A) Every student should be sent the questionnaire.
- B) Only students majoring in psychology should be asked to complete the questionnaire.
- C) Only students living on campus should be asked to complete the questionnaire.
- D) From an alphabetical listing of all students, every tenth (or fifteenth, e.g.) student should be asked to complete the questionnaire.

Ans: D

Page: 28

16. A psychologist studies the play behavior of third-grade children by watching groups during recess at school. Which type of research is being used?

- A) correlation
- B) case study
- C) experimentation
- D) naturalistic observation

Ans: D

Page: 29

17. If height and body weight are positively correlated, which of the following is true?

- A) There is a cause-effect relationship between height and weight.
- B) As height increases, weight decreases.
- C) Knowing a person's height, one can predict his or her weight.
- D) All of the above are true.

Ans: C

Page: 30

18. Which type of research would allow you to determine whether students' college grades accurately predict later income?

- A) case study
- B) naturalistic observation
- C) experimentation
- D) correlation

Ans: D

Page: 30

19. A researcher was interested in determining whether her students' test performance could be predicted from their proximity to the front of the classroom. So she matched her students' scores on a math test with their seating position. This study is an example of:

- A) experimentation.
- B) correlational research.
- C) a survey.
- D) naturalistic observation.

Ans: B

Page: 30-31

20. If eating saturated fat and the likelihood of contracting cancer are positively correlated, which of the following is true?

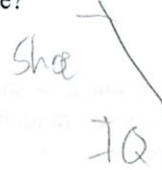
- A) Saturated fat causes cancer.
- B) People who are prone to develop cancer prefer foods containing saturated fat.
- C) A separate factor links the consumption of saturated fat to cancer.
- D) None of the above is necessarily true.

Ans: D

Page: 30-32

21. If shoe size and IQ are negatively correlated, which of the following is true?

- A) People with large feet tend to have high IQs.
  - B) People with small feet tend to have high IQs.
  - C) People with small feet tend to have low IQs.
  - D) IQ is unpredictable based on a person's shoe size.
- Inverse*



Ans: B

Page: 31

22. Joe believes that his basketball game is always best when he wears his old gray athletic socks. Joe is a victim of the phenomenon called:

- A) statistical significance.
- B) overconfidence.
- C) illusory correlation.
- D) hindsight bias.

Ans: C

Page: 33

23. Illusory correlation refers to:

- A) the perception that two negatively correlated variables are positively correlated.
- B) the perception of a correlation where there is none.
- C) an insignificant correlation.
- D) a correlation that equals  $-1.0$ .

Ans: B

Page: 33

24. The strength of the relationship between two vivid events will most likely be:

- A) significant.
- B) positive.
- C) negative.
- D) overestimated.

Ans: D

Page: 34

25. Which of the following research methods does *not* belong with the others?

- A) case study
- B) survey
- C) naturalistic observation
- D) experiment

*Actually do stuff (manipulate)*

Ans: D

Page: 36

26. Which of the following research strategies would be best for determining whether alcohol impairs memory?

- A) case study
- B) naturalistic observation
- C) survey
- D) experiment



Ans: D  
Page: 36

- To prevent the possibility that a placebo effect or researchers' expectations will influence a study's results, scientists employ:
- A) control groups.
  - B) experimental groups.
  - C) random assignment.
  - D) the double-blind procedure.

Ans: D  
Page: 37

28. Which of the following procedures is an example of the use of a placebo?

- A) In a test of the effects of a drug on memory, a participant is led to believe that a harmless pill actually contains an active drug.
- B) A participant in an experiment is led to believe that a pill, which actually contains an active drug, is harmless.
- C) Participants in an experiment are not told which treatment condition is in effect.
- D) Neither the participants nor the experimenter knows which treatment condition is in effect.

Ans: A  
Page: 37

29. In a test of the effects of air pollution, groups of students performed a reaction-time task in a polluted or an unpolluted room. To what condition were students in the unpolluted room exposed?

- A) experimental
- B) control
- C) randomly assigned
- D) dependent

Ans: B  
Page: 37

30. Rashad, who is participating in a psychology experiment on the effects of alcohol on perception, is truthfully told by the experimenter that he has been assigned to the "high-dose condition." What is wrong with this experiment?

- A) There is no control condition.
- B) Rashad's expectations concerning the effects of "high doses" of alcohol on perception may influence his performance.
- C) Knowing that Rashad is in the "high-dose" condition may influence the experimenter's interpretations of Rashad's results.
- D) Both b. and c. are correct.

Ans: D  
Page: 37

31. Martina believes that high doses of caffeine slow a person's reaction time. In order to test this belief, she has five friends each drink three 8-ounce cups of coffee and then measures their reaction time on a learning task. What is wrong with Martina's research strategy?

- A) No independent variable is specified.
- B) No dependent variable is specified.
- C) There is no control condition.
- D) There is no provision for replication of the findings.

Ans: C  
Page: 37

32. In order to determine the effects of a new drug on memory, one group of people is given a pill that contains the drug. A second group is given a sugar pill that does *not* contain the drug. This second group constitutes the:

- A) random sample.
- B) experimental group.
- C) control group.
- D) test group.

Ans: C  
Page: 37

33. In order to study the effects of lighting on mood, Dr. Cooper had students fill out questionnaires in brightly lit or dimly lit rooms. In this study, the independent variable consisted of:

- A) the number of students assigned to each group.
- B) the students' responses to the questionnaire.
- C) the room lighting.
- D) the subject matter of the questions asked.

Ans: C  
Page: 38

34. The concept of control is important in psychological research because:

- A) without control over independent and dependent variables, researchers cannot describe, predict, or explain behavior.
- B) experimental control allows researchers to study the influence of one or two independent variables on a dependent variable while holding other potential influences constant.
- C) without experimental control, results cannot be generalized from a sample to a population.
- D) of all the above reasons.

Ans: B  
Page: 38

35. In an experiment to determine the effects of exercise on motivation, exercise is the:

- A) control condition.
- B) intervening variable.
- C) independent variable.
- D) dependent variable.

Ans: C  
Page: 38

36. In an experiment to determine the effects of attention on memory, memory is the:

- A) control condition.
- B) intervening variable.
- C) independent variable.
- D) dependent variable.

Ans: D  
Page: 38

37. The procedure designed to ensure that the experimental and control groups do not differ in any way that might affect the experiment's results is called:

- A) variable controlling.
- B) random assignment.
- C) representative sampling.
- D) stratification.

doing this for this

Ans: B  
Page: 39

38. What is the mean of the following distribution of scores: 2, 3, 7, 6, 1, 4, 9, 5, 8, 2?

- A) 5
- B) 4
- C) 4.7
- D) 3.7

Ans: C  
Page: 41

39. What is the median of the following distribution of scores: 1, 3, 7, 7, 2, 8, 4?

- A) 1

X 2 B (4) 7 7 8



- B) 2
- C) 3
- D) 4

Ans: D  
Page: 41

40. What is the mode of the following distribution: 8, 2, 1, 1, 3, 7, 6, 2, 0, 2?

- A) 1 <sup>2</sup>
- B) 2 <sup>3</sup>
- C) 3 <sup>1</sup>
- D) 7 <sup>1</sup>

Ans: B  
Page: 41

41. Which of the following is the measure of central tendency that would be most affected by a few extreme scores?

- A) mean
- B) range
- C) median
- D) mode

*dub*

*if not than range - see #47*

Ans: A  
Page: 41

42. What is the mode of the following distribution of scores: 2, 2, 4, 4, 4, 14?

- A) 2
- B) 4
- C) 5
- D) 6

Ans: B  
Page: 41

43. What is the mean of the following distribution of scores: 2, 5, 8, 10, 11, 4, 6, 9, 1, 4?

- A) 2
- B) 10
- C) 6
- D) 15

Ans: C  
Page: 41

44. Bob scored 43 out of 70 points on his psychology exam. He was worried until he discovered that most of the class earned the same score. Bob's score was equal to the:

- A) mean.
- B) median.
- C) mode.
- D) range.

Ans: C  
Page: 41

45. The four families on your block all have annual household incomes of \$25,000. If a new family with an annual income of \$75,000 moved in, which measure of central tendency would be most affected?

- A) mean
- B) median
- C) mode
- D) standard deviation

Ans: A  
Page: 41

46. What is the median of the following distribution: 10, 7, 5, 11, 8, 6, 9?

- A) 6
- B) 7
- C) 8
- D) 9

Handwritten notes: 10, 7, 5, 11, 8, 6, 9. A circle is drawn around the number 8, and a vertical line is drawn through it. To the right, the numbers 5, 7, 8, 10, 11 are written in a sequence.

Ans: C  
Page: 41

47. Which of the following is the measure of variation that is most affected by extreme scores?

- A) mean
- B) standard deviation
- C) mode
- D) range

Handwritten note: See #41

Ans: D  
Page: 41

48. A lopsided set of scores that includes a number of extreme or unusual values is said to be:

- A) symmetrical.
- B) normal.
- C) skewed.
- D) dispersed.

Ans: C  
Page: 41

49. Esteban refuses to be persuaded by an advertiser's claim that people using their brand of gasoline average 50 miles per gallon. His decision probably is based on:

- A) the possibility that the average is the mean, which could be artificially inflated by a few extreme scores. ✓
- B) the absence of information about the size of the sample studied.
- C) the absence of information about the variation in sample scores.
- D) all of the above.

Ans: D  
Page: 41, 42

50. In generalizing from a sample to the population, it is important that:

- A) the sample be representative.
- B) the sample be nonrandom.
- C) the sample not be too large.
- D) all of the above be true.

Ans: A  
Page: 42

51. The football team's punter wants to determine how consistent his punting distances have been during the past season. He should compute the:

- A) mean.
- B) median.
- C) mode.
- D) standard deviation.

Ans: D  
Page: 42

52. In generalizing from a sample to the population, it is important that:



- A) the sample is representative of the population.
- B) the sample is large.
- C) the scores in the sample have low variability.
- D) all of the above are observed.

Ans: D

Page: 42-43

53. The set of scores that would likely be most representative of the population from which it was drawn would be a sample with a relatively:

- A) large standard deviation.
- B) small standard deviation.
- C) large range.
- D) small range.

Ans: B

Page: 43

54. Dr. Salazar recently completed an experiment in which she compared reasoning ability in a sample of females and a sample of males. The means of the female and male samples equaled 21 and 19, respectively, on a 25-point scale. A statistical test revealed that her results were not statistically significant. What can Dr. Salazar conclude?

- A) Females have superior reasoning ability.
- B) The difference in the means of the two samples is probably due to chance variation.
- C) The difference in the means of the two samples is reliable.
- D) None of the above is true

Ans: B

Page: 43

55. If a difference between two samples is not statistically significant, which of the following can be concluded?

- A) The difference is probably not a true one.
- B) The difference is probably not reliable.
- C) The difference could be due to sampling variation.
- D) All of the above can be concluded.

Ans: D

Page: 43

56. When a difference between two groups is "statistically significant," this means that:

- A) the difference is statistically real but of little practical significance.
- B) the difference is probably the result of sampling variation.
- C) the difference is not likely to be due to chance variation.
- D) all of the above are true.

Ans: C

Page: 43

57. Your best friend criticizes psychological research for being artificial and having no relevance to behavior in real life. In defense of psychology's use of laboratory experiments you point out that:

- A) psychologists make every attempt to avoid artificiality by setting up experiments that closely simulate real-world environments.
- B) psychologists who conduct basic research are not concerned with the applicability of their findings to the real world.
- C) most psychological research is not conducted in a laboratory environment.
- D) psychologists intentionally study behavior in simplified environments in order to gain greater control over variables and to test general principles that help to explain many behaviors.

Ans: D

Page: 45

58. A friend majoring in anthropology is critical of psychological research because it often ignores the influence of culture on thoughts and actions. You point out that:

- A) there is very little evidence that cultural diversity has a significant effect on specific behaviors and attitudes.
- B) most researchers assign subjects to experimental and control conditions in such a way as to fairly represent the cultural diversity of the population under study.
- C) it is impossible for psychologists to control for every possible variable that might influence research participants.
- D) even when specific thoughts and actions vary across cultures, as they often do, the underlying processes are much the same.

Ans: D

Page: 46

59. Which statement about the ethics of experimentation with people and animals is false?

- A) Only a small percentage of animal experiments use shock.
- B) Allegations that psychologists routinely subject animals to pain, starvation, and other inhumane conditions have been proven untrue.
- C) The American Psychological Association and the British Psychological Society have set strict guidelines for the care and treatment of human and animal subjects.
- D) Animals are used in psychological research more often than they are killed by humane animal shelters.

Ans: D

Page: 47

60. Psychologists' personal values:

- A) have little influence on how their experiments are conducted.
- B) do not influence the interpretation of experimental results because of the use of statistical techniques that guard against subjective bias.
- C) can bias both scientific observation and interpretation of data.
- D) have little influence on investigative methods but a significant effect on interpretation.

Ans: C

Page: 48

→



# Chap 2



## PSYCHOLOGY

(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

Worth Publishers, © 2006

## Neuroscience and Behavior

### Chapter 2

everything is also biological  
Brain - not heart falls in love → but heart symbol

## Neuroscience and Behavior

### Neural Communication

- Neurons
- How Neurons Communicate
- How Neurotransmitters Influence Us

### The Nervous System

- The Peripheral Nervous System
- The Central Nervous System

## Neuroscience and Behavior

### The Endocrine System

#### The Brain

- The Tools of Discovery
- Older Brain Structures
- The Cerebral Cortex
- Our Divided Brain
- Left Brain-Right Brain

## History of Mind

### Ancient Conceptions About Mind

Plato correctly placed mind in the brain. However, his student Aristotle believed that mind was in the heart.

Today we believe mind and brain are faces of the same coin. Everything that is psychological is simultaneously biological.

## History of Mind

### Phrenology

In 1800, Franz Gall suggested that bumps of the skull represented mental abilities. His theory, though incorrect, nevertheless proposed that different mental abilities were modular.



biological psychology - links b/w biology + behavior

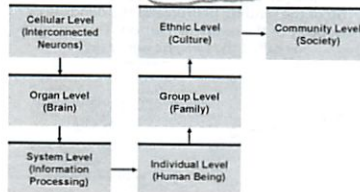
## Neural Communication

The body's information system is built from billions of interconnected cells called **neurons**.



## Neural Communication

We are a *biopsychosocial* system.



## Neural Communication

Neurobiologists and other investigators understand that humans and animals operate similarly when processing information.

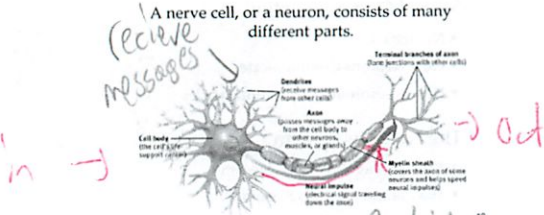


Note the similarities in the above brain regions, which are all engaged in information processing.

Can't tell difference b/w monkey + human brain tissue - follows same principles

similar brain regions

## Neuron

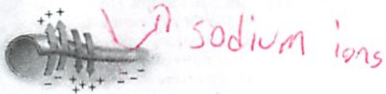


Axons speak, Dendrites listen,  
Myelin sheath - covering  
multiple sclerosis ↗

Computers faster than  
neural impulses

### Depolarization & Hyperpolarization

Depolarization: Depolarization occurs when positive ions enter the neuron, making it more prone to firing an action potential.  
Hyperpolarization occurs when negative ions enter the neuron, making it less prone to firing an action potential.



if strong enough - produces  
depolarization + firing

### Action Potential Properties

**All-or-None Response:** When the depolarizing current exceeds the threshold, a neuron will fire. If the depolarizing current fails to exceed the threshold, a neuron will not fire.

**Intensity of an action potential remains the same throughout the length of the axon.**

more intense fires off  
more neurons - but neuron  
signals are binary (on or off)

## Parts of a Neuron

**Cell Body:** Life support center of the neuron.

**Dendrites:** Branching extensions at the cell body. Receive messages from other neurons.

**Axon:** Long single extension of a neuron, covered with myelin [MY-uh-lin] sheath to insulate and speed up messages through neurons.

**Terminal Branches of axon:** Branched endings of an axon that transmit messages to other neurons.

### Threshold

**Threshold:** Each neuron receives depolarizing and hyperpolarizing currents from many neurons. When the depolarizing current (positive ions) minus the hyperpolarizing current (negative ions) exceed minimum intensity (threshold) the neuron fires an action potential.

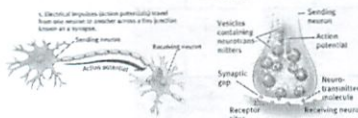
excitatory - accelerator  
inhibitory - brake

excitatory - inhibitory

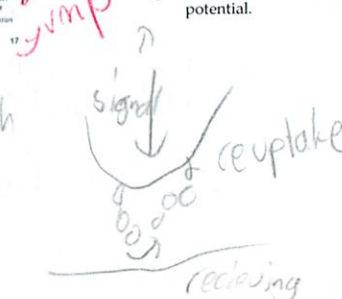
is big enough - reaches  
threshold

### Synapse

**Synapse [SIN-aps]** a junction between the axon tip of the sending neuron and the dendrite or cell body of the receiving neuron. This tiny gap is called the **synaptic gap** or **cleft**.

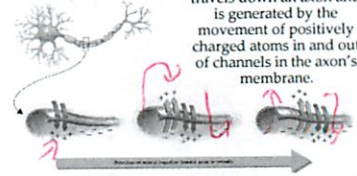


don't quite  
touch each  
other



## Action Potential

**A neural impulse.** A brief electrical charge that travels down an axon and is generated by the movement of positively charged atoms in and out of channels in the axon's membrane.



generate electricity  
from chemical reaction

### Refractory Period & Pumps

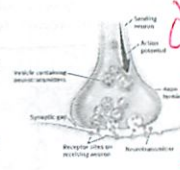
**Refractory Period:** After a neuron fires an action potential it pauses for a short period to recharge itself to fire again.

**Sodium-Potassium Pumps:** Sodium-potassium pumps pump positive ions out from the inside of the neuron, making them ready for another action potential.

selectively permeable  
opens + closes to send msg

### Neurotransmitters

**Neurotransmitters (chemicals)** released from the sending neuron travel across the synapse and bind to receptor sites on the receiving neuron, thereby influencing it to generate an action potential.

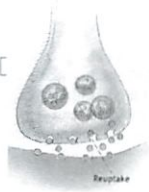


what  
drugs  
control  
receiving  
site



## Reuptake

Neurotransmitters in the synapse are reabsorbed into the sending neurons through the process of reuptake. This process applies the brakes on neurotransmitter action.



## How Neurotransmitters Influence Us?

Serotonin pathways are involved with mood regulation.



From Mapping the Mind: Risk Carter, © 1999 University of California Press

## Dopamine Pathways

Dopamine pathways are involved with diseases such as schizophrenia and Parkinson's disease.



From Mapping the Mind: Risk Carter, © 1999 University of California Press

Some pathways involve only 1 or 2 neurotransmitters

## Neurotransmitters

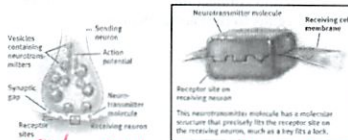
SOME NEUROTRANSMITTERS AND THEIR FUNCTIONS		
Neurotransmitter	Function	Examples of Malfunctions
Acetylcholine (ACh)	Enables muscle action, learning, and memory.	With Alzheimer's disease, ACh-producing neurons deteriorate.
Dopamine	Influences movement, learning, attention, and emotion.	Excess dopamine receptor activity linked in schizophrenia. Starved of dopamine, the brain produces the tremors and decreased mobility of Parkinson's disease.
Serotonin	Affects mood, hunger, sleep, and arousal.	Underactivity linked to depression. Prozac and some other antidepressant drugs raise serotonin levels.
Norepinephrine	Helps control alertness and arousal.	Underactivity can depress mood.
GABA (gamma-aminobutyric acid)	A major inhibitory neurotransmitter.	Underactivity linked to seizures, tremors, and insomnia.
Glutamate	A major excitatory neurotransmitter; involved in memory.	Overactivity can overstimulate brain, producing migraines or seizures (which is why some people avoid MSG, monosodium glutamate, in food).

best →  
stood

muscle contractors

## Lock & Key Mechanism

Neurotransmitters bind to the receptors of the receiving neuron in a key-lock mechanism.



fits like a lock in a key

## Agonists



excites

This agonist molecule excites. It is similar enough in structure to the neurotransmitter molecule that it mimics its effects on the receiving neuron. Morphine, for instance, mimics the action of endorphins by stimulating receptors in brain areas involved in mood and pain sensations.

blocks reuptake  
morphine does  
spider venom does a lot - causing muscle spasms

## Antagonists

Antagonist blocks neurotransmitter



This antagonist molecule inhibits. It has a structure similar enough to the neurotransmitter to occupy its receptor site and block its action, but not similar enough to stimulate the receptor. Curare poisoning paralyzes its victims by blocking ACh receptors involved in muscle movement.

inhibits neurotransmitter release  
blocks signals - paralyzing muscles

## Nervous System

2/11/08



blood-brain barrier stops some drugs from entering the brain

## The Nervous System

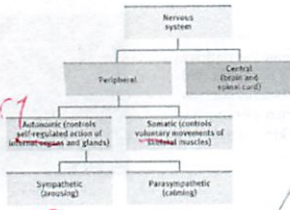
Nervous System: Consists of all the nerve cells. It is the body's speedy, electrochemical communication system.

Central Nervous System (CNS): the brain and spinal cord.

Peripheral Nervous System (PNS): the sensory and motor neurons that connect the central nervous system (CNS) to the rest of the body.

Nerves = neural cables  
Containing many axons

### The Nervous System

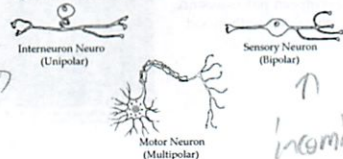


involuntary

↑ ↓

### Kinds of Neurons

Sensory Neurons carry incoming information from the sense receptors to the CNS. Motor Neurons carry outgoing information from the CNS to muscles and glands. Interneurons connect the two neurons.

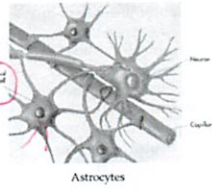


Central nervous system carries commands  
Sends info to muscles  
incoming info from tissues + senses

③ middle man  
② Send  
① Sense

### Kinds of Glial Cells

Astrocytes provide nutrition to neurons. Oligodendrocytes and Schwann cells insulate neurons as myelin.



### Peripheral Nervous System

Somatic Nervous System: The division of the peripheral nervous system that controls the body's skeletal muscles.

voluntary

Autonomic Nervous System: Part of the PNS that controls the glands and other muscles.

internal organs  
can be sometimes overridden  
- heartbeat  
- digestion

### The Nerves

Nerves consist of neural "cables" containing many axons. They are part of the peripheral nervous system and connect muscles, glands, and sense organs to the central nervous system.



2 parts

### Autonomic Nervous System (ANS)

Sympathetic Nervous System: Division of the ANS that arouses the body, mobilizing its energy in stressful situations.

job interview

Parasympathetic Nervous System: Division of the ANS that calms the body, conserving its energy.

conserves energy

### Autonomic Nervous System (ANS)

Sympathetic NS "Arouses" (fight or flight)

Parasympathetic NS "Calms" (rest and digest)

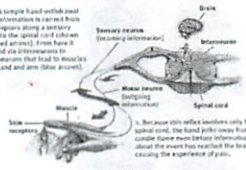
save energy



### Central Nervous System

#### The Spinal Cord and Reflexes

1. In this simple hand-without-mouth reflex, information is carried from the receptors along a sensory neuron to the spinal cord where it is passed via interneurons to motor neurons that lead to muscles in the hand and arm (blue arrows).



Simple Reflex

Central highway governs reflexes (don't need brain)  
but still need brain for pain + pleasure (paralysed person can still have an erection)

### Central Nervous System

#### The Brain and Neural Networks

Interconnected neurons form networks in the brain. These networks are complex and modify with growth and experience.



Complex Neural Network

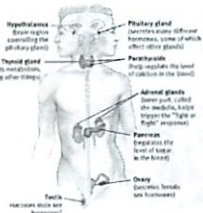
Can have short fast connections - enables us to do calculations  
many subnets - can't tell where network ends



interconnected w/  
nervous system

new studies suggest  
hormones from meat  
we eat - make people  
mature faster  
↓

### The Endocrine System



The Endocrine System is the body's "slow" chemical communication system. Communication is carried out by hormones synthesized by a set of glands.

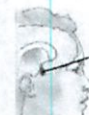
### Hormones

Hormones are chemicals synthesized by the endocrine glands that are secreted in the bloodstream. Hormones affect the brain and many other tissues of the body.

For example, epinephrine (adrenaline) increases heart rate, blood pressure, blood sugar and feelings of excitement during emergency situations.

### Pituitary Gland

Is called the "master gland." The anterior pituitary lobe releases hormones that regulate other glands. The posterior lobe regulates water and salt balance.



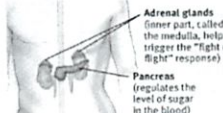
**Pituitary gland**  
(secretes many different hormones, some of which affect other glands)

Controlled by hypothalamus  
caused by gigantism + dwarfism

Adrenal glands  
(on top of kidneys)

### Adrenal Glands

Adrenal glands consist of the adrenal medulla and the cortex. The medulla secretes hormones (epinephrine and norepinephrine) during stressful and emotional situations, while the adrenal cortex regulates salt and carbohydrate metabolism.



**Adrenal glands**  
(inner part, called the medulla, helps trigger the "fight or flight" response)  
**Pancreas**  
(regulates the level of sugar in the blood)

### Gonads

Sex glands are located in different places in men and women. They regulate bodily development and maintain reproductive organs in adults.



**Testis**  
(secretes male sex hormones)  
**Ovary**  
(secretes female sex hormones)

### Thyroid & Parathyroid Glands

Regulate metabolic and calcium rate.



**Thyroid gland**  
(affects metabolism, among other things)  
**Parathyroids**  
(help regulate the level of calcium in the blood)

Some people  
w/ this - never  
get warm

need fiber  
to help digestion -  
we don't get it w/  
processed food

problem w/  
this in diabetic  
people

Link between nervous + endocrine fading

### The Brain

#### Techniques to Study the Brain

A brain lesion experimentally destroys brain tissue to study animal behaviors after such destruction.



Hubel (1990)

### Clinical Observation

Clinical observations have shed light on a number of brain disorders. Alterations in brain morphology due to neurological and psychiatric diseases are now being catalogued.



looking for  
patterns

by seeing where brain  
damaged w/ certain  
people - can tell  
where in brain  
does what

### Electroencephalogram (EEG)

An amplified recording of the electrical waves sweeping across the brain's surface, measured by electrodes placed on the scalp.



can detect where certain  
info is processed

lesion - destroy brain tissue

**PET Scan**

PET (positron emission tomography) Scan is a visual display of brain activity that detects a radioactive form of glucose while the brain performs a given task.



Shows "hot spots" where brain most active

**MRI Scan**

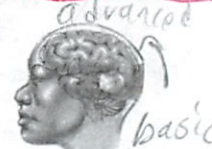
MRI (magnetic resonance imaging) uses magnetic fields and radio waves to produce computer-generated images that distinguish among different types of brain tissue. Top images show ventricular enlargement in a schizophrenic patient. Bottom image shows brain regions when a participant lies.



Use magnets to disorient electrons  
fMRI - measures blood flow

**Older Brain Structures**

The Brainstem is the oldest part of the brain, beginning where the spinal cord swells and enters the skull. It is responsible for automatic survival functions.

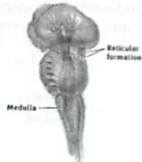


brain size kinda correlates w/ intelligence  
more advanced brain functions built on top of basic ones

Studying brain now is like Magellan exploring seas

**Brain Stem**

The Medulla [muh-DUL-uh] is the base of the brainstem that controls heartbeat and breathing.



Reticular Formation is a nerve network in the brainstem that plays an important role in controlling arousal.

could remove top half of brain + animal can still walk  
Also where crossing is without it - can live but not react to anything

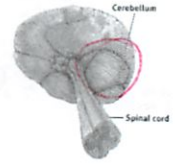
**Brain Stem**

The Thalamus [THAL-uh-muss] is the brain's sensory switchboard, located on top of the brainstem. It directs messages to the sensory areas in the cortex and transmits replies to the cerebellum and medulla.



**Cerebellum**

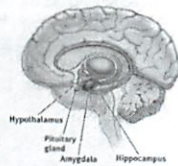
The "little brain" attached to the rear of the brainstem. It helps coordinate voluntary movements and balance.



Nonverbal learning + memory  
fine, emotions, sounds + textures  
if damaged -> hard to walk - without conscious effort

**The Limbic System**

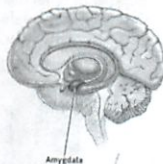
The Limbic System is a doughnut-shaped system of neural structures at the border of the brainstem and cerebrum, associated with emotions such as fear, aggression and drives for food and sex. It includes the hippocampus, amygdala, and hypothalamus.



limbus = border  
hippocampus = memory

**Amygdala**

The Amygdala [ah-MIG-dah-lah] consists of two almond-shaped neural clusters linked to the emotions of fear and anger.



if removed - animal won't get angry  
stimulate it -> animal in attack mode - if stimulus moved - could cause it to cover in fear

**Hypothalamus**

The Hypothalamus lies below (hypo) the thalamus. It directs several maintenance activities like eating, drinking, body temperature, and control of emotions. It helps govern the endocrine system via the pituitary gland.



controls pituitary gland thus hormones  
- can be area seeking rewards  
↑ do anything to do it  
can control animals  
= doesn't really work in humans



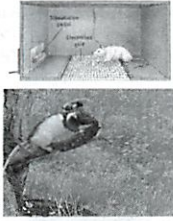
2/12/08

Study names



Reward Center

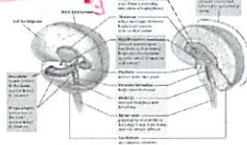
Rats cross an electrified grid for self-stimulation when electrodes are placed in the reward (hypothalamus) center (top picture). When the limbic system is manipulated, a rat will navigate fields or climb up a tree (bottom picture).



The Cerebral Cortex

The intricate fabric of interconnected neural cells that covers the cerebral hemispheres. It is the body's ultimate control and information-processing center.

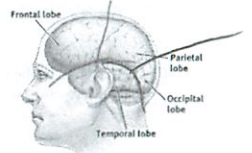
links two



back

Structure of the Cortex

Each brain hemisphere is divided into four lobes that are separated by prominent fissures. These lobes are the frontal lobe (forehead), parietal lobe (top to rear head), occipital lobe (back head) and temporal lobe (side of head).



previous slide  
↑ may be what causes addiction

larger cortexes = more adaptability

→ like mammals  
contains mostly axons - ~20 billion of them

Wrinkles = increased surface area

glial cells - support, nourish, protect neurons "glue cells" (recently found to help play role - Einstein had more than average)

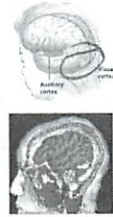
Functions of the Cortex

The Motor Cortex is the area at the rear of the frontal lobes that control voluntary movements. The Sensory Cortex (parietal cortex) receives information from skin surface and sense organs.

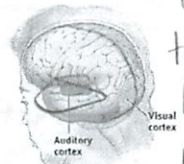


The functional MRI scan shows the visual cortex is active as the subject looks at faces.

↑ if tumor here - can't see



The functional MRI scan shows the auditory cortex is active in patients who hallucinate.



can stimulate

ringing in 1 ear is from here opposite side

Opposite sides found by stimulating certain areas of the brain  
can move stuff by thinking on computer

sensory cortex stimulate it = feeling of being touched area of brain = sensitivity

Association Areas

More intelligent animals have increased "uncommitted" or association areas of the cortex.



More intelligence w/ larger brain

integrate info → senses w/ memory

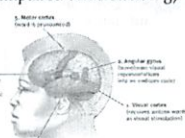
speaking, reading + writing are somewhat independent

frontal → memory, iq tests, baking, personality, morals  
parietal → math + spatial reasoning  
right temporal lobe = face recognition  
memory + language come from many brain areas

Language

Aphasia is an impairment of language, usually caused by left hemisphere damage either to Broca's area (impaired speaking) or to Wernicke's area (impaired understanding).

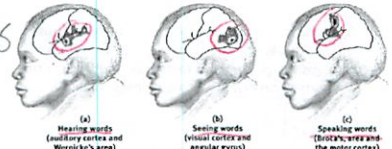
study



Specialization & Integration

Brain activity when hearing, seeing, and speaking words

5 steps



we combine info from sub areas - like a unified whole

### The Brain's Plasticity

The brain is sculpted by our genes but also by our experiences.

Plasticity refers to the brain's ability to modify itself after some type of injury or illness.

lose a finger → other fingers become more sensitive

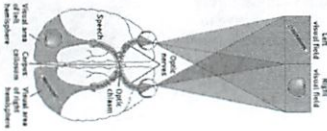
\* brain areas get reassigned

Stroking one's arm who is amputated = feeling in finger

Can we grow new brain cells?  
- some regions + medicines

### Split Brain Patients

With the corpus callosum severed, objects (apple) presented in the right visual field can be named. Objects (pencil) in the left visual field cannot.



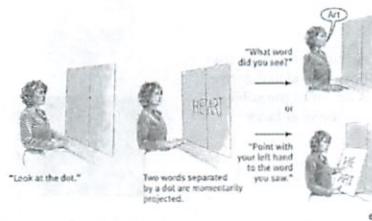
split brain people → had trouble saying what seen on 1 side (clarify) but pointed to other side

### Our Divided Brain

Our brain is divided into two hemispheres. The left hemisphere processes reading, writing, speaking, mathematics, and comprehension skills. In the 1960s, it was termed as the dominant brain.

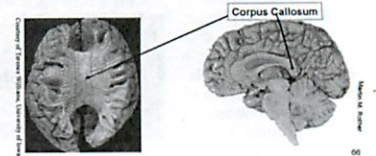
Left | Right  
Reading | Interpreter  
Writing |  
Speaking |  
Math |

### Divided Consciousness



### Splitting the Brain

A procedure in which the two hemispheres of the brain are isolated by cutting the connecting fibers (mainly those of the corpus callosum) between them.



to stop epilepsy  
- patients woke up normal

### Try This!

Try drawing one shape with your left hand and one with your right hand, simultaneously.



split brain people's brain halves can do 2 separate things at same time

### Non-Split Brains

People with intact brains also show left-right hemispheric differences in mental abilities.

A number of brain scan studies show normal individuals engage their right brain when completing a perceptual task and their left brain when carrying out a linguistic task.

40% right handed

### Brain Organization & Handedness

Is handedness inherited? Yes. Archival and historic studies, as well as modern medical studies, show that the right hand is preferred. This suggests genes and/or prenatal factors influence handedness.

handed - left handers split - speech in right + left brains  
recognize pic faster when flashed on left side → right brain

### Is it Alright to be Left Handed?

Being left handed is difficult in a right-handed world.



right left side = interpreter more active during deliberation

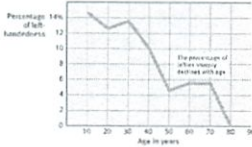
can be shown by sedating part of the brain

words opposet  
inherited  
shown in womb



## Is it Alright to be Left Handed?

The percentage of left-handed individuals decreases sharply in samples of older people (Coren, 1993).



? disappear w/ age

not really coercion

handedness rarely switches after age 8 or 9

? so what's left → lefties die earlier

- have more problems w/ health + right handed tools

On average → right handed people live 8 or 9 years longer  
but finding refuted

---

\* everything psychological is also biological

- what is consciousness

## Chap 2

- 1  **Neuroscience and behavior**  
Chapter 2
- 2  **Biological psychology**
  - Branch of psychology concern with the links between biology and behavior
- 3  **Neuron**
  - A nerve cell; the basic building block of the nervous system.
- 4  **Dendrite**
  - The bushy, branching extensions of a neuron that receives messages and conduct impulses toward the cell body.
- 5  **Axon**
  - The extension of a neuron, ending in branching terminal fibers, through which messages passed to other neurons or to muscles or glands.
- 6  **Myelin sheath**
  - A layer of fatty tissue segmentally encasing the fibers of many neuron; enables vastly greater transmission speed of neural impulses as the impulsive off from one node to the next.
- 7  **Action potential**
  - 1. And neural impulse; a brief electrical charge that troubles down an axon. The action potential is generated by the movement of positively charged atoms in an out of channels in the axon's membrane.
- 8  **Threshold**
  - The level of stimulation required to trigger a neural impulse.
- 9  **Synapse**
  - The junction between the axon tip of the sending neuron in the dendrite or cell body of the receiving neuron.
  - The tiny gap at this junction is called the synaptic gap or cleft.
- 10  **Neurotransmitters**
  - Chemical messengers that transverse the synaptic gaps between neurons.
  - One released by the sending neuron, neurotransmitters travel across a synapse and bind to receptors sites on the receiving neuron, thereby influencing whether that neuron will generate a neural impulse.
- 11  **Acetylcholine**
  - A neurotransmitter that enables learning and memory and also triggers muscle contraction.
- 12  **Endorphins**

gap

ACh



- Natural opiate like in neurotransmitters linked to pain control and to pleasure.

13  Nerves

- Neural cables containing many axons.
- These bundle axons, which are part of the peripheral nervous system, connect the central nervous system with muscles, glands, and sense organs.

14  Sensory neurons


- Neurons that carry incoming information from the sense receptors to the central nervous system.

15  Motor neurons

- Neurons that carry outgoing information from the central nervous system to the muscles and glands.

16  Interneuron's

- Central nervous system neurons that internally communicate and intervene between the sensory inputs and motor outputs.

17  Somatic nervous system

- The division of the peripheral nervous system that controls the body skeletal muscles.
- Also called the skeletal nervous system.

18  Autonomic nervous system

- The part of the peripheral nervous system that controls the glands and the muscles of the internal organs.
- It's sympathetic division arouses; it's parasympathetic division calms.

19  Parasympathetic nervous system

- The division of the autonomic nervous system that calms the body, conserving its energy.

20  Reflex

- Is simple, automatic, inborn response to a sensory stimulus, such as the knee-jerk response.

21  Neural networks

- Interconnected neural cells.
- With experience, networks can learn, as feedback strengthen or inhibits connections to produce certain results.
- Computer simulations of neural network show analogous learning.

22  Endocrine system

- The body's "slow" chemical communication system; a set of glands that secrete hormones into the bloodstream.

23  Hormones

- Chemical messengers, mostly those manufactured by the endocrine glands, that are produced in one's tissue and affect another.
- 24  Adrenal glands
- A pair of endocrine glands just above the kidneys.
  - The adrenals secrete the hormone epinephrine (adrenaline) norepinephrine (noradrenaline), which helped to arouse the body in times of stress.
- 25  Pituitary gland
- The endocrine systems most influential gland. Under the influence of the hypothalamus, the pituitary regulates growth and controls other endocrine glands. *master*
- 26  Lesion
- A brain lesion is a naturally or experimentally caused destruction of brain tissue.
- 27  Electroencephalogram (EEG)
- and amplified recording of the ways of electrical activity that sweep across the brains surface.
  - These waves are measured by electrodes placed on the scalp.
- 28  PET
- Positron Emission Tomography
  - A visual display of brain activity that detects where a radioactive form of glucose goes while the brain performs a given task.
- 29  MRI
- Magnetic resonance imaging
  - A technique that uses magnetic fields and radio waves to produce computer-generated images that distinguish among different types of soft tissue; allows us to see structures within the brain.
- 30  fMRI
- Functional magnetic resonance imaging
  - A technique for revealing blood flow and therefore, brain activity by comparing successive MRI scans.
  - MRI scans show brain anatomy; fMRI scans show brain function.
- 31  Brainstem
- The oldest part in central core of the brain, beginning where the spinal cord swells as it enters the skull; the brainstem is response for and automatic survival functions.
- 32  Medulla
- The base of the brain stem; controls heartbeat and breathing.
- 33  Reticular formation



- A nerve network in the brainstem that plays an important role in controlling arousal.

34  Thalamus

- The brain sensory switchboard, located on top of the brainstem; it directs messages to the sensory receiving areas in the cortex and transmit replies to the cerebellum and the medulla.

35  Cerebellum

- The (little brain) attached to the rear of the brainstem; its functions include processing sensory input, and coordinating movement output and balance.

36  Limbic system

- A doughnut shaped system of neural structures at the borders of the brainstem and cerebral hemispheres; associated with emotion such as the fear and aggression and drives such as those for food and sex.
- Includes a hippocampus, amygdala, the hypothalamus. *middle*

37  Amygdala

- Two lima beans size neural clusters that are components of the limbic system and are linked to emotion.

38  Hypothalamus

- A neural structure lying below the thalamus.
- It directs several maintenance activities (eating, drinking, body temperature), helps govern the endocrine system via the pituitary gland, and is linked to emotion.

39  Cerebral cortex

- The intricate fabric of interconnected neural cells that covers the cerebral hemispheres; the body's ultimate control and information processing center. *outside*

40  Glial Cells

- cells in the nervous system that support, nourished, and protect neurons.

41  Frontal lobes

- The portion of the cerebral cortex lying just behind a forehead; involved in speaking and muscle movements and in making plans and judgments.

42  Parietal lobes

- The portion of the cerebral cortex lying at the top of the head and toward the rear; receives sensory input for touch and body position.

43  Occipital lobes

- The portion of the cerebral cortex lying at the back of the head; includes visual areas, which receive visual information from the opposite visual field.

44  Temporal lobes

- A portion of the cerebral cortex lying roughly above the ears; includes the

auditory areas, each of which receives auditory information primarily from the opposite ear.

- 45  **Motor cortex**
- An area at the rear of the frontal lobes that controls voluntary movements.
- 46  **Sensory cortex**
- The area in front of parietal lobes that register and processes body touch and movement sensations.
- 47  **Association areas**
- Areas of the cerebral cortex that are not involved in primary motor or sensory functions; rather, they are involved in higher mental functions such as learning, remembering, thinking, and speaking.
- 48  **Aphasia**
- Impairment of language, usually caused by left hemisphere damage either to Broca's area (impairing speaking) or to Wernicke's area (impairing understanding).
- 49  **Broca's area**
- Controls language expression
  - An area of the frontal lobe, usually in the left hemisphere, that directs the muscle movements involved in speech.
- 50  **Wernicke's area**
- Controls language reception – a brain area involved in language comprehension expression; visually in the left temporal lobe. *Understand*
- 51  **Plasticity**
- The brain's capacity for modification, as evident in brain reorganization following damage (especially in children) and in experiments on the effects of experience on brain development.
- 52  **Corpus Callosum**
- The large band of neural fibers connecting the two brain hemispheres and carrying messages between them.
- 53  **Split brain**
- A condition in which two hemispheres of the brain are isolated by cutting the connecting fibers [mainly those of the corpus callosum] between them.



## Neural Communication (pp. 54–61)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to pages 68–69 for an explanation: *happy fact of nature*; *building blocks*; *a sluggish 2 miles per hour to . . . a breakneck 200 or more miles*; *rather like manhole covers flipping open*; *boggles*; *somewhat like pushing a neuron's accelerator . . . more like pushing its brake*; *How do we distinguish a gentle touch from a big hug*; *"protoplasmic kisses"*; *"runner's high"*; *They trigger unpleasant, lingering aftereffects*; *Agonists excite . . . Antagonists inhibit*; *some chemicals can slither through this (blood-brain) barrier.*

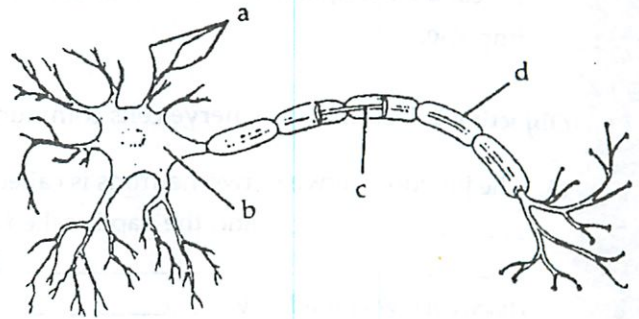
**Objective 2:** Explain how viewing each person as a biopsychosocial system helps us understand human behavior, and discuss why researchers study other animals in search of clues to human neural processes.

1. We are each a \_\_\_\_\_ system, composed of \_\_\_\_\_ that are parts of larger \_\_\_\_\_, which are parts of an even larger \_\_\_\_\_.
2. Viewing each person in this way allows psychologists to study behavior and mental processes from multiple levels, noting how \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ systems work and interact.

**Objective 3:** Describe the parts of a neuron, and explain how its impulses are generated.

3. Our body's neural system is built from billions of nerve cells, or \_\_\_\_\_.
4. The extensions of a neuron that receive messages from other neurons are the \_\_\_\_\_.
5. The extension of a neuron that transmits information to other neurons is the \_\_\_\_\_; some of these extensions are insulated by a layer of fatty cells called the \_\_\_\_\_, which helps speed the neuron's impulses.

6. Identify the major parts of the neuron diagrammed below:



- a. \_\_\_\_\_ c. \_\_\_\_\_  
b. \_\_\_\_\_ d. \_\_\_\_\_

7. The neural impulse, or \_\_\_\_\_, is a brief electrical charge that travels down a(n) \_\_\_\_\_.
8. The fluid interior of a resting axon carries mostly \_\_\_\_\_ (positively/negatively) charged ions, while the fluid outside has mostly \_\_\_\_\_ (positively/negatively) charged ions. This polarization, called the \_\_\_\_\_, occurs because the cell membrane is \_\_\_\_\_.
9. An action potential occurs when the first part of the axon opens its gates and \_\_\_\_\_ (positively/negatively) charged ions rush in, causing that part of the neuron to become \_\_\_\_\_.
10. During the resting pause following an action potential, called the \_\_\_\_\_, the neuron pumps \_\_\_\_\_ (positively/negatively) charged ions outside the cell.
11. In order to trigger a neural impulse, \_\_\_\_\_ signals minus \_\_\_\_\_ signals must exceed a certain intensity, called the \_\_\_\_\_. Increasing a stimulus above this level \_\_\_\_\_ (will/will not) increase the neural impulse's intensity. This phenomenon is called an \_\_\_\_\_ response.



12. The strength of a stimulus \_\_\_\_\_ (does/does not) affect the speed of a neural impulse.

**Objective 4:** Describe how nerve cells communicate.

13. The junction between two neurons is called a \_\_\_\_\_, and the gap is called the \_\_\_\_\_. This discovery was made by \_\_\_\_\_.
14. The chemical messengers that convey information across the gaps between neurons are called \_\_\_\_\_. These chemicals unlock tiny channels on receptor sites, allowing electrically charged atoms (\_\_\_\_\_) to enter the neuron.
15. Neurotransmitters influence neurons either by \_\_\_\_\_ or \_\_\_\_\_ their readiness to fire. Excess neurotransmitters are reabsorbed by the sending neuron in a process called \_\_\_\_\_.

Outline the sequence of reactions that occur when a neural impulse is generated and transmitted from one neuron to another.

**Objective 5:** Explain how neurotransmitters affect behavior, and outline the effects of acetylcholine and the endorphins.

16. Among the neurotransmitters that researchers have pinpointed are \_\_\_\_\_, which

influences movement, learning, attention, and emotion; \_\_\_\_\_, which affects mood, hunger, sleep, and arousal; \_\_\_\_\_, which helps control alertness and arousal; \_\_\_\_\_, which is an inhibitory neurotransmitter whose undersupply is linked to seizures, tremors, and insomnia; and \_\_\_\_\_, which is involved in memory.

17. A neurotransmitter that is important in muscle contraction is \_\_\_\_\_.
18. Naturally occurring opiatelike neurotransmitters that are present in the brain are called \_\_\_\_\_. When the brain is flooded with drugs such as \_\_\_\_\_ or \_\_\_\_\_, it may stop producing these neurotransmitters.

**Objective 6:** Explain how drugs and other chemicals affect neurotransmission, and describe the contrasting effects of agonists and antagonists.

19. Drugs that produce their effects by mimicking neurotransmitters are called \_\_\_\_\_. Drugs that block the effects of neurotransmitters by occupying their \_\_\_\_\_ are called \_\_\_\_\_. While certain \_\_\_\_\_ drugs create a temporary "high" by mimicking the endorphins, the poison \_\_\_\_\_ produces paralysis by blocking the activity of the neurotransmitter ACh.
20. The molecular shape of some drugs prevents them from passing through the \_\_\_\_\_ by which the brain fences out unwanted chemicals.
21. The tremors of \_\_\_\_\_ disease are due to the death of neurons that produce the neurotransmitter \_\_\_\_\_. People with this condition can be helped to regain control over their muscles by taking \_\_\_\_\_.



## The Nervous System (pp. 61–65)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to pages 69–70 for an explanation: *Like an automatic pilot, this system may be consciously overridden; yield an ever-changing wiring diagram that dwarfs a powerful computer; information highway; The knee-jerk response . . . a headless warm body could do it; Being human takes a lot of nerve; work groups.*

**Objective 7:** Describe the nervous system's two major divisions, and identify the three types of neurons that transmit information through the system.

1. Taken altogether, the neurons of the body form the \_\_\_\_\_.
2. The brain and spinal cord comprise the \_\_\_\_\_ nervous system. The neurons that link the brain and spinal cord to the body's sense receptors, muscles, and glands form the \_\_\_\_\_ nervous system.
3. Sensory and motor axons are bundled into electrical cables called \_\_\_\_\_.
4. Information arriving in the central nervous system from the body travels in \_\_\_\_\_ neurons. The neurons that enable internal communication within the central nervous system are called \_\_\_\_\_.
5. The central nervous system sends instructions to the body's tissues by means of \_\_\_\_\_ neurons.

**Objective 8:** Identify the subdivisions of the peripheral nervous system, and describe their functions.

6. The division of the peripheral nervous system that enables voluntary control of the skeletal muscles is the \_\_\_\_\_ nervous system.
7. Involuntary, self-regulating responses—those of the glands and muscles of internal organs—are controlled by the \_\_\_\_\_ nervous system.
8. The body is made ready for action by the

\_\_\_\_\_ division of the autonomic nervous system.

9. The \_\_\_\_\_ division of the autonomic nervous system produces relaxation.

Describe and explain the sequence of physical reactions that occur in the body as an emergency is confronted and then passes.

**Objective 9:** Contrast the simplicity of the reflex pathways with the complexity of neural networks.

10. Automatic responses to stimuli, called \_\_\_\_\_, illustrate the work of the \_\_\_\_\_. Simple pathways such as these are involved in the \_\_\_\_\_ response and in the \_\_\_\_\_ reflex.

Beginning with the sensory receptors in the skin, trace the course of a spinal reflex as a person reflexively jerks his or her hand away from an unexpectedly hot burner on a stove.

11. To perform complex computations, neurons in the brain cluster into work groups called \_\_\_\_\_.

## The Endocrine System (pp. 65–67)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to page 70 for an explanation: *kindred systems; Conducting and coordinating this whole electrochemical orchestra is that maestro we call the brain.*

**Objective 10:** Describe the nature and functions of the endocrine system and its interaction with the nervous system.

1. The body's chemical communication network is called the \_\_\_\_\_.



- This system transmits information through chemical messengers called \_\_\_\_\_ at a much \_\_\_\_\_ (faster/slower) rate than the nervous system, and its effects last \_\_\_\_\_ (a longer time/a shorter time).
- In a moment of danger, the \_\_\_\_\_ glands release \_\_\_\_\_ and \_\_\_\_\_.
  - The most influential gland is the \_\_\_\_\_, which, under the control of an adjacent brain area called the \_\_\_\_\_, helps regulate \_\_\_\_\_ and the release of hormones by other endocrine glands.

Write a paragraph describing the feedback system that links the nervous and endocrine systems.

**Objective 11:** Describe several techniques for studying the brain.

- Researchers sometimes study brain function by producing \_\_\_\_\_ or by selectively destroying brain cells. The oldest technique for studying the brain involves \_\_\_\_\_ of patients with brain injuries or diseases.
- The \_\_\_\_\_ is a recording of the electrical activity of the whole brain.
- The technique depicting the level of activity of brain areas by measuring the brain's consumption of glucose is called the \_\_\_\_\_.

Briefly explain the purpose of the PET scan.

### The Brain (pp. 67-92)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to pages 70-72 for an explanation: *we live in our heads; neural cartographers; snoop on the messages . . . and eavesdrop on the chatter of billions of neurons; the right side of the body is wired to . . . ; Newer windows into the brain . . . Supermanlike; snapshots of the brain's changing activity provide . . . divides its labor; This peculiar cross-wiring is but one of many surprises the brain has to offer; . . . what London is to England's trains; the doughnut-shaped limbic system; reduced fits of rage; magnificent mistake; wrinkled organ, shaped somewhat like the meat of an oversized walnut; neural nannies; spine-tingling thrills; eyes in the back of our head; most widespread falsehoods; frontal lobes ruptured . . . Gage's moral compass; What you experience as . . . the visible tip of the information-processing iceberg; one patient even managed to quip that he had a "splitting headache"; When the "two minds" are at odds; pretzel-shaped finding . . . breadstick-shaped story; appear alike to the naked eye . . . harmony of the whole; southpaws; dwarfs.*

- A technique that produces clearer images of the brain by using magnetic fields and radio waves is known as \_\_\_\_\_.
- By taking pictures less than a second apart, the \_\_\_\_\_ detects blood rushing to the part of the cortex thought to control the bodily activity being studied. Using this technique, researchers found that activity increases in the \_\_\_\_\_ when people experience conflicting \_\_\_\_\_.

**Objective 12:** Describe the components of the brainstem, and summarize the functions of the brainstem, thalamus, and cerebellum.

- The oldest and innermost region of the brain is the \_\_\_\_\_.



7. At the base of the brainstem, where the spinal cord enters the skull, lies the \_\_\_\_\_, which controls \_\_\_\_\_ and \_\_\_\_\_. Just above this part is the \_\_\_\_\_, which helps coordinate movements.
8. Nerves from each side of the brain cross over to connect with the body's opposite side in the \_\_\_\_\_.
9. The \_\_\_\_\_ is contained inside the brainstem and plays an important role in controlling \_\_\_\_\_. Electrically stimulating this area will produce an \_\_\_\_\_ animal. Lesioning this area will cause an animal to lapse into a \_\_\_\_\_.
10. At the top of the brainstem sits the \_\_\_\_\_, which serves as the brain's sensory switchboard, receiving information from all the senses except \_\_\_\_\_ and routing it to the regions dealing with those senses. These egg-shaped structures also receive replies from the higher regions, which they direct to the \_\_\_\_\_ and the \_\_\_\_\_.
11. At the rear of the brainstem lies the \_\_\_\_\_. It influences one type of \_\_\_\_\_ and memory, but its major function is coordination of voluntary movement and \_\_\_\_\_ control.
12. The lower brain functions occur without \_\_\_\_\_ effort, indicating that our brains process most information \_\_\_\_\_ (inside/outside) of our awareness.

**Objective 13:** Describe the structures and functions of the limbic system, and explain how one of these structures controls the pituitary gland.

13. Between the brainstem and cerebral hemispheres is the \_\_\_\_\_ system. One component of this system that processes memory is the \_\_\_\_\_.

14. Aggression or fear will result from stimulation of different regions of the \_\_\_\_\_.
15. Amygdala lesions, produced by \_\_\_\_\_ techniques, have been used to treat violent humans. This treatment is controversial and \_\_\_\_\_ (widely/seldom) used today.
16. Below the thalamus is the \_\_\_\_\_, which regulates bodily maintenance behaviors such as \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. This area also regulates behavior by secreting \_\_\_\_\_ that enable it to control the \_\_\_\_\_ gland. Olds and Milner discovered that this region also contains \_\_\_\_\_ centers, which animals will work hard to have stimulated.
17. Some researchers believe that alcoholism, drug abuse, binge eating, and other \_\_\_\_\_ disorders may stem from a genetic \_\_\_\_\_ in the natural brain systems for pleasure and well-being.

**Objective 14:** Define *cerebral cortex*, and explain its importance to the human brain.

18. The most complex functions of human behavior are linked to the most developed part of the brain, the \_\_\_\_\_. This thin layer of interconnected neural cells is the body's ultimate control and \_\_\_\_\_ center.

**Objective 15:** Identify the four lobes of the cerebral cortex.

19. The non-neural cells that support, protect, and nourish cortical neurons are called \_\_\_\_\_. New evidence suggests that these cells may also play a role in \_\_\_\_\_ and \_\_\_\_\_.



20. Compared to the cortexes of lower mammals, the human cortex has a \_\_\_\_\_ (smoother/more wrinkled) surface. This \_\_\_\_\_ (increases/decreases) the overall surface area of our brains.

21. List the four lobes of the brain.

- a. \_\_\_\_\_ c. \_\_\_\_\_  
b. \_\_\_\_\_ d. \_\_\_\_\_

**Objective 16:** Summarize some of the findings on the functions of the motor cortex and the sensory cortex, and discuss the importance of the association areas.

22. Electrical stimulation of one side of the \_\_\_\_\_ cortex, an arch-shaped region at the back of the \_\_\_\_\_ lobe, will produce movement on the opposite side of the body. The more precise the control needed, the \_\_\_\_\_ (smaller/greater) amount of cortical space occupied.

Research findings from studies involving \_\_\_\_\_, in which recording electrodes are implanted in this area of animals' brains, raise hopes that people who are \_\_\_\_\_ may one day be able to control machines directly with their \_\_\_\_\_.

23. At the front of the parietal lobes lies the \_\_\_\_\_ cortex, which, when stimulated, elicits a sensation of \_\_\_\_\_.

24. The more sensitive a body region, the greater the area of \_\_\_\_\_ devoted to it.

25. Visual information is received in the \_\_\_\_\_ lobes, whereas auditory information is received in the \_\_\_\_\_ lobes.

26. Areas of the brain that don't receive sensory information or direct movement but, rather, integrate and interpret information received by other regions are known as \_\_\_\_\_. Approximately \_\_\_\_\_

\_\_\_\_\_ of the human cortex is of this type. Such areas in the \_\_\_\_\_ lobe are involved in judging and planning, and in some aspects of personality. In the \_\_\_\_\_ lobe, these areas enable mathematical and spatial reasoning, and an area of the \_\_\_\_\_ lobe enables us to recognize faces.

**Objective 17:** Describe the five brain areas that would be involved if you read this sentence aloud.

27. Brain injuries may produce an impairment in language use called \_\_\_\_\_. Studies of people with such impairments have shown that \_\_\_\_\_ is involved in producing speech, \_\_\_\_\_ is involved in understanding speech, and the \_\_\_\_\_ is involved in recoding printed words into auditory form.

28. Although the mind's subsystems are localized in particular brain regions, the brain acts as a \_\_\_\_\_.

**Objective 18:** Discuss the brain's plasticity following injury or illness.

29. The quality of the brain that makes it possible for undamaged brain areas to take over the functions of damaged regions is known as \_\_\_\_\_. This quality is especially apparent in the brains of \_\_\_\_\_ (young children/adolescents/adults).

30. Although most severed neurons \_\_\_\_\_ (will/will not) regenerate, neural tissue can \_\_\_\_\_ in response to damage. New evidence suggests that adult mice and humans \_\_\_\_\_ (can/cannot) generate new brain cells in two older brain regions; research also reveals the existence of master \_\_\_\_\_ cells in the developing fetal brain that can develop into any type of brain cell.



**Objective 19:** Describe split-brain research, and explain how it helps us understand the functions of our left and right hemispheres.

31. Because damage to it will impair language and understanding, the \_\_\_\_\_ hemisphere came to be known as the \_\_\_\_\_ hemisphere.
32. In treating several patients with severe epilepsy, Vogel and Bogen separated the two hemispheres of the brain by cutting the \_\_\_\_\_. When this structure is severed, the result is referred to as a \_\_\_\_\_.
33. In a split-brain patient, only the \_\_\_\_\_ hemisphere will be aware of an unseen object held in the left hand. In this case, the person would not be able to \_\_\_\_\_ the object. When different words are shown in the left and right visual fields, if the patient fixates on a point on the center line between the fields, the patient will be able to say only the word shown on the \_\_\_\_\_.

Explain why a split-brain patient would be able to read aloud the word *pencil* flashed to his or her right visual field, but would be unable to identify a pencil by touch using only the left hand.

flashed to the \_\_\_\_\_ (right/left) hemisphere, whereas words are recognized faster and more accurately when flashed to the \_\_\_\_\_ (right/left) hemisphere.

36. Deaf people use the \_\_\_\_\_ hemisphere to process sign language.

**Objective 20:** Discuss the relationships among brain organization, handedness, and mortality.

37. In all cultures of the world, most of the human population is \_\_\_\_\_ (right/left)-handed. Genetic factors \_\_\_\_\_ (play/do not play) a role in handedness. This handedness bias is unique to humans and to our nearest \_\_\_\_\_ relatives.
38. With age, the percentage of left-handers \_\_\_\_\_ (increases/decreases). One controversial explanation of this difference is that \_\_\_\_\_ (right/left)-handers die at a younger age than their counterparts.

Identify several health risks that left-handers are more likely to have experienced.

# Chap 2

## Words

2/12

corpus callosum  
cross brain theory  
plasticity

Broca's area

Association areas

Sensory cortex

limbic system

angular gyrus

occipital lobe

parietal lobe

motor cortex

brainstem

reticular formation

medulla

hypothalamus

thalamus

adrenal glands

thyroid

pancreas

endocrine

MRI

EEG

Pet scan

brain lesion

oldest to newest brain regions

neural network

hormones

peripheral nervous system

sympathetic " "

parasympathetic " "

all or one response pattern



Synapse  
endorphins

axons

biological psychology

myelin sheath

action potential



1. Which of the following was a major problem with phrenology?

- A) It was "ahead of its time" and no one believed it could be true.
- B) The brain is not neatly organized into structures that correspond to our categories of behavior.
- C) The brains of humans and animals are much less similar than the theory implied.
- D) All of the above were problems with phrenology.

Ans: B  
Page: 54

2. A biological psychologist would be *more* likely to study:

- A) how you learn to express emotions.
- B) how to help people overcome emotional disorders.
- C) life-span changes in the expression of emotion.
- D) the chemical changes that accompany emotions.

Ans: D  
Page: 54

3. Dr. Hernandez is studying neurotransmitter abnormalities in depressed patients. She would most likely describe herself as a:

- A) personality psychologist.
- B) phrenologist.
- C) psychoanalyst.
- D) biological psychologist.

Ans: D  
Page: 54

4. The axons of certain neurons are covered by a layer of fatty tissue that helps speed neural transmission. This tissue is:

- A) the glia.
- B) the myelin sheath.
- C) acetylcholine.
- D) an endorphin.

Ans: B  
Page: 55

5. The myelin sheath that is on some neurons:

- A) increases the speed of neural transmission.
- B) slows neural transmission.
- C) regulates the release of neurotransmitters.
- D) does a. and c.

Ans: A  
Page: 55

6. During an action potential, the electrical state of the axon becomes:

- A) polarized, as positively charged atoms are admitted.
- B) polarized, as negatively charged atoms are admitted.
- C) depolarized, as positively charged atoms are admitted.
- D) depolarized, as negatively charged atoms are admitted.

Ans: C  
Page: 55-56

7. In a resting state, the axon is:

- A) depolarized, with mostly negatively charged ions outside and positively charged ions inside.
- B) depolarized, with mostly positively charged ions outside and negatively charged ions inside.
- C) polarized, with mostly negatively charged ions outside and positively charged ions inside.
- D) polarized, with mostly positively charged ions outside and negatively charged ions inside.

Ans: D  
Page: 55-56

8. Which is the correct sequence in the transmission of a neural impulse?

- A) axon → dendrite → cell body → synapse
- B) dendrite → axon → cell body → synapse
- C) synapse → axon → dendrite → cell body
- D) dendrite → cell body → axon → synapse

Ans: D  
Page: 55-57

9. A neuron will generate action potentials more often when it:

- A) remains below its threshold.
- B) receives an excitatory input.
- C) receives more excitatory than inhibitory inputs.
- D) is stimulated by a neurotransmitter.

Ans: C  
Page: 56

above threshold



10. A strong stimulus can increase the:
- A) speed of the impulse the neuron fires.
  - B) intensity of the impulse the neuron fires.
  - C) number of times the neuron fires.
  - D) threshold that must be reached before the neuron fires.

Ans: C  
Page: 56

11. Several shy neurons send an inhibitory message to neighboring neuron Joni. At the same time, a larger group of party-going neurons send Joni excitatory messages. What will Joni do?

- A) fire, assuming that her threshold has been reached
- B) not fire, even if her threshold has been reached
- C) enter a refractory period
- D) become hyperpolarized

Ans: A  
Page: 56

12. Since Malcolm has been taking a drug prescribed by his doctor, he no longer enjoys the little pleasures of life, such as eating and drinking. His doctor explains that this is because the drug:

- A) triggers release of dopamine.
- B) inhibits release of dopamine.
- C) triggers release of ACh.
- D) inhibits release of ACh.

Ans: B  
Page: 58, 74

13. The neurotransmitter acetylcholine (ACh) is most likely to be found:

- A) at the junction between sensory neurons and muscle fibers.
- B) at the junction between motor neurons and muscle fibers.
- C) at junctions between interneurons.
- D) in all of the above locations.

Ans: B  
Page: 58

14. Melissa has just completed running a marathon. She is so elated that she feels little fatigue or discomfort. Her lack of pain is probably the result of

the release of:

- A) ACh.
- B) endorphins.
- C) dopamine.
- D) norepinephrine.

Ans: B  
Page: 59

15. The pain of heroin withdrawal may be attributable to the fact that:

- A) under the influence of heroin the brain ceases production of endorphins.
- B) under the influence of heroin the brain ceases production of all neurotransmitters.
- C) during heroin withdrawal the brain's production of all neurotransmitters is greatly increased.
- D) heroin destroys endorphin receptors in the brain.

Ans: A  
Page: 59

16. The effect of a drug that is an agonist is to:

- A) cause the brain to stop producing certain neurotransmitters.
- B) mimic a particular neurotransmitter.
- C) block a particular neurotransmitter.
- D) disrupt a neuron's all-or-none firing pattern.

Ans: B  
Page: 59-60

17. Parkinson's disease involves:

- A) the death of nerve cells that produce a vital neurotransmitter.
- B) impaired function in the right hemisphere only.
- C) impaired function in the left hemisphere only.
- D) excess production of the neurotransmitters dopamine and acetylcholine.

Ans: A  
Page: 60

18. Heartbeat, digestion, and other self-regulating bodily functions are governed by the:

- A) voluntary nervous system.
- B) autonomic nervous system.
- C) sympathetic division of the autonomic nervous system.
- D) somatic nervous system.

2



Ans: B  
Page: 62

19. Voluntary movements, such as writing with a pencil, are directed by the:

- A) sympathetic nervous system.
- B) somatic nervous system.
- C) parasympathetic nervous system.
- D) autonomic nervous system.

Ans: B  
Page: 62

20. Following Jayshree's near-fatal car accident, her physician noticed that the pupillary reflex of her eyes was abnormal. This may indicate that Jayshree's \_\_\_\_\_ was damaged in the accident.

- A) occipital cortex
- B) autonomic nervous system
- C) left temporal lobe
- D) cerebellum

Ans: B  
Page: 62

21. Your brother has been taking prescription medicine and experiencing a number of unpleasant side effects, including unusually rapid heartbeat and excessive perspiration. It is likely that the medicine is exaggerating activity in the:

- A) reticular formation.
- B) sympathetic nervous system.
- C) parasympathetic nervous system.
- D) amygdala.

Ans: B  
Page: 62

22. When Sandy scalded her toe in a tub of hot water, the pain message was carried to her spinal cord by the \_\_\_\_\_ nervous system.

- A) somatic
- B) sympathetic
- C) parasympathetic
- D) central

Ans: A  
Page: 62

23. Which is the correct sequence in the transmission of a simple reflex?

- A) sensory neuron → interneuron → sensory neuron
- B) interneuron → motor neuron → sensory neuron
- C) sensory neuron → interneuron → motor neuron
- D) interneuron → sensory neuron → motor neuron

Ans: C  
Page: 63

24. Which of the following are/is governed by the simplest neural pathways?

- A) emotions
- B) physiological drives, such as hunger
- C) reflexes
- D) movements, such as walking

Ans: C  
Page: 63

25. You are able to pull your hand quickly away from hot water before pain is felt because:

- A) movement of the hand is a reflex that involves intervention of the spinal cord only.
- B) movement of the hand does not require intervention by the central nervous system.
- C) the brain reacts quickly to prevent severe injury.
- D) the autonomic division of the peripheral nervous system intervenes to speed contraction of the muscles of the hand.

Ans: A  
Page: 63

26. In the brain, learning occurs as experience strengthens certain connections in cell work groups called:

- A) action potentials.
- B) neural networks.
- C) endocrine systems.
- D) dendrites.

Ans: B  
Page: 64

27. Chemical messengers produced by endocrine glands are called:

- A) agonists.
- B) neurotransmitters.
- C) hormones.

3



- B) parietal lobes
- C) temporal lobes
- D) occipital lobes

Ans: A  
Page: 77

46. Research has found that the amount of representation in the motor cortex reflects the:
- A) size of the body parts.
  - B) degree of precise control required by each of the parts.
  - C) sensitivity of the body region.
  - D) area of the occipital lobe being stimulated by the environment.

Ans: B  
Page: 77-78

47. In order to pinpoint the location of a tumor, a neurosurgeon electrically stimulated parts of the patient's sensory cortex. If the patient was conscious during the procedure, which of the following was probably experienced?

- A) "hearing" faint sounds
- B) "seeing" random visual patterns
- C) movement of the arms or legs
- D) a sense of having the skin touched

Ans: D  
Page: 78

48. Cortical areas that are not primarily concerned with sensory, motor, or language functions are:

- A) called projection areas.
- B) called association areas.
- C) located mostly in the parietal lobe.
- D) located mostly in the temporal lobe.

Ans: B  
Page: 79

49. The increasing complexity of animals' behavior was accompanied by a(n):

- A) increase in the size of the brainstem.
- B) decrease in the ratio of brain to body weight.
- C) increase in the size of the frontal lobes.
- D) increase in the amount of association area.

Ans: D

Page: 79

50. Following a nail gun wound to his head, Jack became more uninhibited, irritable, dishonest, and profane. It is likely that his personality change was the result of injury to his:

- A) parietal lobe.
- B) temporal lobe.
- C) occipital lobe.
- D) frontal lobe.

Ans: D  
Page: 80

51. Damage to \_\_\_\_\_ will usually cause a person to lose the ability to comprehend language.

- A) the angular gyrus
- B) Broca's area
- C) Wernicke's area
- D) frontal lobe association areas

Ans: C  
Page: 81

52. Three-year-old Marco suffered damage to the speech area of the brain's ~~left hemisphere~~ when he fell from a swing. Research suggests that:

- A) he will never speak again.
- B) his motor abilities may improve so that he can easily use sign language.
- C) his right hemisphere may take over much of the language function.
- D) his earlier experience with speech may enable him to continue speaking.

Ans: C  
Page: 82

53. The nerve fibers that enable communication between the right and left cerebral hemispheres and that have been severed in split-brain patients form a structure called the:

- A) reticular formation.
- B) association areas.
- C) corpus callosum.
- D) parietal lobes.

Ans: C  
Page: 84

6



37. Moruzzi and Magoun caused a cat to lapse into a coma by severing neural connections between the cortex and the:

- A) reticular formation.
- B) hypothalamus.
- C) thalamus.
- D) cerebellum.

*← what is this?  
- controls arousal  
- relays important info*

Ans: A  
Page: 71

38. Jessica experienced difficulty keeping her balance after receiving a blow to the back of her head. It is likely that she injured her:

- A) medulla.
- B) thalamus.
- C) hypothalamus.
- D) cerebellum.

*← heart beat & breathing*

Ans: D  
Page: 72

39. Dr. Frankenstein made a mistake during neurosurgery on his monster. After the operation, the monster "saw" with his ears and "heard" with his eyes. It is likely that Dr. Frankenstein "rewired" neural connections in the monster's:

- A) hypothalamus.
- B) cerebellum.
- C) amygdala.
- D) thalamus.

*← switch board*

Ans: D  
Page: 72

40. Though there is no single "control center" for emotions, their regulation is primarily attributed to the brain region known as the:

- A) limbic system.
- B) reticular formation.
- C) brainstem.
- D) cerebellum.

Ans: A  
Page: 72

41. A scientist from another planet wishes to study the simplest brain mechanisms underlying emotion and memory. You recommend that the scientist study

the:

- A) brainstem of a frog.
- B) limbic system of a dog.
- C) cortex of a monkey.
- D) cortex of a human.

Ans: B  
Page: 72

42. If Dr. Rogers wishes to conduct an experiment on the effects of stimulating the reward centers of a rat's brain, he should insert an electrode into the:

- A) thalamus.
- B) sensory cortex.
- C) hypothalamus.
- D) corpus callosum.

*- maintenance activities*

Ans: C  
Page: 73

43. Beginning at the front of the brain and moving toward the back of the head, then down the skull and back around to the front, which of the following is the correct order of the cortical regions?

- A) occipital lobe; temporal lobe; parietal lobe; frontal lobe
- B) temporal lobe; frontal lobe; parietal lobe; occipital lobe
- C) frontal lobe; occipital lobe; temporal lobe; parietal lobe
- D) frontal lobe; parietal lobe; occipital lobe; temporal lobe

Ans: D  
Page: 76

44. The visual cortex is located in the:

- A) occipital lobe.
- B) temporal lobe.
- C) frontal lobe.
- D) parietal lobe.

Ans: A  
Page: 76

45. Raccoons have much more precise control of their paws than dogs do. You would expect that raccoons have more cortical space dedicated to "paw control" in the \_\_\_\_\_ of their brains.

- A) frontal lobes

*back of*

*5*



D) enzymes.

Ans: C  
Page: 65

28. I am a relatively slow-acting (but long-lasting) chemical messenger carried throughout the body by the bloodstream. What am I?

- A) a hormone
- B) a neurotransmitter
- C) acetylcholine
- D) dopamine

Ans: A  
Page: 65

29. The gland that regulates body growth is the:

- A) adrenal.
- B) thyroid.
- C) hypothalamus.
- D) pituitary.

Ans: D  
Page: 66

30. Epinephrine and norepinephrine are \_\_\_\_\_ that are released by the \_\_\_\_\_ gland.

- A) neurotransmitters; pituitary
- B) hormones; pituitary
- C) neurotransmitters; thyroid
- D) hormones; adrenal

Ans: D  
Page: 66

31. A bodybuilder friend suddenly seems to have grown several inches in height. You suspect that your friend's growth spurt has occurred because he has been using drugs that affect the:

- A) pituitary gland.
- B) thalamus.
- C) adrenal glands.
- D) medulla.

Ans: A  
Page: 66

32. The brain research technique that involves monitoring the brain's usage of glucose is called (in abbreviated form) the:

- A) PET scan. *radioactive*
- B) fMRI.
- C) EEG.
- D) MRI.

Ans: A  
Page: 69

33. The technique that uses magnetic fields and radio waves to produce computer images of structures within the brain is called:

- A) the EEG.
- B) a lesion.
- C) a PET scan.
- D) MRI.

Ans: D  
Page: 69

34. In primitive vertebrate animals, the brain primarily regulates \_\_\_\_\_; in lower mammals, the brain enables \_\_\_\_\_.

- A) emotion; memory
- B) memory; emotion
- C) survival functions; emotion
- D) reproduction; emotion

Ans: C  
Page: 70

35. The part of the human brain that is most like that of a fish is the:

- A) cortex.
- B) limbic system.
- C) brainstem.
- D) right hemisphere.

Ans: C  
Page: 70

36. Following a head injury, a person has ongoing difficulties staying awake. Most likely, the damage occurred to the:

- A) thalamus.
- B) corpus callosum.
- C) reticular formation.
- D) cerebellum.

Ans: C  
Page: 71

(4)

54. A split-brain patient has a picture of a knife flashed to her left hemisphere and that of a fork to her right hemisphere. She will be able to:
- A) identify the fork using her left hand.
  - B) identify a knife using her left hand.
  - C) identify a knife using either hand.
  - D) identify a fork using either hand.

Ans: A  
Page: 84-85

55. Dr. Johnson briefly flashed a picture of a key in the right visual field of a split-brain patient. The patient could probably:
- on left brain*
- A) verbally report that a key was seen.
  - B) write the word *key* using the left hand.
  - C) draw a picture of a key using the left hand.
  - D) do none of the above.

Ans: A  
Page: 85

56. (Thinking Critically) Based on research, which of the following seems true about the specialized functions of the right and left hemispheres?
- A) They are more clear-cut in men than in women.
  - B) They are more clear-cut in women than in men.
  - C) Most complex tasks emerge from the activity of one or the other hemisphere.
  - D) Most complex activities emerge from the integrated activity of both hemispheres.

Ans: D  
Page: 87

57. Which of the following is typically controlled by the right hemisphere?
- A) language
  - B) learned voluntary movements
  - C) arithmetic reasoning
  - D) perceptual tasks

Ans: D  
Page: 88

58. Anton is applying for a technician's job with a neurosurgeon. In trying to impress his potential employer with his knowledge of the brain, he says, "After my father's stroke I knew immediately that the blood clot had affected his left cerebral hemisphere

because he no longer recognized a picture of his friend." Should Anton be hired?

- A) Yes. Anton obviously understands brain structure and function.
- B) No. The right hemisphere, not the left, specializes in picture recognition.
- C) Yes. Although blood clots never form in the left hemisphere, Anton should be rewarded for recognizing the left hemisphere's role in picture recognition.
- D) No. Blood clots never form in the left hemisphere, and the right hemisphere is more involved than the left in recognizing pictures.

Ans: B  
Page: 88

59. Which of the following is typically controlled by the left hemisphere?
- A) spatial reasoning
  - B) word recognition
  - C) the left side of the body
  - D) perceptual skills

Ans: B  
Page: 88

60. Which of the following is *not* true regarding brain organization and handedness?
- A) If a person has a left-handed identical twin, odds are that he or she will also be left-handed.
  - B) Right-handedness is far more common than left-handedness throughout the world.
  - C) On average, right-handers live longer than left-handers.
  - D) Left-handers are more common than usual among people with reading disabilities.

Ans: A  
Page: 89-90

*never heard that - but its only 1 left*

*Study brain sides*  
*left = dominant (right side)*

*8*



# Chap 3

2/11

**PSYCHOLOGY**  
(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

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## Nature, Nurture, and Human Diversity

### Chapter 3

### Nature, Nurture, and Human Diversity

#### Behavior Genetics: Predicting Individual Differences

- Genes: Our Codes for Life
- Twin Studies
- Temperament Studies
- Heritability
- Gene-Environment Interaction
- The New Frontier: Molecular Genetics

We are very similar + very different

- is it because nature (how we were born) or nurture (how we were raised)

### Nature, Nurture, and Human Diversity

#### Evolutionary Psychology: Understanding Human Nature

- Natural Selection
- An Evolutionary Explanation of Human Sexuality
- Critiquing the Evolutionary Perspective

↑ behaviors + emotions - allowed ancestors to survive

### Nature, Nurture, and Human Diversity

#### Parents and Peers

- Parents and Early Experiences
- Peer Influence

→ beliefs + values  
interests + food tastes  
language + appearance

#### Cultural Influences

- Variations Across Cultures
- Culture and the Self

### Nature, Nurture, and Human Diversity

#### Cultural Influences

- Culture and Child-Rearing
- Developmental Similarities Across Groups

#### Gender Development

- Gender Similarities and Differences

↑ how we perceive ourselves

### Nature, Nurture, and Human Diversity

#### Gender Development

- The Nature of Gender
- The Nurture of Gender

#### Reflections on Nature and Nurture

### Nature, Nurture, and Human Diversity

Similarities	Differences
Genes: Same set of chromosomes	Genes: Genetic anomalies may make us different
Biology: Organs and body functions same	Biology: May change during development
Brain: Same brain architecture	Brain: Asymmetry of brain across genders
Behaviors: Speak language	Behavior: Speak different languages

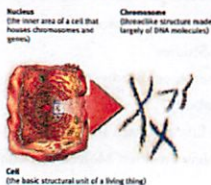
same + different

### Behavior Genetics: Predicting Individual Differences

Behavior Geneticists study our differences and weigh the relative effects of heredity and environment.

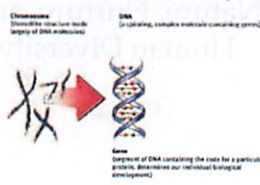
## Genes: Our Codes for Life

Chromosomes containing DNA (deoxyribonucleic acid) are situated in the nucleus of a cell.



## Genes: Our Codes for Life

Segments within DNA consist of genes that make proteins to determine our development.



## Genome

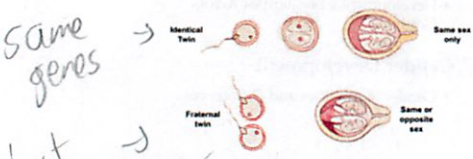
Genome is the set of complete instructions for making an organism, containing all the genes in that organism. Thus, the human genome makes us human, and the genome for *Drosophila* makes it a common house fly.

gene complexes = many genes acting together

99.9% same human DNA  
99.4% similar to monkeys

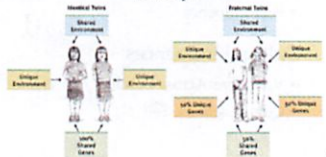
## Twin Biology

Studying the effects of heredity and environment on two sets of twins, identical and fraternal, has come in handy.



## Twins and Procedures

Behavior geneticists' effects of shared and unique environments on total or partial genetic makeup.



## Separated Twins

A number of studies compared identical twins raised separately from birth, or close thereafter, and found numerous similarities.

Separated Twins
Personality, Intelligence
Abilities, Attitudes
Interests, Fears
Brain Waves, Heart Rate

When twins grow up together - identical twins are more similar than fraternal twins. ↓ due to genes - not similar treatment

## Separated Twins

Critics of separated twin studies note that such similarities can be found between strangers. Researchers point out that differences between fraternal twins are greater than identical twins.



as shown by twins who were separated at birth

## Adoption Studies

Adoption studies, as opposed to twin studies, suggest that adoptees (who may be biologically unrelated) tend to be different from their adoptive parents and siblings.



people who grew up together were not very similar

- some very weird "coincidences"

- but there is some influence - but adoptive homes are screened

## Adoptive Studies

Adoptive studies strongly point to the simple fact that biologically related children turn out to be different in a family. So investigators ask:

- Do siblings have differing experiences?
- Do siblings, despite sharing half of their genes, have different combinations of the other half of their genes?
- Ultimate question: Does parenting have an effect?



## Parenting

Parenting does have an effect on biologically related and unrelated children.

Parenting Influences children's
Attitudes, Values
Manners, Beliefs
Faith, Politics

Some affect

## Temperament Studies

Temperament refers to a person's stable emotional reactivity and intensity. Identical twins express similar temperaments, suggesting heredity predisposes temperament.

infants are different right out of womb

## Heritability

Heritability refers to the extent to which the differences among people are attributable to genes.

0% - percent of people w/ trait influenced by that gene

as an environment gets more similar - heritability gets more important

## Group Differences

If genetic influences help explain individual diversity in traits, can the same be said about group differences?

Not necessarily. Individual differences in weight and height are heritable and yet nutritional influences have made westerners heavier and taller than their ancestors were a century ago.

plays part of the role

## Nature and Nurture

Some human traits are fixed, such as having two eyes. However, most psychological traits are liable to change with environmental experience.

- food preference

Genes provide choices for the organism to change its form or traits when environmental variables change. Therefore, genes are pliable or self-regulating.

genes can be programmed to allow differences based on environment

personality is a combo of both - inseparable interact

## Gene-Environment Interaction

Genes can influence traits which affect responses, and environment can affect gene activity.

A genetic predisposition that makes a child restless and hyperactive evokes an angry response from his parents. A stressful environment can trigger genes to manufacture neurotransmitters leading to depression.

\* environments trigger gene activity  
- genetic traits trigger environment

## Gene-Environment Interaction

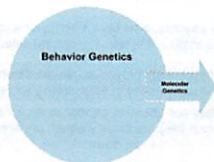
Genes and environment affect our traits individually, but more important are their interactive effects.



People respond differently to Rowan Atkinson (Mr. Bean) than Orlando Bloom.

Nurture via nature

## The New Frontier: Molecular Genetics



Molecular genetics is a branch extension of behavior genetics that asks the question, "Do genes influence behavior?"

- tries to find specific genes which influence behavior

## Molecular Genetics: Promises and Perils

Molecular geneticists are trying to identify genes that put people at risk for disorders. With this kind of knowledge, parents can decide to abort pregnancies in which the fetus is suspected of having such disorders.

identify risks

However, this opens up a real concern regarding ethical issues involving such choices.

? could you create test-tube babies?  
- hard to do  
- could create problems with less diversity

mutations = random errors in gene replication

**Evolutionary Psychology: Understanding Human Nature**

Molecular genetics studies why we as organisms are distinct.

Evolutionary psychology studies why we as humans are alike. In particular, it studies the evolution of behavior and mind using principles of natural selection.

alike

**Natural Selection**

Natural selection is an evolutionary process through which adaptive traits are passed on to ongoing generations because these traits help animals survive and reproduce.

↑  
best people live on to reproduce

**Artificial Selection**

Biologists like Belyaev and Trut (1999) were able to artificially rear and domesticate wild foxes, selecting them for friendly traits.



Any trait that is favored naturally or artificially spreads to future generations.

over 30 generations - selected + breed most docile foxes

**Human Traits**

A number of human traits have been identified as a result of pressures afforded by natural selection.

Why do infants fear strangers when they become mobile?

Why are most parents so passionately devoted to their children?

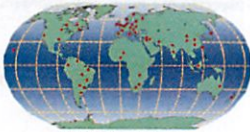
Why do people fear spiders and snakes and not electricity and guns?

genetics don't affect humans as much - adapt well

95% of differences - within a pop. - mostly within 1 group/ethnicity

**Mating Preferences**

Males look for youthful appearing females in order to pass their genes into the future. Females, on the other, hand look for maturity, dominance, affluence and boldness in males.



Data based on 37 cultures.

**Human Sexuality**

**Gender Differences in Sexuality**

Males and females, to a large extent, behave and think similarly. Differences in sexes arise in regards to reproductive behaviors.

Question (summarized)	Male	Female
Casual sex	60%	35%
Sex for affection	25%	48%
Think about sex everyday	54%	19%

males think more about sex

Sweets + fats taste good - b/c were hard to find in nature before

- why do we fear snakes not electricity

**Critiquing the Evolutionary Perspective**

Evolutionary psychologists take a behavior and work backward to explain it in terms of natural selection.

Evolutionary psychology proposes genetic determinism and undercuts morality in establishing society.

Where genders are unequal, gender preferences are wide, but when they are closely equal, preferences narrow down.

often goes backwards → tries to explain

**Mating Preferences**

Natural selection has caused males to send their genes into the future by mating with multiple females since males have lower costs involved.

males = widely, females = wisely

However, females select one mature and caring male because of the higher costs involved with pregnancy and nursing.

females look for men who can protect their children  
men take more risks

**Evolutionary Psychologists Reply**

Evolutionary psychologists argue that we need to test behaviors that expound evolutionary principles.

Evolutionary psychologists remind us how we have adapted, but do not dictate how we ought to be.

Males and females are more alike than different, and if we study these differences we can establish their causes.

nurture still very important



nurture begins  
in the womb

### Parents and Peers

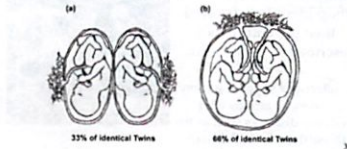
#### Parents and Early Experiences

We have looked at how genes influence our developmental differences. What about the environment? How do our early experiences, our family, our community and our culture affects these differences?

We begin with the prenatal environment.

### Prenatal Environment

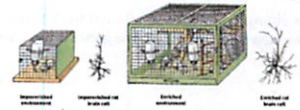
Identical twins who share the same placenta (b) are more alike than those who do not (a), suggesting prenatal influences on psychological



Even identical twins get different amounts of nutrients

### Experience and Brain Development

Early postnatal experiences affect brain development. Rosenzweig et al. (1984) showed that rats raised in enriched environments developed thicker cortices than those in impoverished environment.



early experiences help shape our brains  
massaging premature babies helps

\* learning causes unused connection to degenerate by puberty

#### Parental Influence

Parental influence is largely genetic. This support is essential in nurturing children. However, other socializing factors also play an important role.



Although raised in the same family, some children are greater risk takers.

- parents proud of their children  
- but don't affect everything  
\* 10% of differences

must learn language by age 10 - or will never do it

#### Experience and Faculties

Early experiences during development in humans shows remarkable improvements in music, languages and the arts.



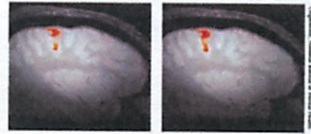
poor's whose eyesight is repaired - can't perceive it

- use it or lose it

even as adults - well-used experience widens while we forget what we don't use

### Brain Development and Adulthood

Brain development does not stop when we reach adulthood. Throughout our life, brain tissue continues to grow and change.



A well-learned finger-tapping task leads to more motor cortical neurons (right) than baseline.

### Peer Influence

Children, like adults, attempt to fit into a group by conforming. Peers are influential in such areas as learning to cooperate with others, gaining popularity, and developing interactions.



our peers influences us more than our parents do  
- but parents can pick our peers  
- look to parents for our future

### Cultural Influences

Humans have the ability to evolve culture. Culture is composed of behaviors, ideas, attitudes, values and traditions shared by a group.

we can learn to adapt



allows store of invention effective division of labor culture is different when population is diverse

### Variation Across Culture

Cultures differ. Each culture develops norms - rules for accepted and expected behavior. Men holding hands in Saudi Arabia is the norm (closer personal space), but not in American culture.



have norms - make us comfortable - also personal space - pace of life varies

### Variation Over Time

Cultures change over time. The rate of this change may be extremely fast. In many Western countries, culture has rapidly changed over the past 40 years or so.

This change cannot be attributed to changes in the human gene pool because genes evolve very slowly.

Genes vary slower.

In Asia - able to order complicated coffee -  
↓ ads emphasize people  
Culture and the Self

If a culture nurtures an individual's personal identity, it is said to be individualist, but if a group identity is favored then the culture is described as collectivist.



A collectivist support system can benefit groups who experience disasters such as the 2005 earthquake in Pakistan.

Personal values important  
85% say: Be who you want to be  
Korea more - shy in new groups + embarrassed easier

Why Europeans colonized

### Culture and the Self

	Individualism	Collectivism
Self	Individualism (Identity from individual traits)	Interdependence (Identity from belonging)
Life task	Discover and express one's uniqueness	Maintain connections, fit in, perform role
What matters	One's personal achievement and fulfillment; rights and liberties; self-esteem	Use - group goals and solidarity; social responsibilities and relationships; family duty
Coping method	Change reality	Accommodate to reality
Morality	Defined by individuals (self-based)	Defined by social networks (group-based)
Relationships	Many, often temporary or casual; contractual in nature	Few, close and enduring; harmony valued
Attributing behavior	Behavior reflects one's personality and attitudes	Behavior reflects social norms and roles

↳ but more stress + divorce

### Culture and Child-Rearing

Individualist cultures (European) raise their children as independent individuals whereas collectivist cultures (Asian) raise their children as interdependent.



Westers want children to think for themselves -  
50 years ago: traditions

Asians - focused on emotional closeness & many ways to raise children

### Culture and Child-Rearing

Westernized Cultures	Asian-African Cultures
Responsible for your self	Responsible to group
Follow your conscience	Priority to obedience
Discover your gifts	Be true to family-self
Be true to yourself	Be loyal to your group
Be independent	Be interdependent

### Developmental Similarities Across Groups

Despite diverse cultural backgrounds, humans are more similar than different in many ways. We share the same genetic profile, life cycle, capacity for language, and biological needs.



- we all cool to babies  
- ethnic groups also differ -  
- might be b/c diet differs  
- or family support differs

### Gender Development

Based on genetic makeup, males and females are alike, since the majority of our inherited genes (45 chromosomes are unisex) are similar.

Males and females differ biologically in body fat, muscle, height, onset of puberty, and life expectancy.

- at birth many ask boy or girl?  
- diversity merits attention

### Gender Differences in Aggression

Men express themselves and behave in more aggressive ways than do women. This aggression gender gap appears in many cultures and at various ages.

In males, the nature of this aggression is physical.

- hunting, fishing, + waring are men's jobs

### Gender and Social Power

In most societies, men are socially dominant and are perceived as such.

In 2005, men accounted for 84% of the governing parliaments.

around world - men are viewed as more dominant  
- men as leaders = more autocratic  
- help sustain inequality of power  
- difference weakens as people grow 6



### Gender Differences and Connectedness

Young and old, women form more connections (friendships) with people than do men. Men emphasize freedom and self-reliance.

side by side

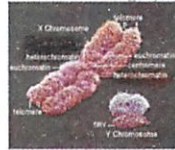


face to face

- men are more independent
- boys play in large groups
- girls are more open to feedback
- women = independent
- men less religious + more skeptical

### Biology of Sex

Biological sex is determined by the twenty-third pair of chromosomes. If the pair is XX, a female is produced. If the pair is XY, a male child is produced.



### Sexual Differentiation

In the mother's womb, the male fetus is exposed to testosterone (because of the Y chromosome), which leads to the development of male genitalia.

If low levels of testosterone are released in the uterus, the result is a female.

Y chromosom makes womb produce testosterone (7th week)  
 - girls who get too much testosterone are cross gender + tomboys  
 - so do hormones control behavior?

### Sexual Differentiation

Sexual differentiation is not only biological, but also psychological and social.

However, genes and hormones play a very important role in defining gender, especially in altering the brain and influencing gender differences as a result.

- nature + nurture works together
- hormones control sexual identity
- possibly - hormones cause some parts of our brain to develop more

### Gender Roles

Our culture shapes our gender roles - expectations of how men and women are supposed to behave.

sex matters

Gender Identity - means how a person views himself or herself in terms of gender.

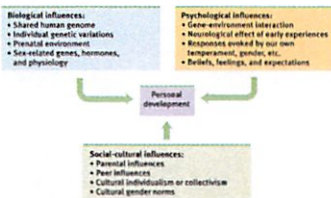
- culture produces gender roles
- are they natural or controlled by culture
- changes over time

### Gender Roles: Theories

1. **Gender Schema Theory** suggests that we learn a cultural "recipe" of how to be a male or a female, which influences our gender-based perceptions and behaviors.
2. **Social Learning Theory** proposes that we learn gender behavior like any other behavior - reinforcement, punishment, and observation.

language does it be a brave boy  
 adjust behavior to stereotype

### Reflections on Nature and Nurture



- gender tells us how to act
- gender roles converging
- Genes are pervasive but not all powerful
- our hopes + dreams shape world
- evolution happened

Chap 4

2/14/08

PSYCHOLOGY  
(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

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Developing Through the  
Life Span

Chapter 4

Developing Through the Life Span

Prenatal Development and  
the Newborn

- Conception
- Prenatal Development
- The Competent Newborn

Infancy and Childhood

- Physical Development
- Cognitive Development

Developing Through the Life Span

Adolescence

- Physical Development
- Cognitive Development
- Social Development
- Emerging Adulthood

Adulthood

- Physical Development

Developing Through the Life Span

Adulthood (continued)

- Cognitive Development
- Social Development

Reflections on Two Major  
Developmental Issues

- Continuity and Stages
- Stability and Change

Developmental Psychology

Issue	Details
Nature/Nurture	How do genetic inheritance (our nature) and experience (the nurture we receive) influence our behavior?
Continuity/Stages	Is developmental a gradual, continuous process or a sequence of separate stages?
Stability/Change	Do our early personality traits persist through life, or do we become different persons as we age.

Chap 3

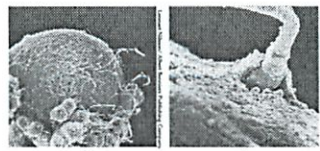
Prenatal Development and the  
Newborn

How, over time, did we come to be who we are?  
From zygote to birth, development progresses  
in an orderly, though fragile, sequence.

23 chromosomes from each parent

Conception

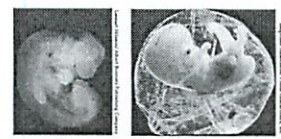
A single sperm cell (male) penetrates the outer coating of the egg (female) and fuses to form one fertilized cell.



-female cell helps  
male cell in +  
ten blocks other  
cells

Prenatal Development

A zygote is a fertilized cell with 100 cells that become increasingly diverse. At about 14 days the zygote turns into an embryo (a and b).



Only about half survive



### Prenatal Development

At 9 weeks, an embryo turns into a fetus (c and d). Teratogens are chemicals or viruses that can enter the placenta and harm the developing fetus.



harmful chemicals

- don't smoke
- don't drink → FAS
- stress matters in animals
- drugs (legal + illegal)

### Cognitive Development in the Newborn

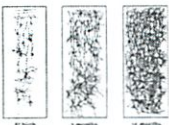
Investigators study infants becoming habituated to objects over a period of time. Infants pay more attention to new objects than habituated ones, which shows they are learning.



more you see it - more you like it  
 53 min old babies pay more attention like human faces more - more likely to turn to human voice they have not seen before

### Developing Brain

The developing brain overproduces neurons. Peaking around 28 billion at 7 months, these neurons are pruned to 23 billion at birth. The greatest neuronal spurt is in the frontal lobe enabling the individual to think rationally.



- after birth → only lose neurons  
 - neural network grows from age 3 to 6  
 - grows to puberty - were old connections shut down

### The Competent Newborn

Infants are born with reflexes that aid in survival, including rooting reflex which helps them locate food.



complex reflex which helps it eat

- grasping + cluturing are reflexes

### Infancy and Childhood

Infancy and childhood span from birth to the teenage years. During these years, the individual grows physically, cognitively, and socially.

Stage	Span
Infancy	Newborn to toddler
Childhood	Toddler to teenager

### Maturation

The development of the brain unfolds based on genetic instructions, causing various bodily and mental functions to occur in sequence - standing before walking, babbling before talking - this is called maturation.

Maturation sets the basic course of development, while experience adjusts it.

experience → before defined time doesn't help

### The Competent Newborn

Offspring cries are important signals for parents to provide nourishment. In animals and humans such cries are quickly attended to and relieved.



gets their attention

### Physical Development

Infants' psychological development depends on their biological development. To understand the emergence of motor skills and memory, we must understand the developing brain.

2/15/08

### Motor Development

First, infants begin to roll over. Next, they sit unsupported, crawl, and finally walk. Experience has little effect on this sequence.



- defined sequence  
 - linked to genes - identical twins start walking on almost the same day

2/2/08

\* cognition = mental activities associated w/ thinking  
knowing, remembering + communicating

Maturation and Infant Memory

The earliest age of conscious memory is around 3 1/2 years (Bauer, 2002). A 5-year-old has a sense of self and an increased long-term memory, thus organization of memory is different from 3-4 years.



ego centric

Cognitive Development

Piaget believed that the driving force behind intellectual development is our biological development amidst experiences with the environment. Our cognitive development is shaped by the errors we make.



Schemas → cloud of knowledge

Schemas are mental molds into which we pour our experiences.



experience helps increase our schemas

- no memories before being 3.5
  - memory changes when we are 5
  - only subconsciously remember pre-school classmates
- kids are not just little adults - think differently  
kids learn by trying to understand the world

trial + error → gain experience

Assimilation and Accommodation

The process of assimilation involves incorporating new experiences into our current understanding (schema). The process of adjusting a schema and modifying it is called accommodation.



Jean Piaget with a subject

Piaget's Theory and Current Thinking

Typical Age Range	Description of Stage	Developmental Phenomena
Birth to nearly 2 years	Sensorimotor: Experiencing the world through senses and actions (looking, touching, mouthing, and grasping)	• Object permanence • Stranger anxiety
1 to about 6 or 7 years	Preoperational: Representing things with words and images; use intuitive rather than logical reasoning	• Pretend play • Egocentrism • Language development
About 7 to 11 years	Concrete operational: Thinking logically about concrete events; grasping concrete analogies and performing arithmetical operations	• Conservation • Mathematical transformations
About 12 through adulthood	Formal operational: Abstract reasoning	• Abstract logic • Potential for mature reasoning

Sense  
Images  
concrete  
Formal + Abstract

Sensorimotor Stage Birth → 2

In the sensorimotor stage, babies take in the world by looking, hearing, touching, mouthing, and grasping. Children younger than 6 months of age do not grasp object permanence, i.e., objects that are out of sight are also out of mind.



At 8 months of age what is out of sight is not out of mind.

assimilate → 4 legged creature = dog  
accommodate → that is actually a moose  
- can make better decisions with new knowledge

memorize

- sensory + motor interactions
- live in present at 8 mnts start looking for hidden objects
- today we know babies have a better understanding of the world + physics + numbers

Sensorimotor Stage: Criticisms

Piaget believed children in the sensorimotor stage could not think — they do not have any abstract concepts or ideas.

However, recent research shows that children in the sensorimotor stage can think and count.

1. Children understand the basic laws of physics. They are amazed at how a ball can stop in midair or disappear.

Sensorimotor Stage: Criticisms

2. Children can also count. Wynn (1992, 2000) showed that children stared longer at the wrong number of objects than the right ones.



Preoperational Stage

Piaget suggested that from 2 years old to about 6-7 years old, children are in the preoperational stage—too young to perform mental operations.



The child points to the left flask as having more liquid when in fact the two flasks contain the same amount of liquid. The inability to use a mental operation and understanding conservation of liquid amounts is lacking at this stage.

don't know beaker inverted



**Preoperational Stage: Criticism**

DeLoache (1987) showed that children as young as 3 years of age are able to use metal operations. When shown a model of a dog's hiding place behind the couch, a 2½-year-old could not locate the stuffed dog in an actual room, but the 3-year-old did.

younger than he thought

**Concrete Operational Stage**

In concrete operational stage, given concrete materials, 6- to 7-year-olds grasp conservation problems and mentally pour liquids back and forth into glasses of different shapes conserving their quantities.

Children in this stage are also able to transform mathematical functions. So, if  $4 + 8 = 12$ , then a transformation,  $12 - 4 = 8$ , is also easily doable.

= make it 6 pieces - I can't eat 8

**Egocentrism**

Piaget concluded that preschool children are egocentric. They cannot perceive things from another's point of view.

When asked to show her picture to mommy, 2-year-old Gabriella holds the picture facing her own eyes, believing that her mother can see it through her eyes.

Covering one's eyes thinks he is invisible  
 - can't see from someone else's viewpoint  
 - abusive parents don't understand this

**Formal Operational Stage**

Around age 12, our reasoning ability expands from concrete thinking to abstract thinking. We can now use symbols and imagined realities to systematically reason. Piaget called this formal operational thinking.

if this, then that  
 can be only in some subjects

**Theory of Mind**

Preschoolers, although still egocentric, develop the ability to understand another's mental state when they begin forming a theory of mind.

The problem on the right probes such ability in children.



lead interventions

- understand why someone is angry  
 - between 3.5 and 4.5 - understand others may hold false beliefs  
 - 5-8: thoughts can cause feelings

**Formal Operational Stage**

Rudiments of such thinking begin earlier (age 7) than what Piaget suggested, since 7-year-olds can solve the problem below (Suppes, 1982).

If John is in school, Mary is in school. John is in school. What can you say about Mary?

- talking to yourself  
 helps/understanding + inner thought

**Reflecting on Piaget's Theory**

Piaget's stage theory has been influential globally, validating a number of ideas regarding growth and development in many cultures and societies. However, today's researchers believe the following:

1. Development is a continuous process.
2. Children express their mental abilities and operations at an earlier age.
3. Formal logic is a smaller part of cognition.

- was influential at "startling idea that children get into from interactions"

- teachers need to help expanding knowledge + know kids are different

2/19/08

**Social Development**

Stranger anxiety is the fear of strangers that develops at around 8 months. This is the age at which infants form schemas for familiar faces and cannot assimilate a new face.



infants are very attached to the people they were around before

12 months - cling tightly to parent

**big on AP exam**  
**Origins of Attachment**

Harlow (1971) showed that infants bond with surrogate mothers because of bodily contact and not because of nourishment.



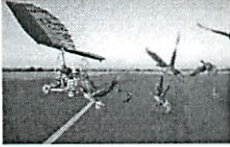
wire mothers

attachment due to touch + contact - not nourishment

\* Secure base for exploration  
safe haven when threatened

### Origins of Attachment

Like bodily contact, familiarity is another factor that causes attachment. In some animals (goslings), imprinting is the cause of attachment.



Critical period - few hrs after birth - 1st moving thing = mother  
ducklings imprint to mothers  
- hard to revert  
- children don't do this

### Insecure Attachment

Harlow's studies showed that monkeys experience great anxiety if their terry-cloth mother is removed.



### Deprivation of Attachment

What happens when circumstances prevent a child from forming attachments?

In such circumstances children become:

1. Withdrawn
2. Frightened
3. Unable to develop speech

Very sad  
lasting scars if left alone 8 months  
become abusers + criminals (maybe)

### Attachment Differences

Placed in a strange situation, 60% of children express secure attachment, i.e., they explore their environment happily in the presence of their mothers. When their mother leave, they show distress.

The other 30% show insecure attachment. These children cling to their mothers or caregivers and are less likely to explore the environment.

↑ mother's behavior  
↑ or does infant influence mother's behavior

### Attachment Differences: Why?

Why do these attachment differences exist?

Factor	Explanation
Mother	Both rat pups and human infants develop secure attachments if the mother is relaxed and attentive.
Father	In many cultures where fathers share the responsibility of raising children, similar secure attachments develop.

### Secure Attachment

Relaxed and attentive caregiving becomes the backbone of secure attachment.

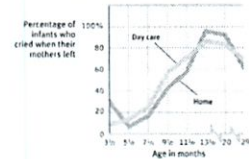


Fathers are important

- after 13 months pressure for attachment ↓  
- basic trust of world formed with loving parents

### Separation Anxiety

Separation anxiety peaks at 13 months of age, regardless of whether the children are home or sent to day care.



### Prolonged Deprivation

If parental or caregiving support is deprived for an extended period of time, children are at risk for physical, psychological, and social problems, including alterations in brain serotonin levels.

link - but not definite relationships b/w  
child rape + depression  
removal from parent + adoption - not safe after age 2

### Day Care and Attachment

Quality day care that consists of responsive adults interacting with children does not harm children's thinking and language skills.

However, some studies suggest that extensive time in day care can increase aggressiveness and defiance in children.

- families income has more of an effect  
- bad day cares hurt



Siegelman: need to set boundaries as a parent  
 - many parents too permissive

Self-Concept

Self-concept, a sense of one's identity and personal worth, emerges gradually around 6 months. Around 15-18 months, children can recognize themselves in the mirror. By 8-10 years, their self-image is stable.



too hard  
 too soft  
 just right

Child-Rearing Practices

Practice	Description
Authoritarian	Parents impose rules and expect obedience.
Permissive	Parents submit to children's demands.
Authoritative	Parents are demanding but responsive to their children.

said so

Authoritative Parenting

Authoritative parenting correlates with social competence — other factors like common genes may lead to an easy-going temperament and may invoke an authoritative parenting style.



a child is one's legacy  
 teach kids enough to make good decisions

Elementary school - kids figure it out by comparing themselves

- or perhaps child's style influences parenting  
 - or competent parents make competent kids

Adolescence

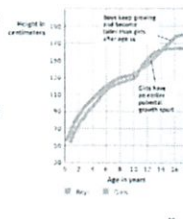
Many psychologists once believed that our traits were set during childhood. Today psychologists believe that development is a lifelong process. Adolescence is defined as a life between childhood and adulthood.



- rewarding friendships  
 - heightened idealism  
 - growing sense of life's exciting possibilities

Physical Development

Adolescence begins with puberty (sexual maturation). Puberty occurs earlier in females (11 years) than males (13 years). Thus height in females increases before males.



Primary Sexual Characteristics

During puberty primary sexual characteristics — the reproductive organs and external genitalia — develop rapidly.



Secondary Sexual Characteristics

Also secondary sexual characteristics — the nonreproductive traits such as breasts and hips in girls and facial hair and deepening of voice in boys develop. Pubic hair and armpit hair grow in both



Brain Development

Until puberty, neurons increase their connections. However, at adolescence, selective pruning of the neurons begins. Unused neuronal connections are lost to make other pathways more efficient.

Frontal Cortex

During adolescence, neurons in the frontal cortex grow myelin, which speeds up nerve conduction. The frontal cortex lags behind the limbic system's development. Hormonal surges and the limbic system may explain occasional teen impulsiveness.



because I can  
 rational thinking not really done until age 25

On test + AP Exam  
↓

### Cognitive Development

Adolescents' ability to reason gives them a new level of social awareness. In particular, they may think about the following:

1. Their own thinking.
2. What others are thinking.
3. What others are thinking about them.
4. How ideals can be reached. They criticize society, parents, and even themselves.

### Developing Reasoning Power

According to Piaget, adolescents can handle abstract problems, i.e., they can perform formal operations. Adolescents can judge good from evil, truth and justice, and think about God in deeper terms.



- early teen years - thinking is self-focused  
- stick to ideals

### Developing Morality

Kohlberg (1981, 1984) sought to describe the development of moral reasoning by posing moral dilemmas to children and adolescents, such as "Should a person steal medicine to save a loved one's life?" He found stages of moral development.



### Moral Thinking

1. Preconventional Morality: Before age 9, children show morality to avoid punishment or gain reward.
2. Conventional Morality: By early adolescence, social rules and laws are upheld for their own sake.
3. Postconventional Morality: Affirms people's agreed-upon rights or follows personally perceived ethical principles.



maybe

- behavior becomes less selfish + more caring

- ideas on war different in a lot of sections

2/25

### Moral Feeling

Moral feeling is more than moral thinking. When posed with simulated moral dilemmas, the brain's emotional areas only light up when the nature of the dilemmas is emotion-driven.

emotion Δ moral judgement

### Moral Action

Moral action involves doing the right thing. People who engage in doing the right thing develop empathy for others and the self-discipline to resist their own impulses.

feeds moral attitudes

moral reasonings - convince others how we feel

### Social Development

Stage	Approximate Age	Task	Description of Task
Autonomy vs. shame/doubt	1-3 years	Developing a sense of self	Child learns to separate self from others and to assert independence.
Initiative vs. guilt	3-6 years	Developing a sense of purpose	Child begins to plan and carry out activities, learning to distinguish between good and bad.
Industry vs. inferiority	6-12 years	Developing a sense of competence	Child learns to compare their skills and abilities to those of others.
Identity vs. role confusion	12-18 years	Forming a sense of self	Adolescent explores different roles and values, seeking to answer the question "Who am I?"
Intimacy vs. isolation	18-25 years	Forming close relationships	Young adults learn to form close relationships and to give and receive love.
Generativity vs. stagnation	25-40 years	Contributing to the world	Adults seek to create something that will outlast them, such as children or work.
Ego integrity vs. despair	40-65 years	Reflecting on life	Older adults reflect on their lives, seeking a sense of satisfaction or fulfillment.

know name on test + AP exam

was my life a good life

- holding touch  
- want to try confidence who you are share thoughts  
- have a purpose

### Forming an Identity

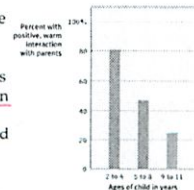
In Western cultures, many adolescents try out different selves before settling into a consistent and comfortable identity. Having such an identity leads to forming close relationships.



different identities  
- trouble when they mix  
\* trying to find a purpose - happiest w/ friends

### Parent and Peer Influence

Although teens become independent of their parents as they grow older, they nevertheless relate to their parents on a number of things, including religiosity and career choices. Peer approval and relationships are also very important.



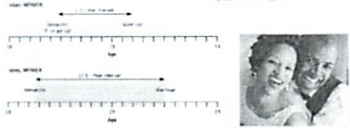
- teens happy w/ parents do well in school  
- teens mostly social animals  
- depressed if left alone



2/20/08

Emerging Adulthood

Emerging adulthood spans ages 18-25. During this time, young adults may live with their parents and attend college or work. On average, emerging adults marry in their mid-twenties.



later now  
more live with parents  
gradual transition

Adulthood

Although adulthood begins sometime after a person's mid-twenties, defining adulthood into stages is more difficult than defining stages during childhood or adolescence.



Physical Development

The peak of physical performance occurs around 20 years of age, after which it declines imperceptibly for most of us.

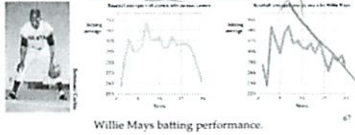
crest by mid 20s

- people marry later - b/c go to college  
- hit puberty faster b/c extra body fat gets longer

- not a plateau like it was thought of before

Middle Adulthood

Muscular strength, reaction time, sensory abilities and cardiac output begin to decline after the mid-twenties. Around age 50, women go through menopause, and men experience decreased levels of hormones and fertility.



doesn't really cause depression

Old Age: Life Expectancy

Life expectancy at birth increased from 49% in 1950 to 67% in 2004 and to 80% in developed countries. Women outlive men and outnumber them at most ages.



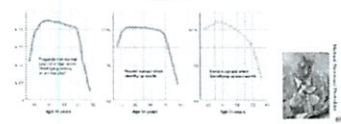
large increase

- but being in shape matters more  
not all at once

also problem b/c falling birth rates  
males more prone to dying  
- age 100 - 5x more women  
- need to die to stop consuming resources

Old Age: Sensory Abilities

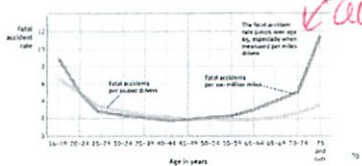
After age 70, hearing, distance perception, and the sense of smell diminish, as do muscle strength, reaction time, and stamina. After 80, neural processes slow down, especially for complex tasks.



- 65 year old eye gets 1/3 light  
- don't think as fast

Old Age: Motor Abilities

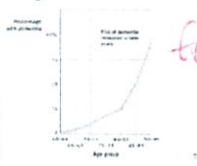
At age 70, our motor abilities also decline. A 70-year-old is no match for a 20-year-old individual. Fatal accidents also increase around this age.



accidents

Old Age: Dementia

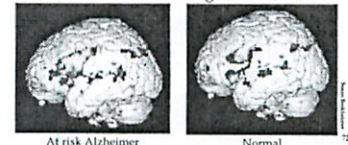
With increasing age, the risk of dementia also increases. Dementia is not a normal part of growing old.



forget

Old Age: Alzheimer's Disease

The risk for developing Alzheimer's disease also increases with age. Individuals who are in the early stages of this disease show more MRI activity in the brain than do normal individuals of the same age.



- older people's immune system weakens - but has built up antibodies - so less short term illnesses

exercising helps re brain  
"use it or lose it"

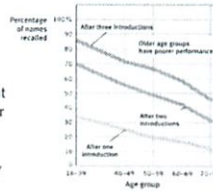
forgot things - then becomes vacant - living death

### Cognitive Development

Do cognitive abilities like memory, creativity, and intelligence decline with age the same way physical abilities do?

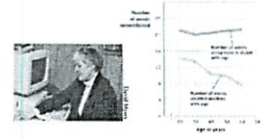
### Aging and Memory

As we age, we remember some things well. These include recent past events and events that happened a decade or two back. However, recalling names becomes increasingly difficult.



### Aging and Memory

Recognition memory does not decline with age, and material that is meaningful is recalled better than meaningless material. The same is true for prospective memory (remember to ...).



- most remember what happened as teens

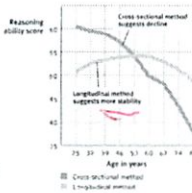
"remember to ..." tasks hard

- hard to remember about medicine

2/21

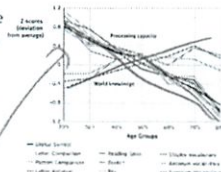
### Aging and Intelligence

Longitudinal studies suggest that intelligence remains relative as we age. It is believed today that fluid intelligence (ability to reason speedily) declines with age, but crystalline intelligence (accumulated knowledge and skills) does not.



### Aging and Other Abilities

A number of cognitive abilities decline with age. However, vocabulary and general knowledge increase with age.



crystalline - accumulated knowledge

Fluid Intelligence - speed + reasoning

### Social Development

Many differences between the young and old are not simply based on physical and cognitive abilities, but may instead be based on life events associated with family, relationships, and work.

- job  
- marriage  
- children

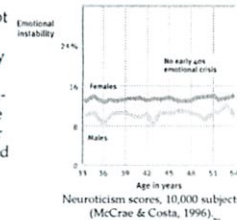
cross sectional studies - compared people born at diff times

- or people declining in longitudinal studies died earlier

different ways of declining intelligence

### Adulthood's Ages and Stages

Psychologists doubt that adults pass through an orderly sequence of age-bound stages. Mid-life crises at 40 are less likely to occur than crises triggered by major events (divorce, new marriage).



- struggle + regret life half over  
↑ but caused by events not age

### Adulthood's Commitments

Love and work are defining themes in adult life. Evolutionary psychologists believe that commitment has survival value. Parents that stay together are likely to leave a viable future generation.



bond w/ person + children help raise child

- cohabitation before marriage hurts  
- marriage produces happiness  
- falling in love is random  
↓ people more out of sync

### Adulthood's Commitments

Happiness stems from working in a job that fits your interests and provides you with a sense of competence and accomplishment.



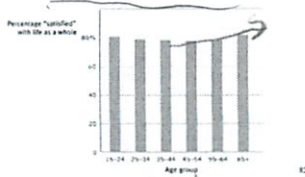
self fulfillment life satisfaction  
↑ job needs to fit interests - many people jobs

\* not much of a social clock or order anymore



## Well-Being Across the Life Span

Well-being and people's feelings of satisfaction are stable across the life span.



- take edu more seriously + worked harder @ life
- focus on what failed to do
- positive feelings grow after midlife
- \* but feelings closer to average

## Successful Aging



## Death and Dying

There is no "normal" reaction or series of grief stages after the death of a loved one. Grief is more sudden if death occurs unexpectedly. People who reach a sense of integrity in life (in Erikson's terms) see life as meaningful and worthwhile.



- women react 5x as men to spouse's death
- grief worse if unexpected + before its time
- strong grief at once does not mean shorter time
- talking + counseling doesn't work

## Developmental Issues

### Continuity and Stages

Researchers who view development as a slow, continuous process are generally those who emphasize experience and learning. Biologists, on the other hand, view maturation and development as a series of genetically predisposed steps or stages. These include psychologists like Piaget, Kohlberg and Erikson.

- growth is a long continuous process
- not nice stages
- though some times biologically

## Developmental Issues

### Stability and Change

Lifelong development requires both stability and change. Personality gradually stabilizes as people age. However, this does not mean that our traits do not change over a lifetime. Some temperaments are more stable than others.

- both stability + change
- 1st 2 years of life don't predict
- as person gets older - personality stabilizes
- temperament is stable
- as well as life goals kind of
- self confidence increases - but changes
- can remain constant relatively
- \* life = stability + change

## Chapter 4 review Sheet Ap Psychology

- Attachment – connection parents have with their kids – thought to be caused by nature keeping kids cared for and all caregivers – not due to nourishment, but touch
- Egocentric – Idea kids have until-in preschool that everything sees them through them
- Secure attachment – Kids will wonder from their parents – when parents leave will sad and will seek contact when they return
- Unsecured attachment – Kids will stay with their parents - when parent leave will not be upset – effects seen later in life (the sad monkey)
- Object permanence – Kids under 8 months – when something goes out of sight it is out of mind
- Teratogen - chemicals and viruses that can enter embryo and fetus and cause harm
- Responsive parenting – parents that respond to their kids needs all of time
- Rooting reflex – reflex babies have – starts when touching their cheeks
- Primary sex characteristics - develop at puberty – learn about them in health class
- Brain chemistry -
- Formal operational – last state of Piaget attachment series – 12 and up
- Kohlberg and his critics – moral ladder – 3 stages – financial level and gender matters
- Prenatal development – development in the womb – zygote (conception to 2 weeks), embryo (2 weeks to 8 weeks), fetus (9 weeks to birth) – can be harmed by fetal alcohol syndrome and tetragons
- Accommodation – adapting to new information to change schema
- Assimilation – adding new info to schema
- Habituation – becoming used to it
- Estrogen – female hormone creates secondary sex characteristics
- Gut level intuition – immediate moral reaction
- Crystallized intelligence –factual information, increases as ages
- Cognitive development
- Conservation of volume – when children are able to know that an upside down beaker does not gain liquid
- Autism – mental disease, people who can not relate socially, more internally focused
- Stability vs. Change – as we get older our life is a pattern of stability vs change – stability of personality starts around 28 – temperament more stable; consciousness too (but can be stable relative to peers as they age)
- Nature or Nurture – concern if genes or environment
- Menarche – first period
- Development Psychology – area of psychology concerned with human development (this chapter)
- Preconvention – early stage of morality – only do things to not get into trouble
- Maturation – growth through stages

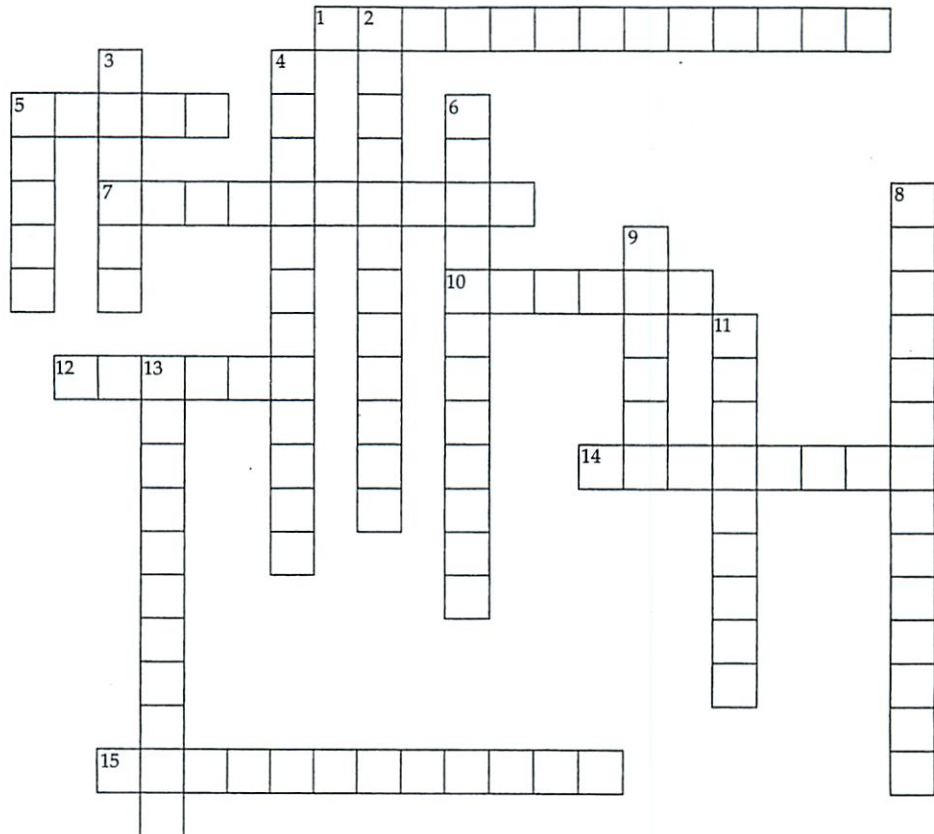


- Attachment – organisms bond with each other; young children to their caregivers; cause of stranger anxiety
- Abstract reasoning – ability for people to have complex ideas; can see things that are not their
- Identity – sense one has of them self
- Post Conventional – last stage of morality; do things one thinks is right; regardless of the law
- Secure attachment – feel comfortable with their mother
- Marriage bonds – becoming weaker
- Marrying at an older age – is happening; prolonging adolescent period
- Trust – feeling one has about another human's ability to execute actions; 1. Firm reliance on the integrity, ability, or character of a person or thing.
- Imprinting – what animals do to the 1<sup>st</sup> thing they see
- Autonomy – ability to act on their own
- Newborn and their mom's voice – are attached to it
- Stranger anxiety – babies not wanting to be with people other than people they know (are not familiar with)
- Theory of mind – ability to see things from another person's POV
- **Mental retardation** - *Caused by Fetal Alcohol Syndrome*
- **Role confusion** - *teenagers - finding one's identity*
- Authoritative parenting – strict parenting
- Fluid intelligence – intelligence of reasoning – decreases over time
- Car accidents and the elderly – are far more likely to happen because bad eyesight in old people
- **Emotional stability**
- **Self Awareness**
- **Conservation**
- Social Clock – idea that events for adults happen in a certain order and time – decreasing importance because of increased social freedoms
- **Basic trust** – babies gain about the world if they are brought up properly – if not gained while they are young – may be permanently lost
- **Vygotsky and his research** – social interaction is a fundamental part of learning – requires social interaction - *at 7- children internal speech*
- **Familiarity** – what babies gain about the world as they age

- gives them scaffold to build edu on

**Cross-Check**

As you learned in the Prologue, reviewing and overlearning of material are important to the learning process. After you have written the definitions of the key terms in this chapter, you should complete the crossword puzzle to ensure that you can reverse the process—recognize the term, given the definition.



**ACROSS**

1. In Piaget's theory, changing an existing schema to incorporate new information.
5. Type of intelligence that relates to reasoning speedily and abstractly.
7. Process by which certain animals form attachments during a critical period.
10. The developing person from 2 weeks through 2 months after conception.
12. Mental concepts or frameworks that organize information.
14. The first menstrual period.
15. A study in which the same people are retested over a period of years.

**Down**

2. Type of intelligence that reflects accumulated learning.
3. A childhood disorder marked by deficiencies in communication and social interaction.
4. In Piaget's theory, interpreting a new experience in terms of an existing schema.
5. The developing person from 9 weeks after conception until birth.
6. Principle that properties such as number and volume remain constant despite changes in appearance.
8. A study in which people of different ages are compared with one another.
9. Fertilized human egg.
11. Any drug, virus, or other toxic substance that crosses the mother's placenta.
13. Decreasing responsiveness to a stimulus that is repeatedly presented

**ANSWERS**

have



PSYCHOLOGY  
(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

Worth Publishers, © 2006

## Sensation

### Chapter 5

"How does the world get in"

## Sensation

Sensing the World:  
Some Basic Principles

- Threshold
- Sensory Adaptation

### Vision

- The Stimulus Input: Light Energy
- The Eye

## Sensation

### Vision

- Visual Information Processing
- Color Vision

### Hearing

- The Stimulus Input: Sound Waves
- The Ear
- Hearing Loss and Deaf Culture

## Sensation

### Other Important Senses

- Touch
- Taste
- Smell
- Body Position and Movement

recognize  
interpret

## Sensation & Perception

How do we construct our representations of the external world?

To represent the world, we must detect physical energy (a stimulus) from the environment and convert it into neural signals. This is a process called sensation.

When we select, organize, and interpret our sensations, the process is called perception.

## Bottom-up Processing

Analysis of the stimulus begins with the sense receptors and works up to the level of the brain and mind.

A ⇒ /A ⇒ A

Letter "A" is really a black blotch broken down into features by the brain that we perceive as an "A."

## Top-Down Processing

Information processing guided by higher-level mental processes as we construct perceptions, drawing on our experience and expectations.

## THE CHIT

- people with prosopagnosia can't process  
- sees faces, can't interpret

## Making Sense of Complexity

Our sensory and perceptual processes work together to help us sort out complex images.



"The Forest Has Eyes," Bev Doolittle

## Sensing the World

Senses are nature's gift that suit an organism's needs.

A frog feeds on flying insects; a male silkworm moth is sensitive to female sex-attractant odor; and we as human beings are sensitive to sound frequencies that represent the range of human voice.

10

## Exploring the Senses

1. What stimuli cross our threshold for conscious awareness?
2. Could we be influenced by stimuli too weak (subliminal) to be perceived?
3. Why are we unaware of unchanging stimuli, like a band-aid on our skin?

11

## Psychophysics

A study of the relationship between physical characteristics of stimuli and our psychological experience with them.

Physical World	Psychological World
Light	Brightness
Sound	Volume
Pressure	Weight
Sugar	Sweet

What can we detect?

We ignore a lot of other animals pick up

12

22<sup>nd</sup> October 1850

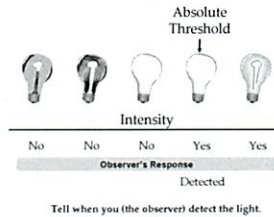
A relative increase in mental intensity, [Fechner] realized, might be measured in terms of the relative increase in physical energy required to bring it about (Wozniak, 1999).



Gustav Fechner (1801-1887)

13

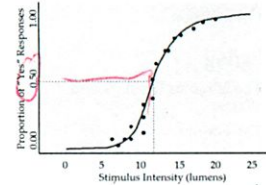
## Detection



14

## Thresholds

Absolute Threshold: Minimum stimulation needed to detect a particular stimulus 50% of the time.



15

We notice important things (signal detection theory)

- we tune ourselves to what is important

- baby's cry

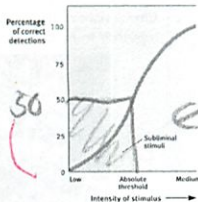
- approaching person  
- when a soldier

video games

Slide 16

## Subliminal Threshold

Subliminal Threshold: When stimuli are below one's absolute threshold for conscious awareness.



16

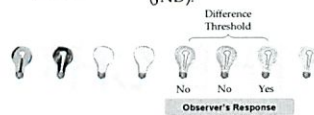
We think they affect us

- remember abs is 50-50  
- so will get this sometimes

\* we feel what we can't detect

## Difference Threshold

Difference Threshold: Minimum difference between two stimuli required for detection 50% of the time, also called just noticeable difference (JND).



Tell when you (observer) detect a difference in the light.

17

increases w/ magnitude of stimulus constant %

Two stimuli must differ by a constant minimum percentage (rather than a constant amount), to be perceived as different. Weber fraction:  $k = \delta I/I$ .

Stimulus	Constant (k)
Light	8%
Weight	2%
Tone	3%

18

subliminal ads don't really work



### Signal Detection Theory (SDT)

Predicts how and when we detect the presence of a faint stimulus (signal) amid background noise (other stimulation). SDT assumes that there is no single absolute threshold and detection depends on:

- Person's experience
- Expectations
- Motivation
- Level of fatigue



19

See previous page  
no 1 threshold

### SDT Matrix

The observer decides whether she hears the tone or not, based on the signal being present or not. This translates into four outcomes.

		Decision	
		Yes	No
Signal	Present	Hit	Miss
	Absent	False Alarm	Correct Rejection

20

### Sensory Adaptation

Diminished sensitivity as a consequence of constant stimulation.

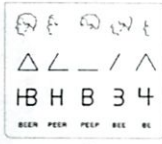


Put a band aid on your arm and after awhile you don't sense it.

21

- we get used to it  
- don't need to know shoes still on  
\* Only informative changes

Now you see, now you don't



(a)

(b)

- perceive the world how it is useful to perceive it

### Vision

- TV changes angle to keep our attention

22

- eyes always move - so doesn't happen w/ eyes

\* perception organized by meaning

### Transduction

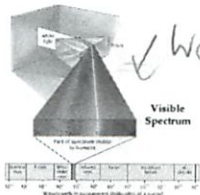
In sensation, the transformation of stimulus energy into neural impulses.

Phototransduction: Conversion of light energy into neural impulses that the brain can understand.

"very amazing"

24

### The Stimulus Input: Light Energy



25

bees can't see red

### Light Characteristics

1. Wavelength (hue/color)
2. Intensity (brightness)
3. Saturation (purity)

26

### Wavelength (Hue)

Hue (color) is the dimension of color determined by the wavelength of the light.

Short wavelength = high frequency (bluish colors, high-pitched sounds)



Wavelength is the distance from the peak of one wave to the peak of the next.

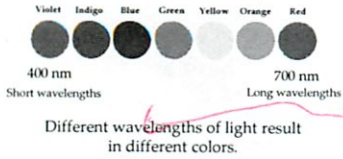
Long wavelength = low frequency (reddish colors, low-pitched sounds)



27

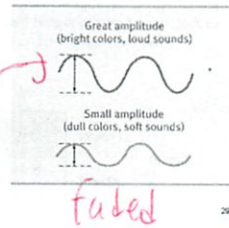
had eye setup yellow blue

### Wavelength (Hue)

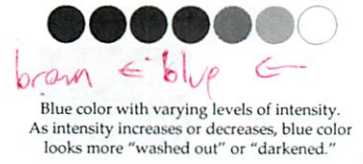


### Intensity (Brightness)

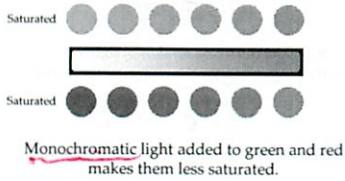
Intensity  
Amount of energy in a wave determined by the amplitude. It is related to perceived brightness.



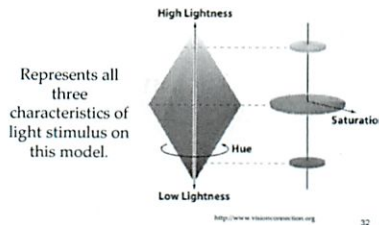
### Intensity (Brightness)



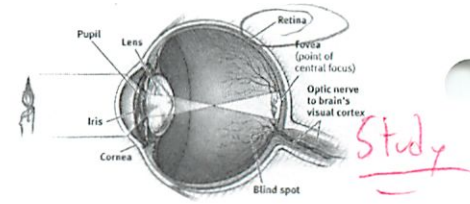
### Purity (Saturation)



### Color Solid



### The Eye



acuity = sharpness of vision

amt light hits retinas = colors

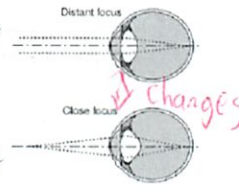
### Parts of the eye

1. Cornea: Transparent tissue where light enters the eye.
2. Iris: Muscle that expands and contracts to change the size of the opening (pupil) for light.
3. Lens: Focuses the light rays on the retina.
4. Retina: Contains sensory receptors that process visual information and sends it to the brain.

### The Lens

Lens: Transparent structure behind the pupil that changes shape to focus images on the retina.

Accommodation: The process by which the eye's lens changes shape to help focus near or far objects on the retina.

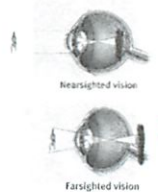


for light

### The Lens

Nearsightedness: A condition in which nearby objects are seen more clearly than distant objects.

Farsightedness: A condition in which faraway objects are seen more clearly than near objects.



both caused by misshaped eyeball

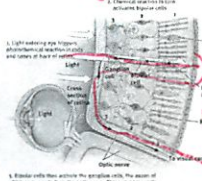
- children can accommodate
- but may get nearsighted
- middle age - lense loses flexibility



\* eye sends neural impulses to brain where it is processed

Retina  
Ganglion bipolar

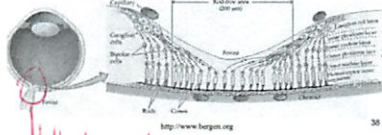
Retina: The light-sensitive inner surface of the eye, containing receptor rods and cones in addition to layers of other neurons (bipolar, ganglion cells) that process visual information.



Light neural impulses

Optic Nerve, Blind Spot & Fovea

Optic nerve: Carries neural impulses from the eye to the brain. Blind Spot: Point where the optic nerve leaves the eye because there are no receptor cells located there. This creates a blind spot. Fovea: Central point in the retina around which the eye's cones cluster.



blind spot

Test your Blind Spot

Use your textbook. Close your left eye, and fixate your right eye on the black dot. Move the page towards your eye and away from your eye. At some point the car on the right will disappear due to a blind spot.



\* light causes chemical causing neural impulses

many cones have own hotline to brain rods share hotlines

Rods - black white + gray  
Cones - color

Photoreceptors

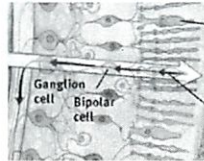
only in fovea



RECEPTORS IN THE HUMAN EYE		
	Cones	Rods
Number	6 million	120 million
Location in retina	Center	Periphery
Sensitivity in dim light	Low	High
Color sensitive?	Yes	No
Detail sensitive?	Yes	No

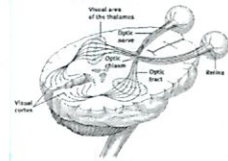
Bipolar & Ganglion Cells

Bipolar cells receive messages from photoreceptors and transmit them to ganglion cells, which are for the optic nerve.



Visual Information Processing

Optic nerves connect to the thalamus in the middle of the brain, and the thalamus connects to the visual cortex.

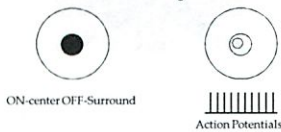


Color  
darkness  
around fovea (center)  
take lead @ night (can't see color however)

- retina = migrated brain cells  
- are very sensitive

Ganglion & Thalamic Cells

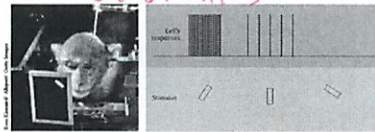
Retinal ganglion cells and thalamic neurons break down visual stimuli into small components and have receptive fields with center-surround organization.



Feature Detection

Nerve cells in the visual cortex respond to specific features, such as edges, angles, and movement.

of stimulus shapes



nerve cells that respond to specific features such as edges, angles + movement

Shape Detection

Specific combinations of temporal lobe activity occur as people look at shoes, faces, chairs and houses.



- Faces
- Houses
- Chairs
- Houses and Chairs

Can tell what  
people looking at by looking at fMRI  
- left ancestors survive + goalies react quickly

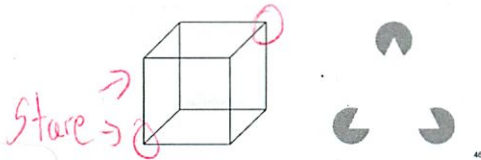
# Parallel processing

- Some people <sup>3/5</sup> cannot recognize motion

- other partially blind people can't see sticks - but can tell perfectly how organized - they can't tell if they are correct

## Perception in Brain

Our perceptions are a combination of sensory (bottom-up) and cognitive (top-down) processes.



faces = patterns of changing light intensity which can be described mathematically

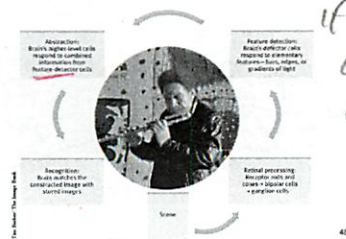
## Visual Information Processing

Processing of several aspects of the stimulus simultaneously is called parallel processing. The brain divides a visual scene into subdivisions such as color, depth, form and movement etc.



requires 30% of brain  
4 or more neural areas work together = conscious recognition

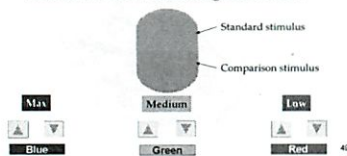
## From Sensation to Recognition



\* very amazing how brain can process info

## Theories of Color Vision \*

Trichromatic theory: Based on behavioral experiments, Helmholtz suggested that the retina should contain three receptors that are sensitive to red, blue and green colors.



- can see 7 million colors

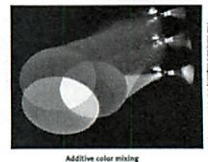
## Subtraction of Colors

If three primary colors (pigments) are mixed, subtraction of all wavelengths occurs and the color black is the result.



## Addition of Colors

If three primary colors (lights) are mixed, the wavelengths are added and the color white is the result.



- tomato is red b/c reflects every color except red

correct

Theory: each cone sees its own color

## Photoreceptors

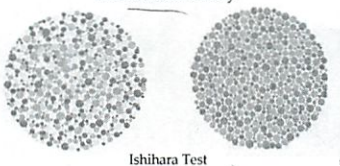
MacNichol, Wald and Brown (1967) measured directly the absorption spectra of visual pigments of single cones obtained from the retinas of humans.



length of wave = color - each has different

## Color Blindness

Genetic disorder in which people are blind to green or red colors. This supports the Trichromatic theory.



- are missing 1 or 2 colors from cones

## See opponent process

## Opponent Colors



Gaze at the middle of the flag for about 30 Seconds. When it disappears, stare at the dot and report whether or not you see Britain's flag.

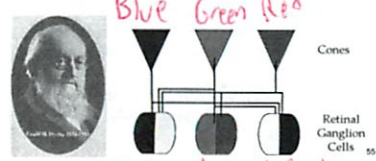
red vs green } extra  
blue vs yellow } primary  
black vs white  
\* opponent-process theory  
- some neurons turned on by red but not green



*Wrong*

*✗* Opponent Process Theory

Hering proposed that we process four primary colors combined in pairs of red-green, blue-yellow, and black-white.



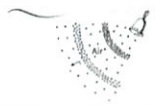
*B-Y R-G W*

*2 step processing system*

*-happened -but in different place in eye  
-one allows one -inhibits the other*

The Stimulus Input: Sound Waves

Sound waves are composed of compression and rarefaction of air molecules.

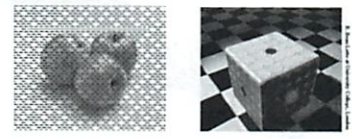


Acoustical transduction: Conversion of sound waves into neural impulses in the hair cells of the inner ear.

*hearing is a special form of touch*

Color Constancy

Color of an object remains the same under different illuminations. However, when context changes the color of an object may look different.



*-tomato in bowl - changes w/ lighting  
-tomato in veg platter - constant w/ lighting*

*Significant to artists + designers*

Audition

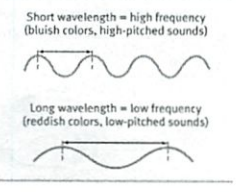
*blue dot indoors = yellow dot outside  
-then why do birds look the same?  
-monkeys raised in restricted wavelengths have trouble seeing objects in other light*

Sound Characteristics

1. Frequency (pitch)
2. Intensity (loudness)
3. Quality (timbre)

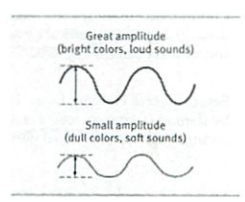
Frequency (Pitch)

Frequency (pitch): The dimension of frequency determined by the wavelength of sound.

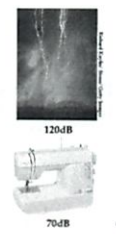
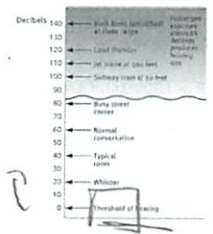


Intensity (Loudness)

Intensity (Loudness): Amount of energy in a wave, determined by the amplitude, relates to the perceived loudness.

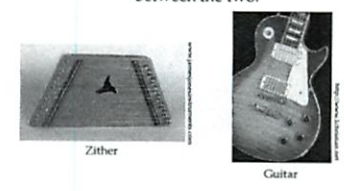


Loudness of Sound



Quality (Timbre)

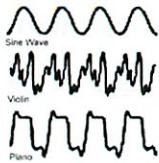
Quality (Timbre): Characteristics of sound from a zither and a guitar allows the ear to distinguish between the two.



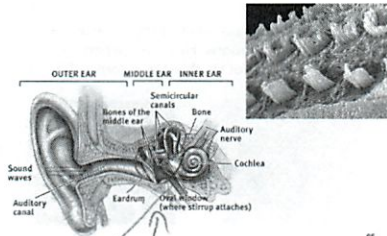
noise annoys - near to airport showed drop in test scores + ↑ in stress - especially if unpredictable + uncontrolled

Overtones

Overtones: Makes the distinction among musical instruments possible.



The Ear



The Ear

Outer Ear: Pinna. Collects sounds.

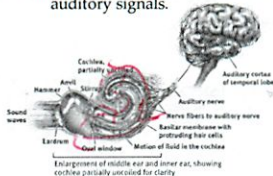
Middle Ear: Chamber between eardrum and cochlea containing three tiny bones (hammer, anvil, stirrup) that concentrate the vibrations of the eardrum on the cochlea's oval window.

Inner Ear: Innermost part of the ear, containing the cochlea, semicircular canals, and vestibular sacs.

hammer → anvil → stirrup  
little hairs move w/ sound - nerves pick up the movement

Cochlea

Cochlea: Coiled, bony, fluid-filled tube in the inner ear that transforms sound vibrations into auditory signals.

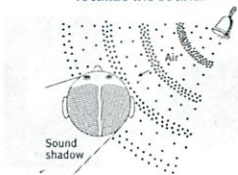


- if near loud noises cilia hair will fuse together

louder sounds make more hairs respond

Localization of Sounds

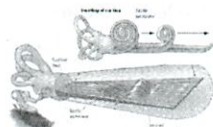
Because we have two ears, sounds that reach one ear faster than the other ear cause us to localize the sound.



what is closer is louder + very slightly sooner  
- but not so good if directly in front, behind, above + below - so cock head

Theories of Audition

Place Theory suggests that sound frequencies stimulate the basilar membrane at specific places resulting in perceived pitch.



high freq = vibrate near beginning  
low freq = vibrate near end

\* people w/ hearing loss can hear loud sounds the same - only want quiet sounds louder

Localization of Sound

1. Intensity differences
2. Time differences

Time differences as small as 1/100,000 of a second can cause us to localize sound. The head acts as a "shadow" or partial sound barrier.

shape of ear matters

low

Theories of Audition

Frequency Theory states that the rate of nerve impulses traveling up the auditory nerve matches the frequency of a tone, thus enabling us to sense its pitch.



count speed of impulses  
- but what about > 1000 times/sec - volley principle alternate neurons send  
\* seems to be somewhat of both

3/5

Hearing Loss

Conduction Hearing Loss: Hearing loss caused by damage to the mechanical system that conducts sound waves to the cochlea.

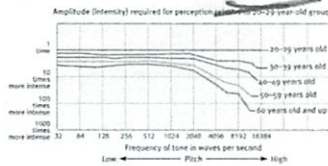
Sensorineural Hearing Loss: Hearing loss caused by damage to the cochlea's receptor cells or to the auditory nerve, also called nerve deafness.

hair damage  
- can be regrown in some animals  
- humans use hearing aid to compress sound



## Hearing Deficits

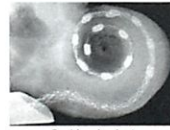
Older people tend to hear low frequencies well but suffer hearing loss when listening for high frequencies.



high freq. go 1st

## Deaf Culture

Cochlear implants are electronic devices that enable the brain to hear sounds.



- works best in preschoolers
- doesn't work on adults who could never hear
- Deaf culture advocates don't like
- Hearing loss more of a problem
- when lost - area in brain reassigned

## Other Important Senses

The sense of touch is a mix of four distinct skin senses—pressure, warmth, cold, and pain.



## Skin Senses

Only pressure has identifiable receptors. All other skin sensations are variations of pressure, warmth, cold and pain.



- monkeys separated from touch = very unhappy
- only pressure has own spot - others are in 1
- \* brain matters to - react more to unexpected tickles

## Gate-Control Theory

Melzack and Wall (1965, 1983) proposed that our spinal cord contains neurological "gates" that either block pain or allow it to be sensed.



- acupuncture tries to close gates
- \* sometimes pain is only in brain
- \* pain lessens - people remember last thing - so make that moderately painful

## Pain

Pain tells the body that something has gone wrong. Usually pain results from damage to the skin and other tissues. A rare disease exists in which the afflicted person feels no pain.



Ashley Blocker (right) feels neither pain nor extreme hot or cold.

← can be done w/o senses

- people who can't feel pain die earlier
- some people in constant pain
- can be caused by expectations
- persevere non-existent limbs
- tinnitus = ringing in the ear

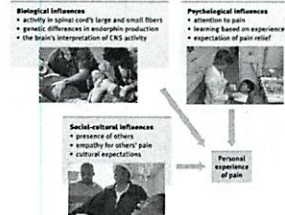
## Pain Control

Pain can be controlled by a number of therapies including, drugs, surgery, acupuncture, exercise, hypnosis, and even thought distraction.



- distractions - like counting by 3s
- VR + trees helps distract

## Biopsychosocial Influences



Personal experience of pain

## Taste

Traditionally, taste sensations consisted of sweet, salty, sour, and bitter tastes. Recently, receptors for a fifth taste have been discovered called "Umami".



- taste helped tell our ancestors what is poisonous
- taste = chemical
- can taste stuff very fast
- taste buds regrow every week

\* everything is related

### Sensory Interaction

When one sense affects another sense, sensory interaction takes place. So, the taste of strawberry interacts with its smell and its texture on the tongue to produce flavor.

Smell is a large part of taste

Smell + texture + taste = Flavor

- seeing + hearing have some effect
- synaesthesia - closely relating 1 sense to another

### Smell and Memories

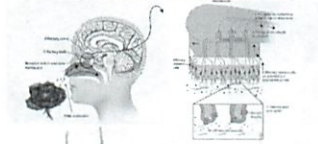
The brain region for smell (in red) is closely connected with the brain regions involved with memory (limbic system). That is why strong memories are made through the sense of smell.



recognize smells through memories

### Smell

Like taste, smell is a chemical sense. Odorants enter the nasal cavity to stimulate 5 million receptors to sense smell. Unlike taste, there are many different forms of smell.



- Mom + baby recognize each other's smells
- we can recog. 10,000 odors
- a combo of many receptors detects smell
- each person has own smell (except twins)

### Body Position and Movement

The sense of our body parts' position and movement is called kinesthesia. The vestibular sense monitors the head (and body's) position.



Whirling Dervishes

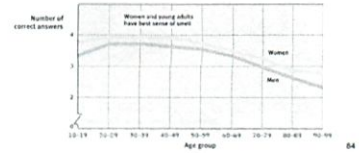


Wire Walk

With sense we know where we are without it can only walk if looking at feet  
 Vestibular sense in ears measures fluids like a gyroscope  
 spinning in circles + stopping confuses  
 thus feel dizzy

### Age, Gender, and Smell

Ability to identify smell peaks during early adulthood, but steadily declines after that. Women are better at detecting odors than men.



- other animals better at smell - to find prey



Chop 6

On your own

3/16



### PSYCHOLOGY

(8th Edition)  
David Myers

PowerPoint Slides  
Anceq Ahmad  
Henderson State University

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### Perception

#### Chapter 6

### Perception

Selective Attention

Perceptual Illusions

Perceptual Organization

- Form Perception
- Motion Perception
- Perceptual Constancy

How we perceive things affects how we act  
↑ Guided by prior experiences

### Perception

#### Perceptual Interpretation

- Sensory Deprivation and Restored Vision
- Perceptual Adaptation
- Perceptual Set
- Perception and Human Factor

### Perception

#### Is there Extrasensory Perception?

- Claims of ESP
- Premonitions or Pretensions
- Putting ESP to Experimental Test

### Perception

The process of selecting, organizing, and interpreting sensory information, which enables us to recognize meaningful objects and events.

↑  
find meaning

### Selective Attention

Perceptions about objects change from moment to moment. We can perceive different forms of the Necker cube; however, we can only pay attention to one aspect of the object at a time.



Necker Cube

"focused like a flashlight"

- pay attention to 1 thing at a time  
- unconsciously aware of rest of world

### Inattentional Blindness

Inattentional blindness refers to the inability to see an object or a person in our midst. Simmons & Chabris (1999) showed that half of the observers failed to see the gorilla-suited assistant in a ball passing game.



- so focused on something miss something else  
- air pilots focused on instruments miss planes

### Change Blindness

Change blindness is a form of inattentional blindness in which two-thirds of individuals giving directions failed to notice a change in the individual asking for directions.

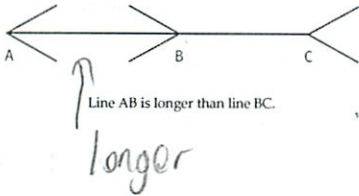


↑ also so focused, can't see person changed  
- also if chose something - will explain why - for the other one

vision "subject to perjury"

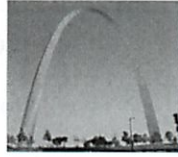
Perceptual Illusions

Illusions provide good examples in understanding how perception is organized. Studying faulty perception is as important as studying other perceptual phenomena.



Tall Arch

In this picture, the vertical dimension of the arch looks longer than the horizontal dimension. However, both are equal.



height + width =

Illusion of a Worm



The figure on the right gives the illusion of a blue hazy "worm" when it is nothing else but blue lines identical to the figure on the left.

3-D Illusion



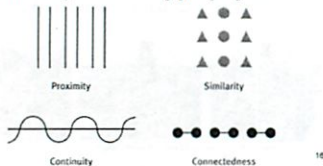
It takes a great deal of effort to perceive this figure in two dimensions.

↑ Brain perceives this image as 3D

Visual capture - perception from eyes overrides other senses

Grouping

After distinguishing the figure from the ground, our perception needs to organize the figure into a meaningful form using grouping rules.



Perceptual Organization

When vision competes with our other senses, vision usually wins - a phenomena called visual capture.

How do we form meaningful perceptions from sensory information?

We organize it. Gestalt psychologists showed that a figure formed a "whole" different than its surroundings.

Experience exceeds sum of its parts

Form Perception

Organization of the visual field into objects (figures) that stand out from their surroundings (ground).



Objects = figures  
Surroundings = ground

Grouping & Reality

Although grouping principles usually help us construct reality, they may occasionally lead us astray.



↑ See things as a whole  
grouping sometimes leads us astray

Depth Perception

Depth perception enables us to judge distances. Gibson and Walk (1960) suggested that human infants (crawling age) have depth perception. Even newborn animals show depth perception.



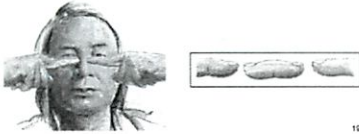
Visual Cliff

↑ shown to be innate  
day old animals see drop-off



**Binocular Cues**

Retinal disparity: Images from the two eyes differ. Try looking at your two index fingers when pointing them towards each other half an inch apart and about 5 inches directly in front of your eyes. You will see a "finger sausage" as shown in the inset.



Use both eyes to see things - difference btw  
- 3D movies  
- etc

**Binocular Cues**

Convergence: Neuromuscular cues. When two eyes move inward (towards the nose) to see near objects and outward (away from the nose) to see faraway objects.



- know where muscle is and use that info

**Monocular Cues**

Relative Size: If two objects are similar in size, we perceive the one that casts a smaller retinal image to be farther away.



- Smaller one -> farther away  
- can mistake small pedestrians as farther away while driving

**Monocular Cues**

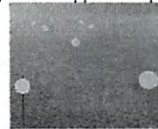
Interposition: Objects that occlude (block) other objects tend to be perceived as closer.



if something is blocking something else - know it is farther away

**Monocular Cues**

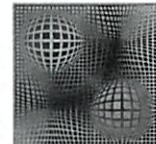
Relative Clarity: Because light from distant objects passes through more light than closer objects, we perceive hazy objects to be farther away than those objects that appear sharp and clear.



foggy objects farther away

**Monocular Cues**

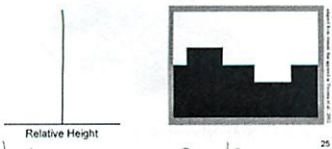
Texture Gradient: Indistinct (fine) texture signals an increasing distance.



farther away = more tightly packed

**Monocular Cues**

Relative Height: We perceive objects that are higher in our field of vision to be farther away than those that are lower.



higher = farther away  
people pour less juice in a tall thin glass

**Monocular Cues**

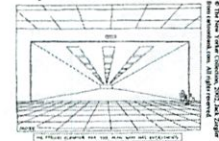
Relative motion: Objects closer to a fixation point move faster and in opposing direction to those objects that are farther away from a fixation point, moving slower and in the same direction.



When we fixate on a point - things behind it appear to move backward - in front forwards

**Monocular Cues**

Linear Perspective: Parallel lines, such as railroad tracks, appear to converge in the distance. The more the lines converge, the greater their perceived distance.

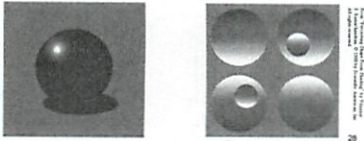


parallel lines converge

Stroboscopic movement - put together still images - like movies

Monocular Cues

Light and Shadow: Nearby objects reflect more light into our eyes than more distant objects. Given two identical objects, the dimmer one appears to be farther away.



Shadows matter too we assume all light comes from above

Motion Perception

Motion Perception: Objects traveling towards us grow in size and those moving away shrink in size. The same is true when the observer moves to or from an object.



Shrinking objects = getting smaller  
\* large objects appear to move slower

Apparent Motion

Phi Phenomenon: When lights flash at a certain speed they tend to present illusions of motion. Neon signs use this principle to create motion perception.

marquee

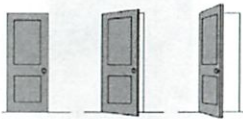


One light jumping from one point to another: illusion of motion.

\* brain constructs perception from senses

Perceptual Constancy

Perceiving objects as unchanging even as illumination and retinal images change. Perceptual constancies include constancies of shape and size.



Shape Constancy

we use our knowledge of it as we construct it in our mind

Size Constancy

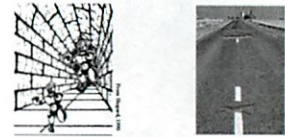
Stable size perception amid changing size of the stimuli.



Size Constancy

Size-Distance Relationship

The distant monster (below, left) and the top red bar (below, right) appear bigger because of distance cues.



distance → size  
- moon looks larger - at horizon

- Muller-Lyer movie theater illusion

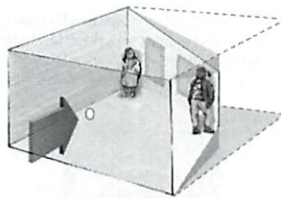
Size-Distance Relationship

Both girls in the room are of similar height. However, we perceive them to be of different heights as they stand in the two corners of the room.



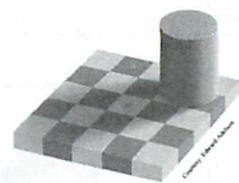
normal depth perception sometimes wrong

Ames Room



The Ames room is designed to demonstrate the size-distance illusion.

Lightness Constancy



The color and brightness of square A and B are the same.

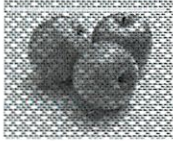
black paper in sunlight = 100x light than white paper indoors - but still seen as black  
we split sounds into words - in our language but not in others

\* rural people in round houses less likely to fall for movie theater illusion



### Color Constancy

Perceiving familiar objects as having consistent color even when changing illumination filters the light reflected by the object.



Color Constancy

### Perceptual Interpretation

Immanuel Kant (1724-1804) maintained that knowledge comes from our inborn ways of organizing sensory experiences.

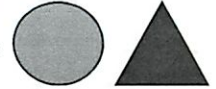
John Locke (1632-1704) argued that we learn to perceive the world through our experiences.

How important is experience in shaping our perceptual interpretation?

nature vs. nurture

### Restored Vision

After cataract surgery, blind adults were able to regain sight. These individuals could differentiate figure and ground relationships, yet they had difficulty distinguishing a circle and a triangle (Von Senden, 1932).



have only limited vision  
can recognize colors + brightness - but not faces + thought things moving away were getting smaller

### Facial Recognition

After blind adults regained sight, they were able to recognize distinct features, but were unable to recognize faces. Normal observers also show difficulty in facial recognition when the lower half of the pictures are changed.



40

### Sensory Deprivation



Blakemore & Cooper (1970)

Kittens raised without exposure to horizontal lines later had difficulty perceiving horizontal bars.

41

### Perceptual Adaptation

Visual ability to adjust to an artificially displaced visual field, e.g., prism glasses.



42

\*critical period at childhood where perception developed  
if cover eyes during adulthood - no loss of perception

- can adapt to glasses that move everything 40°  
- chicks can't  
- experience after effect

### Perceptual Set

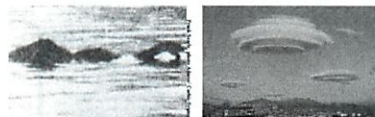
A mental predisposition to perceive one thing and not another. What you see in the center picture is influenced by flanking pictures.



once have wrong idea of reality - harder to understand right version

### Perceptual Set

Other examples of perceptual set.

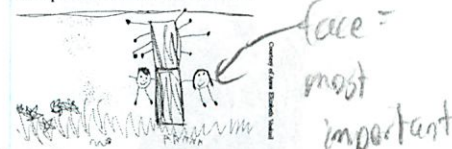


(a) Loch Ness monster or a tree trunk; (b) Flying saucers or clouds?

44

### Schemas

Schemas are concepts that organize and interpret unfamiliar information.

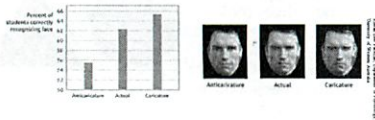


Children's schemas represent reality as well as their abilities to represent what they see.

? children have limited ability to represent world

### Features on a Face

Face schemas are accentuated by specific features on the face.



Students recognized a caricature of Arnold Schwarzenegger faster than his actual photo.

People recognize caricature more

### Eye & Mouth

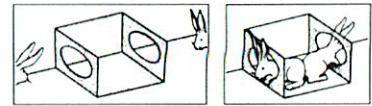
Eyes and mouth play a dominant role in face recognition.



eyes on center line  
2/3 of time

### Context Effects

Context can radically alter perception.



Is the "magician cabinet" on the floor or hanging from the ceiling?

Can work backwards to understand something

### Cultural Context

Context instilled by culture also alters perception.

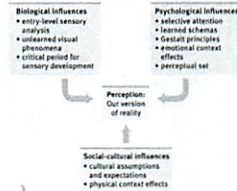


To an East African, the woman sitting is balancing a metal box on her head, while the family is sitting under a tree.

- people seeing film affected by what before with sad music pain is interpreted as pain

### Perception Revisited

Is perception innate or acquired?



- people that see a baby will interpret it as girl or boy and point out gender specific features

### Perception & Human Factors

Human Factor Psychologists design machines that assist our natural perceptions.

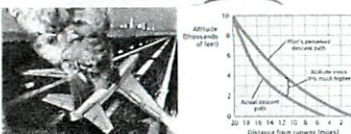


The knobs for the stove burners on the right are easier to understand than those on the left.

don't need labels - designers should think about these things

### Human Factors & Misperceptions

Understanding human factors enables us to design equipment to prevent disasters.

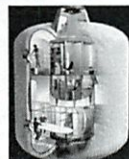


Two-thirds of airline crashes caused by human error are largely due to errors of perception.

- should action "pull up" or problem "ground proximity"

### Human Factors in Space

To combat conditions of monotony, stress, and weightlessness when traveling to Mars, NASA engages Human Factor Psychologists.



Transit Habitation (Transhab), NASA

### Is There Extrasensory Perception?

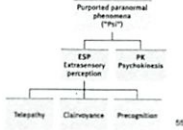
Perception without sensory input is called extrasensory perception (ESP). A large percentage of scientists do not believe in ESP.

46%



### Claims of ESP

Paranormal phenomena include astrological predictions, psychic healing, communication with the dead, and out-of-body experiences, but most relevant are telepathy, clairvoyance, and precognition.



### Claims of ESP

1. Telepathy: Mind-to-mind communication. One person sending thoughts and the other receiving them.
2. Clairvoyance: Perception of remote events, such as sensing a friend's house on fire.
3. Precognition: Perceiving future events, such as a political leader's death.

### Premonitions or Pretensions?

Can psychics see the future? Can psychics aid police in identifying locations of dead bodies? What about psychic predictions of the famous Nostradamus?

The answers to these questions are NO! Nostradamus' predictions are "retrofitted" to events that took place after his predictions.

psychokinesis - using mind to lift a table

- almost never predicts things + big news events
- predictions never become true
- often retrofitted back
- chance events can happen
- probability says so

### Putting ESP to Experimental Test

In an experiment with 28,000 individuals, Wiseman attempted to prove whether or not one can psychically influence or predict a coin toss. People were able to correctly influence or predict a coin toss 49.8% of the time.



- test to see if theories work
- never really proven

- \* tension in science:
  - openness to new ideas
  - ruthless skeptical scrutiny

PSYCHOLOGY

(8th Edition) David Myers

PowerPoint Slides Aneeq Ahmad Henderson State University

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States of Consciousness

Chapter 7

States of Consciousness

Consciousness and Information Processing

Sleep and Dreams

- Biological Rhythms, The Rhythm of Sleep, Sleep Disorders, Dreams

States of Consciousness

Hypnosis

- Facts and Falsehoods, Is Hypnosis an Altered State of Consciousness?

Drugs and Consciousness

- Dependence and Addiction, Psychoactive Drugs, Influences on Drug Use

States of Consciousness

Near-Death Experiences

Dreams ???

History of Consciousness

- 1. Psychology began as a science of consciousness. 2. Behaviorists argued about alienating consciousness from psychology. 3. However, after 1960, mental concepts (consciousness) started reentering psychology.

started then more about behavior

\* awareness of ourselves + our environment - allows us to exert voluntary control + mental state to others

Forms of Consciousness

Consciousness, modern psychologists believe, is an awareness of ourselves and our environment.



Neuroscience & Consciousness

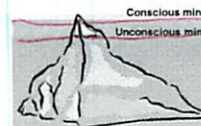
Neuroscientists believe that consciousness emerges from the interaction of individual brain events much like a chord that is created from different musical notes.



working together

Consciousness & Information Processing

The unconscious mind processes information simultaneously on multiple tracks, while the conscious mind processes information sequentially.



- but we can do things + not be aware - actual letters on keyboard - sometimes arrives late

Our conscience only deals with changes (processed serially) - keeps us from doing everything at once



## Sleep & Dreams

Sleep – the irresistible tempter to whom we inevitably succumb.



Mysteries about sleep and dreams have just started unraveling in sleep laboratories around the world.

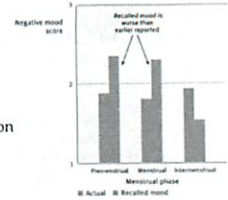
## Biological Rhythms

Biological rhythms are controlled by internal "biological clocks."

1. **Annual cycles:** On an annual cycle, geese migrate, grizzly bears hibernate, and humans experience seasonal variations in appetite, sleep, and mood. *Seasonal Affective Disorder (SAD)* is a mood disorder people experience during dark winter months.

## Biological Rhythms

2. **28-day cycles:** The female menstrual cycle averages 28 days. Research shows menstruation may not affect moods.



## Biological Rhythms

3. **24-hour cycles:** Humans experience 24-hour cycles of varying alertness (sleep), body temperature, and growth hormone secretion.
4. **90-minute cycles:** We go through various stages of sleep in 90-minute cycles.

Other animals different

sleep producer

adenosine = sleepy

\* light delays sleep

## Rhythm of Sleep

Circadian Rhythms occur on a 24-hour cycle and include sleep and wakefulness, which are disrupted during transcontinental flights.



Light triggers the suprachiasmatic nucleus to decrease (morning) melatonin from the pineal gland and increase (evening) it at night fall.

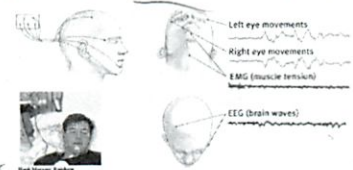
light awakens us

tweaks

- as age move from circadian cycle  
 night loving to morning loving  
 - daily peaks vary at certain times of day

## Sleep Stages

Measuring sleep: About every 90 minutes, we pass through a cycle of five distinct sleep stages.



## Awake & Alert

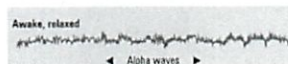
During strong mental engagement, the brain exhibits low amplitude and fast, irregular beta waves (15-30 cps). An awake person involved in a conversation shows beta activity.



Beta Waves

## Awake but Relaxed

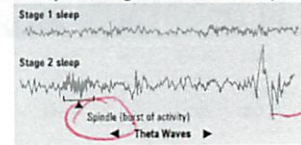
When an individual closes his eyes but remains awake, his brain activity slows down to a large amplitude and slow, regular alpha waves (9-14 cps). A meditating person exhibits an alpha brain activity.



Alpha waves

## Sleep Stages 1-2

During early, light sleep (stages 1-2) the brain enters a high-amplitude, slow, regular wave form called theta waves (5-8 cps). A person who is daydreaming shows theta activity.



stage 2

20 min

On every test

Sleep spindles - bursts of activity

can be easily awakened

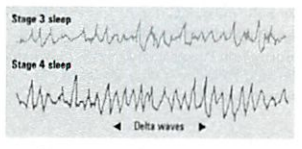
EEG scans can tell when we fall asleep  
 ↑ stage 1: hallucinations - could feel like floating

Beta → Alpha → Theta → Delta → Beta  
 Awake Awake + Relaxed 1+2 3+4 5 (REM) EEG

eye twitching due to twitching muscles

**Sleep Stages 3-4**

During deepest sleep (stages 3-4), brain activity slows down. There are large-amplitude, slow delta waves (1.5-4 cps).

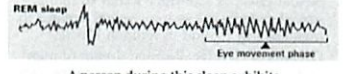


transition →

can't tell diff w/o EEG

**Stage 5: REM Sleep**

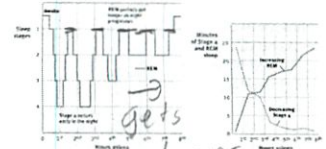
After reaching the deepest sleep stage (4), the sleep cycle starts moving backward towards stage 1. Although still asleep, the brain engages in low-amplitude, fast and regular beta waves (15-40 cps) much like awake-aroused state.



A person during this sleep exhibits Rapid Eye Movements (REM) and reports vivid dreams. 10 min

**90-Minute Cycles During Sleep**

With each 90-minute cycle, stage 4 sleep decreases and the duration of REM sleep increases.



gets longer

- 30 min
- hard to awaken
- children sleepwalk (20%)
- body filters stimuli - babies cry - but not highway

after an hr

- heart rate rises
- erection (about 30-45 min)
- young: half night
- old: 1/4 night (even w/ ED)
- essentially paralyzed
- can not be easily awaken

can remember dream if awoken here

- emotional
- storylike
- richly hallucinatory

**Why do we sleep?**

We spend one-third of our lives sleeping.

If an individual remains awake for several days, they deteriorate in terms of immune function, concentration, and accidents.

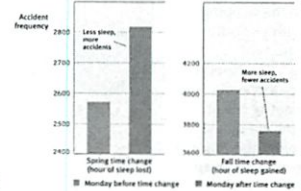


1. Fatigue and subsequent death.
2. Impaired concentration.
3. Emotional irritability.
4. Depressed immune system.
5. Greater vulnerability.



**Accidents**

Frequency of accidents increase with loss of sleep



- drive offs disease
- slow reaction times

newborns: 2/3 day  
 adults: 1/3 day  
 length genetically influenced  
 culturally influenced  
 most humans sleep 9hrs if allowed - many big accidents at night  
 - keep track of sleep debts for 2 weeks

**Sleep Theories**

1. Sleep Protects: Sleeping in the darkness when predators loomed about kept our ancestors out of harm's way.
2. Sleep Recuperates: Sleep helps restore and repair brain tissue.
3. Sleep Helps Remembering: Sleep restores and rebuilds our fading memories.
4. Sleep and Growth: During sleep, the pituitary gland releases growth hormone. Older people release less of this hormone and sleep less.

animals which graze don't need sleep  
 - rest + repair tissue  
 - rebuilds memories

**Sleep Disorders: Insomnia**

10-15% adults

1. Somnambulism: Sleepwalking.
2. Nightmares: Frightening dreams that wake a sleeper from REM.
3. Night terrors: Sudden arousal from sleep with intense fear accompanied by physiological reactions (e.g., rapid heart rate, perspiration) that occur during SWS.

- overstate time to fall asleep  
 - during stage 4 in children  
 - not remembered  
 - sleepwalking

**Sleep Disorders: Insomnia**

4. Narcolepsy: Overpowering urge to fall asleep that may occur while talking or standing up.
5. Sleep apnea: Failure to breathe when asleep.

may collapse suddenly  
 - brain disease  
 - can be relieved w/ hypocretin  
 - overweight men  
 given mask to help breathing

ride traffic accidents



# hallucinations of the sleeping mind

## Dreams

The link between REM sleep and dreaming has opened up a new era of dream research.



vivid emotional bizarre  
- may be confused w/ reality

4/5 dreams negative  
< 1/10 re sex  
65% of characters in male's dreams are male

## What do we Dream?

1. Negative Emotional Content: 8 out of 10 dreams have negative emotional content.
2. Failure Dreams: People commonly dream about failure, being attacked, pursued, rejected, or struck with misfortune.
3. Sexual Dreams: Contrary to our thinking, sexual dreams are sparse. Sexual dreams in men are 1 in 10; and in women 1 in 30.
4. Dreams of Gender: Women dream of men and women equally; men dream more about men than women.

\* integrate outside into dream - telephone ringing things 5 min before sleep forgotten why forget dreams

## Why do we dream?

1. **Wish Fulfillment:** Sigmund Freud suggested that dreams provide a psychic safety valve to discharge unacceptable feelings. The dream's manifest (apparent) content may also have symbolic meanings (latent content) that signify our unacceptable feelings.
  2. **Information Processing:** Dreams may help sift, sort, and fix a day's experiences in our memories. *more recognized today*
- REM sleep archives memory

## Why do we dream?

4. **Activation-Synthesis Theory:** Suggests that the brain engages in a lot of random neural activity. Dreams make sense of this activity.
5. **Cognitive Development:** Some researchers argue that we dream as a part of brain maturation and cognitive development.

All dream researchers believe we need REM sleep. When deprived of REM sleep and then allowed to sleep, we show increased REM sleep called REM Rebound.

animals need REM sleep  
dreams are like abstract art

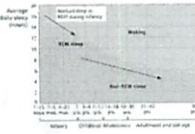
## Dream Theories

### Summary

Theory	Explanation	Critical Considerations
Freud's wish-fulfillment	Dreams provide a "psychic safety valve" - expressing otherwise unacceptable feelings, certain repressed (unconscious) desires and a deeper layer of latent content - a hidden meaning.	Lacks any scientific support. Dreams may be interpreted in many different ways.
Information processing	Dreams help us sort out the day's events and consolidate our memories.	But why do we sometimes dream about things we have not experienced?
Physiological function	Regular brain activation from REM sleep may help develop and organize neural pathways.	Doesn't try to say, but it does not explain why we experience meaningful dreams.
Activation-synthesis	REM sleep triggers impulses that cause random neural activity, which are interpreted into meaning.	The individual's brain is weaving the pieces, which will help us remember about the dream.
Cognitive theory	Dream content reflects a dreamer's cognitive development - their personality and understanding.	Dreams may address the neuroanatomy of dreams.

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3. **Physiological Function:** Dreams provide the sleeping brain with periodic stimulation to develop and preserve neural pathways. Neural networks of newborns are quickly developing; therefore, they need more sleep.



random brain activity  
dreams is our attempt to make sense of it  
brain active in emotion not logic areas

## Hypnosis

A social interaction in which one person (the hypnotist) suggests to another (the subject) that certain perceptions, feelings, thoughts, or behaviors will spontaneously occur.



Hypnos: Greek god of sleep

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## Mesmerism

Credit for the popularity of hypnosis goes to Franz Anton Mesmer, a physician, who mistakenly thought he discovered "animal magnetism." Some of his patients experienced a trance-like state and felt better upon waking up.



Franz Mesmer (1734 - 1815)

gave a bad name to hypnosis

\* requires participant's willingness

## Aspects of Hypnosis

1. **Posthypnotic Suggestion:** Suggestion carried out after the subject is no longer hypnotized. *can be used as therapy for obesity*
2. **Posthypnotic Amnesia:** Supposed inability to recall what one experienced during hypnosis.

some people are more susceptible to hypnosis

hypnosis can create memories  
- mixes facts w/ fiction

### Hypnotic Feats

Strength, stamina, and perceptual and memory abilities similarly affect those who are hypnotized and those who are not hypnotized.



same as if not hypnosis

### Facts and Falsehood

Those who practice hypnosis agree that its power resides in the subject's openness to suggestion.

- Can anyone experience hypnosis? Yes, to some extent.
- Can hypnosis enhance recall of forgotten events? No.

### Facts and Falsehood

- Can hypnosis force people to act against their will? No.
- Can hypnosis be therapeutic? Yes. Self-suggestion can heal too.
- Can hypnosis alleviate pain? Yes. Lamaze can do that too.

- overt behavior of hypnosis are well within normal limits  
- can help people heal + less sensitive to pain  
  ↑ dissociation - split in consciousness  
  - don't pay attention to pain  
  - but still respond w/ faster heart beat

### Is Hypnosis an Altered State of Consciousness?

- Social Influence Theory:** Hypnotic subjects may simply be imaginative actors playing a social role.
- Divided Consciousness Theory:** Hypnosis is a special state of dissociated (divided) consciousness (Hilgard, 1986, 1992).



### Both Theories



Perhaps a combo of both

### Drugs and Consciousness

Psychoactive Drug: A chemical substance that alters perceptions and mood (effects consciousness).

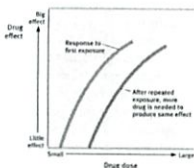
does affect mind  
gork - give drugs that make someone a vegetable

hypnotic subjects

attention guides perceptions  
- do it to make it look like hypnosis is used  
- appears like an hallucination  
- or just like we can 2 things at once (subjective appearance)

### Dependence & Addiction

Continued use of a psychoactive drug produces tolerance. With repeated exposure to a drug, the drug's effect lessens. Thus it takes greater quantities to get the desired effect.



- alcohol  
- but brain heart + liver also suffers damage

### Withdrawal & Dependence

- Withdrawal:** Upon stopping use of a drug (after addiction), users may experience the undesirable effects of withdrawal.
- Dependence:** Absence of a drug may lead to a feeling of physical pain, intense cravings (physical dependence), and negative emotions (psychological dependence).

may focus on getting the drug

### Misconceptions about Addiction

Addiction is a craving for a chemical substance, despite its adverse consequences (physical & psychological).

- Addictive drugs quickly corrupt.
- Addiction cannot be overcome voluntarily.
- Addiction is no different than repetitive pleasure-seeking behaviors.

Only 15% max get addicted to crack + others can quit - and many do so when surroundings change  
Should we debate continues

probe to addiction b/c self-esteem



↓ released inhibition

- also affects if people believe  
- more sexual promiscuous - if thought they were drunk

### Psychoactive Drugs

Psychoactive drugs are divided into three groups.

1. Depressants
2. Stimulants
3. Hallucinogens

expectations also play a role

\* Urges felt if sober are acted upon under alcohol

- more likely to have (unprotected) sex

### Depressants

Depressants are drugs that reduce neural activity and slow body functions. They include:

1. Alcohol
2. Barbiturates
3. Opiates

### Alcohol

1. Alcohol affects motor skills, judgment, and memory... and increases aggressiveness while reducing self awareness.



narrowing  
- always a depressant  
- good + bad  
- slows judgement + reaction times  
- prevents memories from being archived

### Stimulants

Stimulants are drugs that excite neural activity and speed up body functions.

1. Caffeine
2. Nicotine
3. Cocaine
4. Ecstasy
5. Amphetamines
6. Methamphetamines

↑ releases dopamine  
- 3hrs

- addicting  
- trouble when high over

### Barbiturates

"downers"

2. Barbiturates: Drugs that depress the activity of the central nervous system, reducing anxiety but impairing memory and judgment. Nembutal, Seconal, and Amytal are some examples.

mimics alcohol  
cause sleep-sleeping pill  
can cause memory damage

3. Opiates: Opium and its derivatives (morphine and heroin) depress neural activity, temporarily lessening pain and anxiety. They are highly addictive.



pleasure replaces pain for short time  
- problems in long term  
brain stops producing own endorphins

### Amphetamines

Amphetamines stimulate neural activity, causing accelerated body functions and associated energy and mood changes, with devastating effects.



- don't care about anything except drugs

### Caffeine & Nicotine

Caffeine and nicotine increase heart and breathing rates and other autonomic functions to provide energy.



### Ecstasy

Ecstasy or Methylendioxyamphetamine (MDMA) is a stimulant and mild hallucinogen. It produces a euphoric high and can damage serotonin-producing neurons, which results in a permanent deflation of mood and impairment of memory.

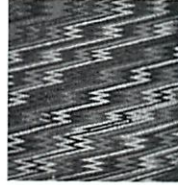


## Cocaine

Cocaine induces immediate euphoria followed by a crash. Crack, a form of cocaine, can be smoked. Other forms of cocaine can be sniffed or injected.



Hallucinogens are psychedelic (mind-manifesting) drugs that distort perceptions and evoke sensory images in the absence of sensory input



Distorting perception  
Hallucinogens

blocks reuptake

fast track euphoria to crash  
15-30 min ← crash faster  
depends on personality + expectations

produce senses w/o images  
LSD (acid) - same as if oxygen deprived

## Drugs

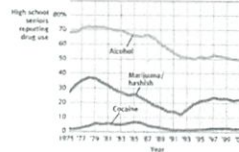
### Summary

Drug	Type	Accumulated Effects	Adverse Effects
Alcohol	Depressant	Individuals tolerant to ethanol and withdrawal	Depression, tremors, liver damage, neuronal damage
Amphetamine	Stimulant	Reds of appetite, alertness, pain	Depression, psychosis, learning impairment
Cocaine	Stimulant	Increased alertness and euphoria	Acute myocardial infarction, stroke, high blood pressure, pulmonary edema
Heroin	Opioid	Euphoria, relaxation, sleep	Respiratory depression, coma, death
Marijuana	Psychoactive	Reds of appetite, euphoria, sleep	Cardiovascular stress, hallucinations, dependence
MDA	Stimulant	Alertness and euphoria, sense of well-being	Heart failure, stroke, liver and kidney damage
Ecstasy	Stimulant	Euphoria, alertness, sense of well-being	Substance abuse, depression, mood, cognitive and memory functioning
Ecstasy and MDA	Stimulant	Euphoria, alertness, sense of well-being	Substance abuse, depression, mood, cognitive and memory functioning
MDA	Stimulant	Euphoria, alertness, sense of well-being	Substance abuse, depression, mood, cognitive and memory functioning
MDA	Stimulant	Euphoria, alertness, sense of well-being	Substance abuse, depression, mood, cognitive and memory functioning

review

## Influences on Drug Use

The graph below shows the percentage of US high-school seniors reporting their use of alcohol, marijuana, and cocaine from the 70s to the late 90s.



easy to find  
more expensive

- drug use down  
- relative to anti-drug culture

## Hallucinogens

1. LSD: (lysergic acid diethylamide) powerful hallucinogenic drug (ergot fungus) that is also known as acid.
2. THC (delta-9-tetrahydrocannabinol): is the major active ingredient in marijuana (hemp plant) that triggers a variety of effects, including mild hallucinations.



high  
could be therapeutic  
- disrupts memory  
\* perhaps natural occurring in our bodies  
- lasts for 2 months

3/27

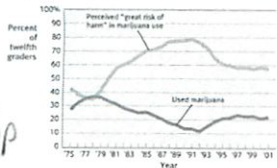
## Influences on Drug Use

The use of drugs is based on biological, psychological, and social-cultural influences.



## Marijuana Use

The use of marijuana in teenagers is directly related to the "perceived risk" involved with the drug.



inverse relationship

more anti-drug message = less use

- peer culture
- friends

42% HS dropouts  
15% college grads  
smoke

## Near-Death Experiences

After a close brush with death, many people report an experience of moving through a dark tunnel with a light at the end. Under the influence of hallucinogens, others report bright lights at the center of their field of vision.



- hallucinations  
- increased visual activity

## Mind-Body Problem

Near-death experiences raise the mind-body issue. Can the mind survive the dying body?

1. Dualism: Dualists believe that mind (non-physical) and body (physical) are two distinct entities that interact.
2. Monism: Monists believe that mind and body are different aspects of the same thing.

84% Americans  
mind is what brain does



Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. At its beginning, psychology focused on the study of:

- A) observable behavior.
- B) consciousness.
- C) abnormal behavior.
- D) all of the above.

2. As defined by the text, consciousness includes which of the following?

- A) focused attention
- B) sleeping
- C) hypnosis
- D) all of the above

3. *Consciousness* is defined in the text as:

- A) mental life.
- B) selective attention to ongoing perceptions, thoughts, and feelings.
- C) information processing.
- D) our awareness of ourselves and our environment.

4. Concluding his presentation on levels of information processing, Miguel states that:

- A) humans process both conscious and unconscious information in parallel.
- B) conscious processing occurs in parallel, while unconscious processing is serial.
- C) conscious processing is serial, while unconscious processing is parallel.
- D) all information processing is serial in nature.

5. Which of the following is not an example of a biological rhythm?

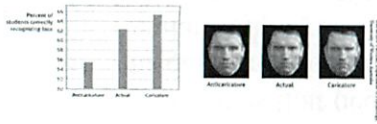
- A) feeling depressed during the winter months
- B) the female menstrual cycle
- C) the five sleep stages
- D) sudden sleep attacks during the day

6. Circadian rhythms are the:

- A) brain waves that occur during Stage 4 sleep.
- B) muscular tremors that occur during opiate withdrawal.
- C) regular body cycles that occur on a 24-hour schedule.
- D) brain waves that are indicative of Stage 2 sleep.

## Features on a Face

Face schemas are accentuated by specific features on the face.



Students recognized a caricature of Arnold Schwarzenegger faster than his actual photo.

46

## Eye & Mouth

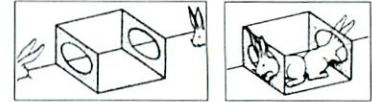
Eyes and mouth play a dominant role in face recognition.



47

## Context Effects

Context can radically alter perception.



Is the "magician cabinet" on the floor or hanging from the ceiling?

48

## Cultural Context

Context instilled by culture also alters perception.

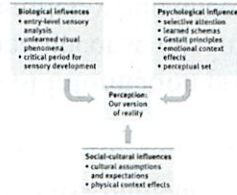


To an East African, the woman sitting is balancing a metal box on her head, while the family is sitting under a tree.

49

## Perception Revisited

Is perception innate or acquired?



50

## Perception & Human Factors

Human Factor Psychologists design machines that assist our natural perceptions.

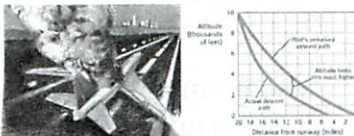


The knobs for the stove burners on the right are easier to understand than those on the left.

51

## Human Factors & Misperceptions

Understanding human factors enables us to design equipment to prevent disasters.

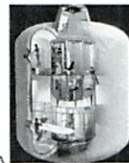


Two-thirds of airline crashes caused by human error are largely due to errors of perception.

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## Human Factors in Space

To combat conditions of monotony, stress, and weightlessness when traveling to Mars, NASA engages Human Factor Psychologists.



Transit Habitation (Transhab), NASA

53

## Is There Extrasensory Perception?

Perception without sensory input is called extrasensory perception (ESP). A large percentage of scientists do not believe in ESP.

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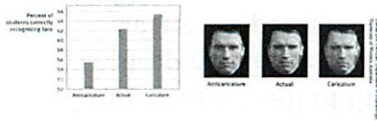
7. When our \_\_\_\_\_ is disrupted, we experience jet lag.
- A) Stage 1 sleep
  - B) REM sleep
  - C) circadian rhythm
  - D) Stage 4 sleep
8. The cluster of brain cells that control the circadian rhythm is the:
- A) amygdala.
  - B) suprachiasmatic nucleus.
  - C) adenosine.
  - D) pineal.
9. The sleep-waking cycles of young people who stay up too late typically are \_\_\_\_\_ hours in duration.
- A) 23
  - B) 24
  - C) 25
  - D) 26
10. A person whose EEG shows a high proportion of alpha waves is most likely:
- A) dreaming.
  - B) in Stage 2 sleep.
  - C) in Stage 3 or 4 sleep.
  - D) awake and relaxed.
- Beta → Alpha → Theta → Delta → Beta  
Awake    relaxed    1+2    3+4    5 (REM)
11. Sleep spindles predominate during which stage of sleep?
- A) Stage 2
  - B) Stage 3
  - C) Stage 4
  - D) REM sleep
12. During which stage of sleep does the body experience increased heart rate, rapid breathing, and genital arousal?
- A) Stage 2
  - B) Stage 3
  - C) Stage 4
  - D) REM sleep
13. Which of the following is characteristic of REM sleep?
- A) genital arousal
  - B) increased muscular tension
  - C) night terrors
  - D) alpha waves

14. Although her eyes are closed, Adele's brain is generating bursts of electrical activity. It is likely that Adele is:
- A) under the influence of a depressant.
  - B) under the influence of an opiate.
  - C) in REM sleep.
  - D) having a near-death experience.
15. REM sleep is referred to as paradoxical sleep because:
- A) studies of people deprived of REM sleep indicate that REM sleep is unnecessary.
  - B) the body's muscles remain relaxed while the brain and eyes are active.
  - C) it is very easy to awaken a person from REM sleep.
  - D) the body's muscles are very tense while the brain is in a nearly meditative state.
16. A PET scan of a sleeping person's brain reveals increased activity in the visual and auditory areas. This most likely indicates that the sleeper:
- A) has a neurological disorder.
  - B) is not truly asleep.
  - C) is in REM sleep.
  - D) suffers from narcolepsy.
17. The sleep cycle is approximately \_\_\_\_\_ minutes.
- A) 30
  - B) 50
  - C) 75
  - D) 90
18. The effects of chronic sleep deprivation include:
- A) suppression of the immune system.
  - B) altered metabolic and hormonal functioning.
  - C) impaired creativity.
  - D) all of the above.
19. Concluding her presentation on contemporary theories of why sleep is necessary, Marilyn makes all of the following points except:
- A) Sleep may have evolved because it kept our ancestors safe during potentially dangerous periods.
  - B) Sleep gives the brain time to heal, as it restores and repairs damaged neurons.
  - C) Sleep encourages growth through a hormone secreted during Stage 4.
  - D) Slow-wave sleep provides a "psychic safety valve" for stressful waking experiences.



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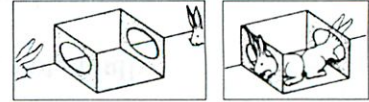


PHOTOGRAPH BY SHUTTERSTOCK

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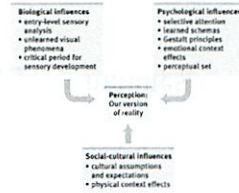


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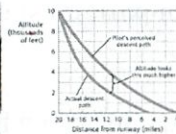


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20. One effect of sleeping pills is to:

- A) decrease REM sleep.
- B) increase REM sleep.
- C) decrease Stage 2 sleep.
- D) increase Stage 2 sleep.

21. A person who falls asleep in the midst of a heated argument probably suffers from:

- A) sleep apnea.
- B) narcolepsy.
- C) night terrors.
- D) insomnia.

22. According to Freud, dreams are:

- A) a symbolic fulfillment of erotic wishes.
- B) the result of random neural activity in the brainstem.
- C) the brain's mechanism for self-stimulation.
- D) the disguised expressions of inner conflicts.

23. Jill dreams that she trips and falls as she walks up the steps to the stage to receive her college diploma. Her psychoanalyst suggests that the dream might symbolize her fear of moving on to the next stage of her life—a career. The analyst is evidently attempting to interpret the \_\_\_\_\_ content of Jill's dream.

- A) manifest
- B) latent
- C) dissociated
- D) overt

24. People who heard unusual phrases prior to sleep were awakened each time they began REM sleep. The fact that they remembered less the next morning provides support for the \_\_\_\_\_ theory of dreaming.

- A) manifest content
- B) physiological
- C) information-processing
- D) activation-synthesis

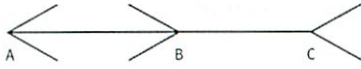
25. Which of the following is not a theory of dreaming mentioned in the text?

- A) Dreams facilitate information processing.
- B) Dreaming stimulates the developing brain.
- C) Dreams result from random neural activity originating in the brainstem.
- D) Dreaming is an attempt to escape from social stimulation.



## Perceptual Illusions

Illusions provide good examples in understanding how perception is organized. Studying faulty perception is as important as studying other perceptual phenomena.



Line AB is longer than line BC.

10

## Tall Arch

In this picture, the vertical dimension of the arch looks longer than the horizontal dimension. However, both are equal.



11

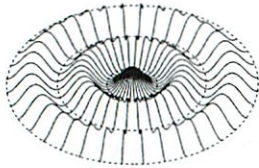
## Illusion of a Worm



The figure on the right gives the illusion of a blue hazy "worm" when it is nothing else but blue lines identical to the figure on the left.

12

## 3-D Illusion



It takes a great deal of effort to perceive this figure in two dimensions.

13

## Perceptual Organization

When vision competes with our other senses, vision usually wins – a phenomena called visual capture.

How do we form meaningful perceptions from sensory information?

We organize it. Gestalt psychologists showed that a figure formed a "whole" different than its surroundings.

14

## Form Perception

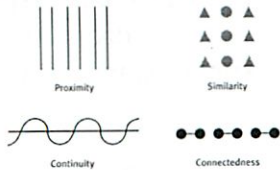
Organization of the visual field into objects (figures) that stand out from their surroundings (ground).



15

## Grouping

After distinguishing the figure from the ground, our perception needs to organize the figure into a meaningful form using grouping rules.



16

## Grouping & Reality

Although grouping principles usually help us construct reality, they may occasionally lead us astray.



17

## Depth Perception

Depth perception enables us to judge distances. Gibson and Walk (1960) suggested that human infants (crawling age) have depth perception. Even newborn animals show depth perception.



Visual Cliff

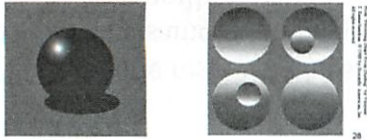
18

26. According to the activation-synthesis theory, dreaming represents:
- A) the brain's efforts to integrate unrelated bursts of activity in visual brain areas with the emotional tone provided by limbic system activity.
  - B) a mechanism for coping with the stresses of daily life.
  - C) a symbolic depiction of a person's unfulfilled wishes.
  - D) an information-processing mechanism for converting the day's experiences into long-term memory.
27. Barry has participated in a sleep study for the last four nights. He was awakened each time he entered REM sleep. Now that the experiment is over, which of the following can be expected to occur?
- A) Barry will be too tired to sleep, so he'll continue to stay awake.
  - B) Barry will sleep so deeply for several nights that dreaming will be minimal.
  - C) There will be an increase in sleep Stages 1–4.
  - D) There will be an increase in Barry's REM sleep.
28. Which of the following statements regarding REM sleep is true?
- A) Adults spend more time than infants in REM sleep.
  - B) REM sleep deprivation results in a REM rebound.
  - C) People deprived of REM sleep adapt easily.
  - D) Sleeping medications tend to increase REM sleep.
29. The modern discovery of hypnosis is generally attributed to:
- A) Freud.
  - B) Mesmer. *too good to be true*
  - C) Spanos.
  - D) Hilgard.
30. Of the following individuals, who is likely to be the most hypnotically suggestible?
- A) Bill, a reality-oriented stockbroker
  - B) Janice, an actress with a rich imagination
  - C) Megan, a sixth-grader who has trouble focusing her attention on a task
  - D) Darren, who has never been able to really "get involved" in movies or novels
31. Hypnotic responsiveness is:
- A) the same in all people.
  - B) generally greater in women than men.
  - C) generally greater in men than women.
  - D) greater when people are led to expect it.



### Monocular Cues

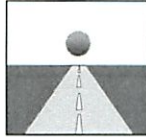
Light and Shadow: Nearby objects reflect more light into our eyes than more distant objects. Given two identical objects, the dimmer one appears to be farther away.



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### Motion Perception

Motion Perception: Objects traveling towards us grow in size and those moving away shrink in size. The same is true when the observer moves to or from an object.



29

### Apparent Motion

Phi Phenomenon: When lights flash at a certain speed they tend to present illusions of motion. Neon signs use this principle to create motion perception.

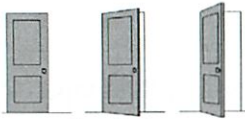


One light jumping from one point to another. Illusion of motion.

30

### Perceptual Constancy

Perceiving objects as unchanging even as illumination and retinal images change. Perceptual constancies include constancies of shape and size.



Shape Constancy

31

### Size Constancy

Stable size perception amid changing size of the stimuli.



Size Constancy

32

### Size-Distance Relationship

The distant monster (below, left) and the top red bar (below, right) appear bigger because of distance cues.



33



34

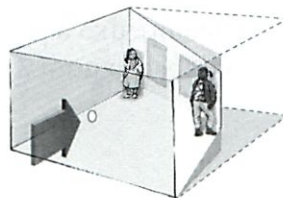
### Size-Distance Relationship

Both girls in the room are of similar height. However, we perceive them to be of different heights as they stand in the two corners of the room.



34

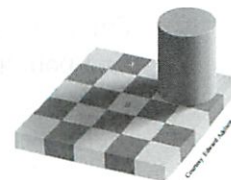
### Ames Room



The Ames room is designed to demonstrate the size-distance illusion.

35

### Lightness Constancy



The color and brightness of square A and B are the same.

36

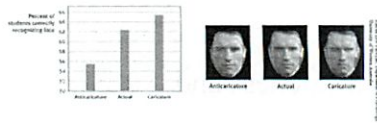
32. An attorney wants to know if the details and accuracy of an eyewitness's memory for a crime would be improved under hypnosis. Given the results of relevant research, what should you tell the attorney?
- A) Most hypnotically retrieved memories are either false or contaminated.
  - B) Hypnotically retrieved memories are usually more accurate than conscious memories.
  - C) Hypnotically retrieved memories are purely the product of the subject's imagination.
  - D) Hypnosis only improves memory of anxiety-provoking childhood events.
33. Research studies of the effectiveness of hypnosis as a form of therapy have demonstrated that:
- A) for problems of self-control, such as smoking, hypnosis is equally effective with subjects who can be deeply hypnotized and those who cannot.
  - B) posthypnotic suggestions have helped alleviate headaches, asthma, and stress-related skin disorders.
  - C) as a form of therapy, hypnosis is no more effective than positive suggestions given without hypnosis.
  - D) all of the above are true.
34. As a form of therapy for relieving problems such as warts, hypnosis is:
- A) ineffective.
  - B) no more effective than positive suggestions given without hypnosis. ← better
  - C) highly effective.
  - D) more effective with adults than children.
35. Those who consider hypnosis a social phenomenon contend that:
- A) hypnosis is an altered state of consciousness.
  - B) hypnotic phenomena are unique to hypnosis.
  - C) hypnotized subjects become unresponsive when they are no longer motivated to act as instructed.
  - D) all of the above are true.
36. Those who believe that hypnosis is a social phenomenon argue that "hypnotized" individuals are:
- A) consciously faking their behavior.
  - B) merely acting out a role.
  - C) underachievers striving to please the hypnotist.
  - D) all of the above.



37. According to Hilgard, hypnosis is:
- A) no different from a state of heightened motivation.
  - B) the same as dreaming.
  - C) a dissociation between different levels of consciousness.
  - D) a type of "animal magnetism."
38. Which of the following statements concerning hypnosis is true?
- A) People will do anything under hypnosis.
  - B) Hypnosis is the same as sleeping.
  - C) Hypnosis is in part an extension of the division between conscious awareness and automatic behavior.
  - D) Hypnosis improves memory recall.
39. Psychoactive drugs affect behavior and perception through:
- A) the power of suggestion.
  - B) the placebo effect.
  - C) alteration of neural activity in the brain.
  - D) psychological, not physiological, influences.
40. A person who requires increasing amounts of a drug in order to feel its effect is said to have developed:
- A) tolerance.
  - B) physical dependency.
  - C) psychological dependency.
  - D) resistance.
41. Dan has recently begun using an addictive, euphoria-producing drug. Which of the following will probably occur if he repeatedly uses this drug?
- A) As tolerance to the drug develops, Dan will experience increasingly pleasurable "highs."
  - B) The dosage needed to produce the desired effect will increase.
  - C) After each use, he will become more and more elated.
  - D) Dependence will become less of a problem.
42. All of the following are common misconceptions about addiction, except the statement that:
- which are true?*
- A) to overcome an addiction a person almost always needs professional therapy.
  - B) psychoactive and medicinal drugs very quickly lead to addiction.
  - C) biological factors place some individuals at increased risk for addiction.
  - D) many other repetitive, pleasure-seeking behaviors fit the drug-addiction-as-disease-needing-treatment model.

## Features on a Face

Face schemas are accentuated by specific features on the face.



Students recognized a caricature of Arnold Schwarzenegger faster than his actual photo.

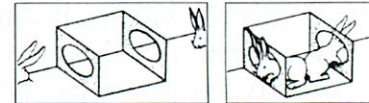
## Eye & Mouth

Eyes and mouth play a dominant role in face recognition.



## Context Effects

Context can radically alter perception.



Is the "magician cabinet" on the floor or hanging from the ceiling?

## Cultural Context

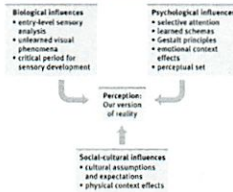
Context instilled by culture also alters perception.



To an East African, the woman sitting is balancing a metal box on her head, while the family is sitting under a tree.

## Perception Revisited

Is perception innate or acquired?



## Perception & Human Factors

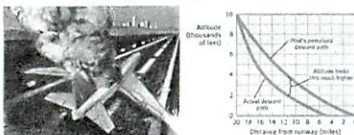
Human Factor Psychologists design machines that assist our natural perceptions.



The knobs for the stove burners on the right are easier to understand than those on the left.

## Human Factors & Misperceptions

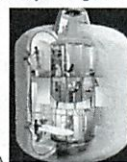
Understanding human factors enables us to design equipment to prevent disasters.



Two-thirds of airline crashes caused by human error are largely due to errors of perception.

## Human Factors in Space

To combat conditions of monotony, stress, and weightlessness when traveling to Mars, NASA engages Human Factor Psychologists.



Transit Habitation (Transhab), NASA

## Is There Extrasensory Perception?

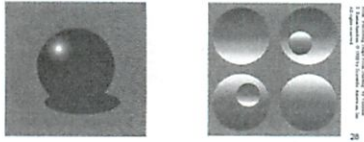
Perception without sensory input is called extrasensory perception (ESP). A large percentage of scientists do not believe in ESP.



43. Which of the following is classified as a depressant?
- A) methamphetamine
  - B) LSD
  - C) marijuana
  - D) alcohol
44. Which of the following is not a stimulant?
- A) amphetamines
  - B) caffeine
  - C) nicotine
  - D) alcohol
45. Roberto is moderately intoxicated by alcohol. Which of the following changes in his behavior is likely to occur?
- A) If angered, he is more likely to become aggressive than when he is sober.
  - B) He will be less self-conscious about his behavior.
  - C) If sexually aroused, he will be less inhibited about engaging in sexual activity.
  - D) All of the above are likely.
46. Alcohol has the most profound effect on:
- A) the transfer of experiences to long-term memory.
  - B) immediate memory.
  - C) previously established long-term memories.
  - D) all of the above.
47. How a particular psychoactive drug affects a person depends on:
- A) the dosage and form in which the drug is taken.
  - B) the user's expectations and personality.
  - C) the situation in which the drug is taken.
  - D) all of the above.
48. Cocaine and crack produce a euphoric rush by:
- A) blocking the actions of serotonin.
  - B) depressing neural activity in the brain.
  - C) blocking the reuptake of dopamine in brain cells.
  - D) stimulating the brain's production of endorphins.
49. I am a synthetic stimulant and mild hallucinogen that produces euphoria and social intimacy by triggering the release of dopamine and serotonin. What am I?
- A) LSD
  - B) MDMA
  - C) THC
  - D) cocaine

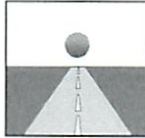
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Light and Shadow: Nearby objects reflect more light into our eyes than more distant objects. Given two identical objects, the dimmer one appears to be farther away.



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Motion Perception: Objects traveling towards us grow in size and those moving away shrink in size. The same is true when the observer moves to or from an object.



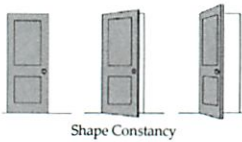
### Apparent Motion

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### Perceptual Constancy

Perceiving objects as unchanging even as illumination and retinal images change. Perceptual constancies include constancies of shape and size.



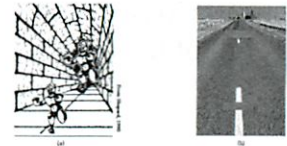
### Size Constancy

Stable size perception amid changing size of the stimuli.



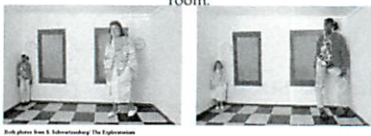
### Size-Distance Relationship

The distant monster (below, left) and the top red bar (below, right) appear bigger because of distance cues.

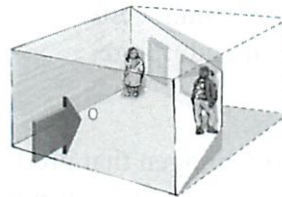


### Size-Distance Relationship

Both girls in the room are of similar height. However, we perceive them to be of different heights as they stand in the two corners of the room.

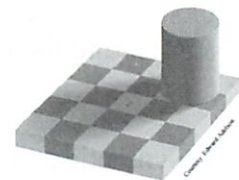


### Ames Room



The Ames room is designed to demonstrate the size-distance illusion.

### Lightness Constancy



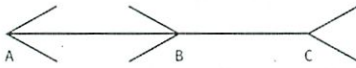
The color and brightness of square A and B are the same.



50. THC is the major active ingredient in:
- A) nicotine.
  - B) MDMA.
  - C) marijuana.
  - D) cocaine.
51. Which of the following statements concerning marijuana is true?
- A) The by-products of marijuana are cleared from the body more slowly than are the by-products of alcohol.
  - B) Regular users may need a higher dose of the drug to achieve a high than occasional users would need to get the same effect.
  - C) Marijuana is not as addictive as nicotine or cocaine.
  - D) Even small doses of marijuana hasten the loss of brain cells.
52. Which of the following was not cited in the text as evidence that heredity influences alcohol use?
- A) Children whose parents abuse alcohol have a lower tolerance for multiple alcoholic drinks taken over a short period of time.
  - B) Boys who are impulsive and fearless at age 6 are more likely to drink as teenagers.
  - C) Laboratory mice have been selectively bred to prefer alcohol to water.
  - D) Adopted children are more susceptible if one or both of their biological parents has a history of alcoholism.
53. Which of the following statements concerning alcoholism is not true?
- A) Adopted individuals are more susceptible to alcoholism if they had an adoptive parent with alcoholism.
  - B) Having an identical twin with alcoholism puts a person at increased risk for alcohol problems.
  - C) Geneticists have identified genes that are more common among people predisposed to alcoholism.
  - D) Researchers have bred rats that prefer alcohol to water.
54. The lowest rates of drug use among high school seniors is reported by:
- A) white males.
  - B) white females.
  - C) black males.
  - D) Latinos.

## Perceptual Illusions

Illusions provide good examples in understanding how perception is organized. Studying faulty perception is as important as studying other perceptual phenomena.



Line AB is longer than line BC.

10

## Tall Arch

In this picture, the vertical dimension of the arch looks longer than the horizontal dimension. However, both are equal.



11

## Illusion of a Worm



The figure on the right gives the illusion of a blue hazy "worm" when it is nothing else but blue lines identical to the figure on the left.

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## 3-D Illusion



It takes a great deal of effort to perceive this figure in two dimensions.

13

## Perceptual Organization

When vision competes with our other senses, vision usually wins – a phenomena called visual capture.

How do we form meaningful perceptions from sensory information?

We organize it. Gestalt psychologists showed that a figure formed a "whole" different than its surroundings.

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## Form Perception

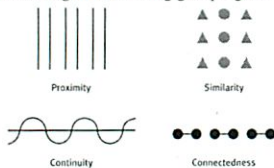
Organization of the visual field into objects (figures) that stand out from their surroundings (ground).



15

## Grouping

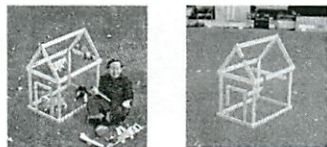
After distinguishing the figure from the ground, our perception needs to organize the figure into a meaningful form using grouping rules.



16

## Grouping & Reality

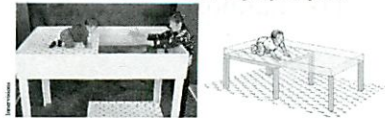
Although grouping principles usually help us construct reality, they may occasionally lead us astray.



17

## Depth Perception

Depth perception enables us to judge distances. Gibson and Walk (1960) suggested that human infants (crawling age) have depth perception. Even newborn animals show depth perception.



Visual Cliff

18



55. Which of the following is usually the most powerful determinant of whether teenagers begin using drugs?
- A) family strength
  - B) religiosity
  - C) school adjustment
  - D) peer influence
56. Which of the following statements concerning the roots of drug use is true?
- A) Heavy users of alcohol, marijuana, and cocaine often are always on a high.
  - B) If an adolescent's friends use drugs, odds are that he or she will, too.
  - C) Teenagers who are academically average students seldom use drugs.
  - D) It is nearly impossible to predict whether or not a particular adolescent will experiment with drugs.
57. Which of the following was not suggested by the text as an important aspect of drug prevention and treatment programs?
- A) education about the long-term costs of a drug's temporary pleasures
  - B) efforts to boost people's self-esteem and purpose in life
  - C) attempts to modify peer associations
  - D) "scare tactics" that frighten prepubescent children into avoiding drug experimentation
58. Which of the following statements concerning near-death experiences is true?
- A) Fewer than 1 percent of patients who come close to dying report having them.
  - B) They typically consist of fantastic, mystical imagery.
  - C) They are more commonly experienced by females than by males.
  - D) They are more commonly experienced by males than by females.
59. Which theorists believe that the mind and the body are separate entities?
- A) the behaviorists
  - B) the monists
  - C) the dualists
  - D) the Freudians
60. Levar believes that once the body has died, the mind also ceases to exist. Evidently, Levar is a(n):
- A) behaviorist.
  - B) monist.
  - C) dualist.
  - D) atheist.

What is a pigment?

What is the main pigment used by green plants to absorb energy?

What are the 2 kinds of chlorophyll?

Which wavelengths of light are best absorbed by chlorophyll a & b?

Which are reflected?

How are carotenoid pigments different from chlorophyll?

Why do plants have these other pigments besides chlorophyll?

Why do plants look green?

### Section 8.3:

Be able to label the parts of a chloroplast and explain where the reactions for photosynthesis happen. (You labeled and colored this diagram in class)

What is  $\text{NADP}^+$ ?

How is it changed into NADPH?

What does it do?

Where does the H in NADPH come from? (Look at your diagram you drew)

Be able to describe the two sets of reactions involved in photosynthesis

Light-dependent reactions:

Calvin cycle:



## Answer Key

1. B
2. D
3. D
4. C
5. D
6. C
7. C
8. B
9. C
10. D
11. A
12. D
13. A
14. C
15. B
16. C
17. D
18. D
19. D
20. A
21. B
22. A
23. B
24. C
25. D
26. A
27. D
28. B
29. B
30. B
31. D
32. A
33. D
34. B
35. C
36. B
37. C
38. C
39. C
40. A
41. B
42. C
43. D
44. D
45. D
46. A
47. D

## WHAT SHOULD I KNOW ABOUT PHOTOSYNTHESIS (Chapter 8)

### Section 8.1:

What is an autotroph? Give examples:

A Heterotroph? Give examples:

What molecule is used as a basic energy source in cells?

What are the parts of an ATP molecule? Draw one.

How is energy stored and released using ATP?

Which molecule stores more than 90 times the energy in ATP?

How do animal cells store glucose for later?

How do plants store glucose for later?

### Section 8.2:

Be able to explain the contributions of these scientists to our understanding of photosynthesis.

Jan van Helmont:

Jan Ingenhousz:

Joseph Priestley

Melvin Calvin:

What was "wrong" with van Helmont's conclusion?

Be able to write the chemical equation for photosynthesis:



- 48. C
- 49. B
- 50. C
- 51. A
- 52. A
- 53. A
- 54. C
- 55. D
- 56. D
- 57. D
- 58. B
- 59. C
- 60. B

Where are they located and what happens in each?

Be able to label the molecules that participate in the light-dependent reactions and tell what they do.

Why does Photosystem II come before Photosystem I in the light-dependent reactions?

What is another name for the Calvin Cycle?

Which reactions in photosynthesis require light?

Which do not?

How and where are ATP and NADPH made?

What happens to water during the light-reaction?

Which molecule is given off as a waste gas?

Which molecules produced by the light-dependent reaction are used during the Calvin cycle?

What happens during the Calvin cycle?

Be able to give reactants and products for each of the reactions.

Where does the Carbon and oxygen in glucose come from?

Where does the Hydrogen in glucose come from?

Which factors affect the rate of photosynthesis? How?



# Chap 8

9/11/08

## AP Psychology

### Chapter 8

do humans learn to adapt  
- or do we ignore

## A Thought

- Unlike some animals we are not born with a genetic blueprint for life.
- Nature's most important gift to us may be our adaptability - our capacity to learn new behaviors that enable us to cope with changing circumstances.
- Learning - a relatively permanent change in an organism's behavior due to experience

Fish know how to find food + breeding grounds automatically

## How do we learn

- What are some ways that you learn?
  - Seeing
  - Doing
  - Associating
  - Which one?

Association <sup>certain events occur together</sup>

- Seals in aquarium associate tricks with fish

- Sea snails can be trained that when shocked, they draw in b/c know going to get squirted

## Association

- Animals can learn simple associations
- Complex animals learn more response - outcome associations.
- Associate learning - learning that certain events occur together. The events may be stimuli (as in classical conditioning) or a response and its consequences (as in operant conditioning).

very hard for animals to be reintroduced to wild from captivity since brought up w/humans

## Conditioning

- Conditioning is the process of learning associations.
- Classical Conditioning
  - A type of learning in which an organism comes to associate stimuli. A neutral stimulus that signal an unconditional stimulus (US) begins to produce a response that anticipates and prepares for the unconditional stimulus. Also known as Pavlovian or respondent conditioning.
  - Good example is Pavlov

## Operant Conditioning

- We learn to associate a response (our behavior) and its consequences and thus to repeat acts followed by good results.
- Conditioning is not the only form of learning. Through observational learning we learn from others experiences and examples.
- By conditioning and by observation we humans learn and adapt to our environments.

know trick → food  
do trick more

like response (food), so do something to get it (trick)

## Classical Conditioning

- Ivan Pavlov
- A type of learning in which an organism comes to associate stimuli. A neutral stimulus that signal an unconditional stimulus (US) begins to produce a response that anticipates and prepares for the unconditional stimulus. Also known as Pavlovian or respondent conditioning.

dogs learned to associate tone with food

Salivation in dogs = to break down food

## Behaviorism Classical Conditioning

- Classical conditioning would lead us into the area of behaviorism and John Watson.

don't care about conscious  
How do humans act?

## Automatic Ivan Pavlov

- US - unconditioned stimulus. Naturally and automatically - triggers a response
- UR - unconditioned response - the unlearned, naturally occurring response to the unconditioned stimulus.
- CR - conditioned response - the learned response to a previously neutral stimulus.
- CS - conditioned stimulus - the irrelevant stimulus

causes  
- has been set up for

UR = salivating  
US = food  
CR = salivation on tone  
CS = tone

helps gain food, avoid dangers, defeat rivals, locate mates + produce offspring

A thought to ponder

Conditioned = learned  
unconditioned = unlearned

Cause and effects of classical conditioning

- 1) Acquisition
  - 2) Extinction
  - 3) Spontaneous Recovery
  - 4) Recovery
  - 5) Generalization
  - 6) Discrimination
- 5 Steps

Acquisition

- The initial stage in classical conditioning: the phase associating a neutral stimulus with an unconditional stimulus so that the neutral stimulus comes to elicit a conditioned response. In operant conditioning, the strengthening of a reinforced response.
- Extinction and Spontaneous Recovery
- Extinction When the US (food) does not follow the CS (tone), CR (salivation) begins to decrease and eventually causes extinction.

takes about half a second  
doesn't work if CS after US  
already passed  
noticed or unnoticed

Spontaneous Recovery

- The reappearance after a pause, of an extinguished conditioned response.
- After a rest period, an extinguished CR (salivation) spontaneously recovers, but if the CS (tone) persists alone, the CR becomes extinct again.

Extinction - w/o US  
the CS will wear out CR  
- dogs grow less salivating  
at first if food didn't follow  
\* could be (partially) reawakened  
Several hrs later

Generalization Reduces

- The tendency, once a response has been conditioned, for a stimuli to elicit similar response.
- Tendency to respond to stimuli similar to the CS is called generalization. Pavlov conditioned the dog's salivation (CR) by using miniature vibrators (CS) on the thigh. When he subsequently stimulated other parts of the dog's body, salivation dropped.

but still there  
- project it onto other things  
- fudge is disgusting when shaped like dog turd  
- Adults w/ child-like faces perceived as warm, submissive

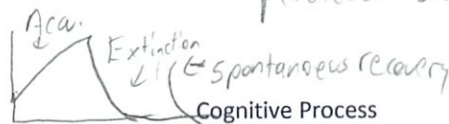
Discrimination

- **Discrimination** is the learned ability to distinguish between a conditioned stimulus and other stimuli that do not signal an unconditioned stimulus.

- we react differently to different animals

Extending Pavlov's Understanding

- Pavlov and Watson considered consciousness, or mind, unfit for the scientific study of psychology. However, they underestimated the importance of cognitive processes and biological constraints



- Early behaviorists believed that learned behaviors of various animals could be reduced to mindless mechanisms

- However, later behaviorists suggested that animals learn the predictability of a stimulus, meaning they learn expectancy or awareness of a stimulus (Rescorla, 1988).

- not just stupid process  
- less responsive to something which might happen  
- Our thoughts can weaken our response

Biological Predispositions

- Pavlov and Watson believed that laws of learning were similar for all animals. Therefore, a pigeon and a person do not differ in their learning.
- However, behaviorists later suggested that learning is constrained by an animal's

biological ability  
must have predisposition to respond  
varies in animals



\* Learning helps animals adapt to their environment

almost all animals can be conditioned

Applications of Classical Conditioning

- John B. Watson used classical conditioning procedures to develop advertising campaigns for a number of organizations, including Maxwell House, making the "coffee break" an American custom.

Drug users feel urge when of old drug horses - taste can provide immune response

\* make sure know differences

Operant and classical conditioning

- Classical conditioning involves a respondent behavior that occurs as an automatic response to a certain stimulus. Operant conditioning involves behavior that operates on the environment, producing rewarding or punishing stimuli.

Operates to produce a response

Thank you Pavlov

- Pavlov's greatest contribution to psychology is isolating elementary behaviors from more complex ones through objective scientific procedures.

become more advise to spiders, not flowers - nausea

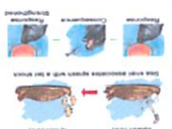
bad things are warning to body not to do that

- could be used to humanly control animals

4/3

Operant & Classical Conditioning

1. Classical conditioning forms associations between stimuli (CS and US). Operant conditioning, on the other hand, forms an association between behaviors and the resulting events.



Associating events it can't control

b/w behavior + results

Operant Chamber



- AKA the Skinner Box
- It contains a bar that can be manipulated to obtain a water or food reinforcer.

Shaping

- Shaping is the operant conditioning procedure in which reinforcers guide behavior towards the desired target behavior through successive approximations
- Rewards
- Treats
- Kind words

Give rewards as it gets closer - Animals can be taught to distinguish animals

used to explore conditions that foster efficient + enduring learning

Biological Predispositions

- John Garcia showed that the duration between the CS and the US may be long (hours), but yet result in conditioning. A biologically adaptive CS (taste) led to conditioning and not to others (light or sound).



Rats learn (after a few hrs) that if sicken them - will avoid that taste

\* doesn't work for sight or sound - biological predisposed to associate sickness w/ food

Why classical conditioning

- Alcoholics may be conditioned (aversively) by reversing their positive-associations with alcohol.
- Through classical conditioning, a drug (plus its taste) that affects the immune response may cause the taste of the drug to invoke the immune response.

predisposed to sex

Skinner's Experiments

- Edward Thorndike - behaviors followed by favorable consequences become more likely, and that behavior followed by unfavorable consequences become less likely.
- Skinner's experiments extend Thorndike's thinking, especially his law of effect. This law states that rewarded behavior is likely to occur again.

behaviorism famous + influential figure

# \* strengthens behavior

## Reinforcer

"rewards" anything can be paying attention after winning

Come (not →)

- **Primary Reinforcer:** An innately reinforcing stimulus like food or drink.
- **Conditioned Reinforcer:** A learned reinforcer that gets its reinforcing power through association with the primary reinforcer.

- (+) pleasurable things after good things
- (-) strengthens by removing adverse things
  - cigarettes relieve pain
  - \* not punishment

linked to more basic rewards  
- if rat knows light = food's coming  
- rat will turn on light

## Immediate & Delayed Reinforcers

1. **Immediate Reinforcer:** A reinforcer that occurs instantly after a behavior. A rat gets a food pellet for a bar press.
2. **Delayed Reinforcer:** A reinforcer that is delayed in time for a certain behavior. A paycheck that comes at the end of a week.

We may be inclined to engage in small immediate reinforcers (watching TV) rather than large delayed reinforcers (getting an A in a course) which require consistent study.

Secondary  
rats only have 30 sec tolerance  
- even 4 yr olds will trade small candy today vs large tomorrow  
- but we still are not perfect  
- will stay up even though will be tired

## Reinforcement Schedules

1. **Continuous Reinforcement:** Reinforces the desired response each time it occurs.
2. **Partial Reinforcement:** Reinforces a response only part of the time. Though this results in slower acquisition in the beginning, it shows greater resistance to extinction later on.

"hope springs eternal"

- push button at traffic signal several times to make it go faster
- slot machines
- giving in occasional to tantrums

## Ratio Schedule

- **Fixed-ratio schedule** In operant conditioning, a reinforcement schedule that reinforces only after a specified number of responses.

Variable-interval schedule: Reinforces a response at unpredictable time intervals, which produces slow, steady responses. (e.g., pop quiz.)

fixed interval - check more time nears  
as "check email"

Variable ratio - Slot machines very addictive  
don't know when wait time over

## Extending Skinner's Understanding

Skinner believed in inner thought processes and biological underpinnings, but many psychologists criticize him for discounting them.

- personal goals
- work
- school

= believed in rigid biological behaviorism

Punishment is the opposite of reinforcement. A punisher is a consequence that decreases the frequency of a preceding behavior.

Although there may be some justification for occasional punishment (Larzelere & Baumrind, 2002), it usually leads to negative effects.

1. Results in unwanted fears.
2. Conveys no information to the organism.
3. Justifies pain to others.
4. Causes unwanted behaviors to reappear in its absence.
5. Causes aggression towards the agent.
6. Causes one unwanted behavior to appear in place of

↑ is that because the bad child requires extra punishments?

- but good if used sparingly  
- no clue what to do  
↑ parents do b/c

## Cognition & Operant Conditioning

Evidence of cognitive processes during operant learning comes from rats during a maze exploration in which they navigate the maze without an obvious reward. Rats seem to develop cognitive maps, or mental representations, of the layout of the maze (environment).

- Punished behavior is not forgotten it is suppressed.

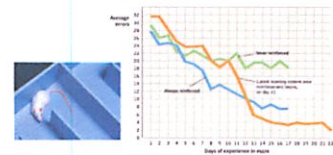
- Physical punishment may increase aggressiveness by demonstrating that aggression is a way to cope with problems
- Can create fear - esp. if not their fault
- Punishment tells you what not to do
- Reinforcement tells you to do.

do it more if not around mom  
need reinforcement also

Can rephrase threats to be positive  
Should be ⊕ - note + point out good things

Latent Learning - learning that occurs but is not apparent until there is an incentive to demonstrate it.

Such cognitive maps are based on latent learning, which becomes apparent when an incentive is given (Tolman & Honzik, 1930).



- only evidenced when reward given
- so not everything is strictly to get a reward
- remember for other reasons



**Motivation**

• What motivates you?

- may be bad to give a reward
- will decrease children's enjoyment of playing

in  
out

Are you reading this just for a grade?

Yes - extrinsic  
No, I like the material - intrinsic

**Applications of Operant Conditioning**

Reinforcers affect productivity. Many companies now allow employees to share profits and participate in company ownership.



At work

Skinner at school; provide immediate feedback + work at student's pace  
sports; start small  
- shown to work better  
Mirror Neurons

- control them for human betterment

**Skinner's Legacy**

He stated with some controversy, by repeating over and over that external influences shape behavior and by urging the use of operant principles to influence people's behavior at school, work, and home.

- we should not care about people's freedoms
- just issue them rewards
- critics said dehumanizes people + controls them
- Skinner - already controlled

**Learning by Observation**

Higher animals, especially humans, learn through observing and imitating others.

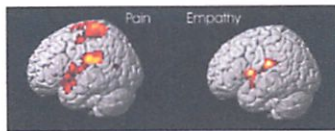


The monkey on the right imitates the monkey on the left in touching the pictures in a certain order to obtain a reward.



we model others' behavior  
transmitted cultural elements = mems

Neuroscientists discovered mirror neurons in the brains of animals and humans that are active during observational learning.



- same neurons fire when a monkey peels a banana or watches another monkey do it  
- gives rise to empathy

**Motivation**

**Intrinsic Motivation:** The desire to perform a behavior for its own sake.

**Extrinsic Motivation:** The desire to perform a behavior due to promised rewards or threats of punishments.

Do you have any examples for either one?

**Biological Predisposition**

Biological constraints predispose organisms to learn associations that are naturally adaptive. Breland and Breland (1961) showed that animals drift towards their biologically predisposed instinctive behaviors.



Marian Breland Bailey

Instinctive behaviors

animals still stuck doing what they can - more likely

rewards boost confidence to do what is natural for them

**Operant vs. Classical Conditioning**  
↳ can't control

	Classical Conditioning	Operant Conditioning
Response	Involuntary, automatic.	Voluntary, operates on environment.
Acquisition	Associating events, CS announces US.	Associating response with a consequence (reinforce or punishes).
Extinction	CR decreases when CS is repeatedly presented alone.	Responding decreases when reinforcement stops.
Cognitive processes	Organisms develop expectation that CS signals the arrival of US.	Organisms develop expectation that a response will be reinforced or punished; they also exhibit latent learning, without reinforcement.
Biological predispositions	Natural predispositions constrain what stimuli and responses can easily be associated.	Organisms best learn behaviors similar to their natural behaviors; unnatural behaviors instinctively drift back toward natural ones.

well defined + achievable goals  
- but should not distract people who don't get them

- can do it at home w/ your own goals  
- don't reinforce children's bad behavior

**Imitation Onset**

Learning by observation begins early in life. This 14-month-old child imitates the adult on TV in pulling a toy apart.



Children see, children do.  
- children around parents or teens that smoke - will do

### Introduction



The purpose of this report is to provide a comprehensive overview of the current state of research in the field of artificial intelligence. This report will discuss the various sub-fields of AI, including machine learning, natural language processing, and computer vision, and will explore the challenges and opportunities that lie ahead.

### Background

The field of artificial intelligence has a long and rich history, dating back to the early days of computer science. In the 1950s, the term "artificial intelligence" was coined, and the field began to take shape. Over the years, AI has made significant progress in many areas, and it is now one of the most rapidly growing and exciting fields in science and technology.

### Methodology

This report was prepared using a variety of sources, including academic journals, books, and online resources. The information presented here is based on the most current and reliable data available.

### Results and Discussion

Year	Machine Learning	Natural Language Processing	Computer Vision
2010	15%	10%	5%
2011	18%	12%	7%
2012	22%	15%	10%
2013	28%	18%	13%
2014	35%	22%	17%
2015	42%	28%	22%
2016	50%	35%	28%
2017	58%	42%	35%
2018	65%	50%	42%
2019	72%	58%	50%
2020	78%	65%	58%

### Conclusion

The results of this study indicate that artificial intelligence is continuing to advance rapidly, and it is likely to play an increasingly important role in many aspects of our lives in the years ahead. The challenges and opportunities that lie ahead are vast, and it is exciting to think about the possibilities that AI offers.



### References



The following references were used in the preparation of this report:

- Smith, J. (2018). Artificial Intelligence: A Comprehensive Overview. New York: Springer.
- Johnson, A. (2019). Machine Learning: The Art and Science of Making Smart Systems. New York: Wiley.
- Williams, B. (2020). Natural Language Processing: The State of the Art. New York: Cambridge University Press.

### Appendix

The following appendix provides additional information on the topics discussed in the main body of the report.



### Index



The following index provides a quick reference to the key concepts and terms discussed in the report.

- Artificial Intelligence
- Machine Learning
- Natural Language Processing
- Computer Vision
- Deep Learning
- Neural Networks
- Robotics
- Autonomous Vehicles
- Healthcare
- Finance
- Education
- Law
- Marketing
- Customer Service
- Manufacturing
- Transportation
- Energy
- Environment
- Agriculture
- Space Exploration
- Biotechnology
- Art
- Music
- Video Games
- Virtual Reality
- Augmented Reality
- Blockchain
- Cryptocurrency
- Quantum Computing
- Biometrics
- Augmented Intelligence
- Human-AI Interaction
- AI Ethics
- AI Policy
- AI Regulation
- AI Governance
- AI Accountability
- AI Transparency
- AI Explainability
- AI Fairness
- AI Bias
- AI Discrimination
- AI Privacy
- AI Security
- AI Reliability
- AI Robustness
- AI Resilience
- AI Adaptability
- AI Flexibility
- AI Scalability
- AI Interoperability
- AI Compatibility
- AI Portability
- AI Reusability
- AI Maintainability
- AI Testability
- AI Observability
- AI Auditability
- AI Accountability
- AI Responsibility
- AI Transparency
- AI Explainability
- AI Fairness
- AI Bias
- AI Discrimination
- AI Privacy
- AI Security
- AI Reliability
- AI Robustness
- AI Resilience
- AI Adaptability
- AI Flexibility
- AI Scalability
- AI Interoperability
- AI Compatibility
- AI Portability
- AI Reusability
- AI Maintainability
- AI Testability
- AI Observability
- AI Auditability
- AI Accountability
- AI Responsibility



## Bandura's Experiments

Bandura's Bobo doll study (1961) indicated that individuals (children) learn through imitating others who receive rewards and punishments.



- children imitated an adult beating up a doll
- lowered inhibitions
- used same words + actions

## Applications of Observational Learning

Unfortunately, Bandura's studies show that antisocial models (family, neighborhood or TV) may have antisocial effects.



- transmitted generation to generation

## Positive Observational Learning

Fortunately, prosocial (positive, helpful) models may have prosocial effects.



- Gandhi + MLK
- people who do good often had a moral parent
- best when models consistent

## Television and Observational Learning

Gentile et al., (2004) shows that children in elementary school who are exposed to violent television, videos, and video games express increased aggression.



- most children spend more time watching TV than in school

- pop culture
- shows a lot of violence
- 87% real world crimes nonviolent
- 13% "Cops" crimes nonviolent
- "reflects culture's mythology, not reality"

## Modeling Violence

Research shows that viewing media violence leads to an increased expression of aggression.



Children modeling after pro wrestlers

- put perhaps more violent kids are more likely to watch more TV?
- no - violence (especially unpunished or not shown to cause harm) ↑ aggression
- also desensitizes views
  - males who watch rapes become less bothered by it

Chapter features 4 people who pushed their field + research to the limit

1. The first step in the process is to identify the problem or goal. This involves understanding the current situation and what needs to be achieved.



Figure 1: Initial problem identification and goal setting.



Figure 2: Comparison of two different approaches or methods.

Figure 3: A diagram or flowchart illustrating a process or system.

2. The second step is to analyze the problem and identify the root causes. This involves gathering data and information to understand the underlying issues.



Figure 4: Analysis of the problem and identification of root causes.

3. The third step is to develop a plan of action. This involves identifying the specific steps that need to be taken to address the problem.



Figure 5: Development of a plan of action to address the problem.



Figure 6: Implementation of the plan of action and monitoring progress.

Figure 7: Evaluation of the results and identification of areas for improvement.



# Chap 8

## Answer Key

1. C - permanent due to experience
2. D
3. B
4. A
5. D
6. B
7. C
8. A
9. D
10. C
11. A
12. B
13. C - extinction: US omitted  
CR disappears
14. C
15. C
16. B
17. D
18. C
19. C
20. A - US doesn't need to follow the CS  
Food doesn't have to follow tone
21. B
22. B - taste (biologically predisposed)
23. D
24. B
25. C
26. A
27. B
28. D
29. A

30. C
31. B
32. C - removes unwanted stimulus
33. B
34. D
35. D - delayed = secondary all
36. D - linked to other things (conditioned)
37. B
38. B
39. D
40. C
41. C
42. C
43. A
44. B - variable ratio (slots)
45. C
46. D
47. D
48. D
49. A
50. D
51. B
52. A
53. A
54. C
55. B
56. B
57. A
58. D
59. C
60. C

study (

- US: Mother's behavior
- UR: Your crying
- CS: Cat
- CR: Fear today

Conditioned - linked to primary

PSYCHOLOGY  
(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

Worth Publishers, © 2006

- Some extra notes added by
- Mr. Siegerman, Med.



## Memory

### Chapter 9

puzzled by people's ability  
to learn

#### Think about this

- It is our memory that accounts for time and defines our life.
- It is our memory that enables us to sing our national anthem, find our way home.
- You are what you remember with our memory you would live in an enduring present. Each of you moments would be fresh.
- Your memory is your mind's storehouse, the reservoir of your total learning.

←

w/o it - like a vegetable

#### Memory

##### The Phenomenon of Memory

- Information Processing
- Encoding: Getting Information in
- How We Encode
- What We Encode

#### Memory

##### Storage: Retaining Information

- Sensory Memory
- Working/Short-term Memory
- Long-Term Memory
- Storing Memories in the Brain

take it for granted - except when it malfunctions

#### Memory

##### Retrieval: Getting Information Out

- Retrieval Cues
- Forgetting
- Encoding Failure
- Storage Decay
- Retrieval Failure

#### Memory

##### Memory Construction

- Misinformation and Imagination Effect
- Source Amnesia
- Discerning True and False Memories
- Children's Eyewitness Recall
- Repressed or Constructed Memories of Abuse?

← controversial

#### Memory

##### Improving Memory



## Memory

Memory is the basis for knowing your friends, your neighbors, the English language, the national anthem, and yourself.

If memory was nonexistent, everyone would be a stranger to you; every language foreign; every task new; and even you yourself would be a stranger.

"S" had very good recall  
could recall 70 # 15 years later

## The Phenomenon of Memory

Memory is any indication that learning has persisted over time. It is our ability to store and retrieve information.

## Flashbulb Memory

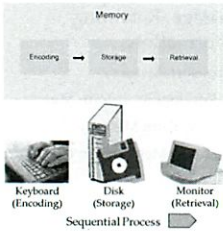
A unique and highly emotional moment may give rise to a clear, strong, and persistent memory called flashbulb memory. However, this memory is not free from errors.



President Bush being told of 9/11 attack.

He got it totally wrong

## Stages of Memory



## Stages of memory

- **Encoding**- the process of information into the memory system.
- **Storage**- the retention of encoded information over time.
- **Retrieval**- the process of getting information out of memory storage.

brain is slower than a computer - but can do things in parallel

## Information Processing

The Atkinson-Schiffrin (1968) three-stage model of memory includes a) sensory memory, b) short-term memory, and c) long-term memory.



Sensory short long  
term term term

\* limited + fallible

Some info goes direct to long-term unconsciously

## Information processing cont

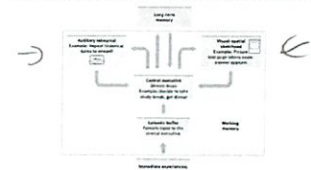
- **Sensory memory**- the immediate very brief recording of sensory information in the memory system.
- **Short term** - activated memory that holds a few items briefly, phone #
- **Long term** - the relatively permanent and limitless storehouse of memory system. Knowledge, skills, experience.

## Problems with the Model

1. Some information skips the first two stages and enters long-term memory automatically.
2. Since we cannot focus all the sensory information in the environment, we select information (through attention) that is important to us.
3. The nature of short-term memory is more complex.

## Working Memory

Alan Baddeley (2002) proposes that working memory contains auditory and visual processing controlled by the central executive through an episodic buffer.



- Quickly fades if not stored long-term
- audio + visual different
- easy to drive but not recall 1 song while another plays 2

## Encoding: Getting Information In

### How We Encode

1. Some information (route to your school) is automatically processed.
2. However, new or unusual information (friend's new cell-phone number) **requires attention and effort.**

not these



### Automatic Processing

We process an enormous amount of information effortlessly, such as the following:

1. Space: While reading a textbook, you automatically encode the place of a picture on a page.
2. Time: We unintentionally note the events that take place in a day.
3. Frequency: You effortlessly keep track of things that happen to you.

## Processing

- Parallel processing takes place. We process without having to pay attention. Automatic process occurs effortlessly that is difficult to shut off.
- Some forms of processing require attention and effort but with experience becomes automatic.

space - where on page

time - sequence of day's events

freq - how many times something happened that day

Some things

learned to read automatically - can't help but register meaning

- hard to read backwards, but get the hang of

## Effortful Processing

Committing novel information to memory requires effort just like learning a concept from a textbook. Such processing leads to durable and accessible memories.



Effortful learning usually requires rehearsal or conscious repetition.

Hermann

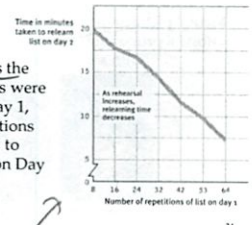
Ebbinghaus studied rehearsal by using nonsense syllables: TUV YOF GEK XOZ.



Hermann Ebbinghaus (1850-1909)

## Rehearsal

The more times the nonsense syllables were practiced on Day 1, the fewer repetitions were required to remember them on Day 2.



requires attention

practice

Maintain in conscious or encode long-term

still there more said - the more drilled into your head

## Memory Effects

1. Next-in-line Effect: When you are so anxious about being next that you cannot remember what the person just before you in line says, but you can recall what other people around you say.
2. Spacing Effect: We retain information better when we rehearse over time. - remembering names
3. Serial Position Effect: When your recall is better for first and last items on a list, but poor for middle items.

## Spacing Effect

Distributing rehearsal (spacing effect) is better than practicing all at once. Robert Frost's poem could be memorized with fair ease if spread over time.

ACQUAINTED WITH THE NIGHT  
Robert Frost

I have been one acquainted with the night.  
I have walked out in rain - and back in rain.  
I have outwalked the furthest city light.

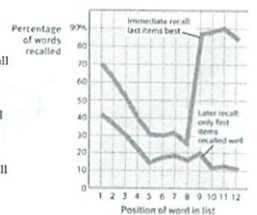
Study beats cramming parts at a time

- yields better long-term retention

## Serial Position Effect

Start

1. TUV } Better recall
2. ZOF } Better recall
3. GEK } Better recall
4. WAV } Floor recall
5. XOZ } Floor recall
6. TIK } Floor recall
7. FUJ } Floor recall
8. WIB } Floor recall
9. SAR } Floor recall
10. POZ } Better recall
11. REY } Better recall
12. GJJ } Better recall



end

? since still in working memory - after time - remember last few

Sec before sleep not remembered



## What We Encode

1. Encoding by meaning
2. Encoding by images
3. Encoding by organization

We remember what we encoded - not exactly what happened  
 (mental model)

## Encoding Meaning

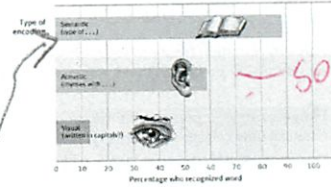
"Whale"

Q: Did the word begin with a capital letter?	Structural Encoding	Shallow
Q: Did the word rhyme with the word "weight"?	Phonemic Encoding	Shallow
Q: Would the word fit in the sentence? He met a _____ in the street.	Semantic Encoding	Deep

Craik and Lockhart (1972)

Remember it better if we process it more (#3)

## Results



sounds + sounds of words

Understanding - not just seeing

\* learning meaningful info requires 1/10 info

## Visual Encoding

Mental pictures (imagery) are a powerful aid to effortful processing, especially when combined with semantic encoding.



Showing adverse effects of tanning and smoking in a picture may be more powerful than simply talking about it.

form visual images as memorize things

easily recall mental snapshots

\* also people remember overall feeling + forget lesser feelings

## Link Method

- hot Disney world

- List of Items
- Newspaper
  - Shaving cream
  - Pen
  - Umbrella
  - Lamp



Involves forming a mental image of items to be remembered in a way that links them together.

visualize + link

## Mnemonics

Imagery is at the heart of many memory aids. Mnemonic techniques use vivid imagery in aiding memory.

1. Method of Loci
2. Link Method

remember where you were

key in people w/ good memory

where

## personally meaningful Chunking

Organizing items into a familiar, manageable unit. Try to remember the numbers below.

1-7-7-6-1-4-9-2-1-8-1-2-1-9-4-1

If you are well versed with American history, chunk the numbers together and see if you can recall them better. 1776 1492 1812 1941.

- don't really know we're doing it  
 - group of 150 words would seem amazing to non-English speakers

## Chunking

Acronyms are another way of chunking information to remember it.

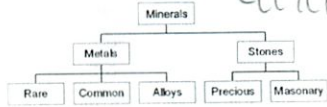
HOMES = Huron, Ontario, Michigan, Erie, Superior

PEMDAS = Parentheses, Exponent, Multiply, Divide, Add, Subtract

ROY G. BIV = Red, Orange, Yellow, Green, Blue, Indigo, Violet

## Hierarchy

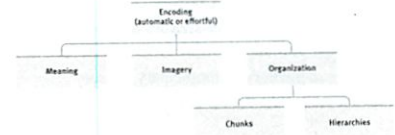
Complex information broken down into broad concepts and further subdivided into categories and subcategories.



efficient

- Still works 2-3x better w/ random info

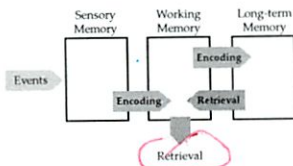
## Encoding Summarized in a Hierarchy



b/c visualize info - yeah

## Storage: Retaining Information

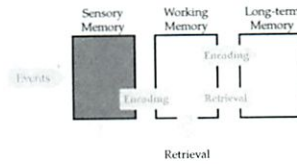
Storage is at the heart of memory. Three stores of memory are shown below:



↑ comes here

\*needs a cue to be retrieved

## Sensory Memory



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## Whole Report

Sperling (1960)



"Recall" RTMZ (44% recall)

50 ms (1/20 second)

The exposure time for the stimulus is so small that items cannot be rehearsed.

## Partial Report



Low Tone "Recall" JRS (100% recall)  
Medium Tone  
High Tone

Sperling (1960) argued that sensory memory capacity was larger than what was originally thought.

asked for tone correlates

to row people have 'iconic' memory

- can remember scene for a ~~few~~ sec

echo - can recall words from 3-4 sec before when heard

## Time Delay



Low Tone "Recall" N... (33% recall)  
Medium Tone  
High Tone

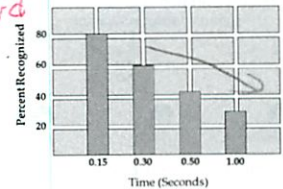
tone played 1/10 sec after image disappears

played 1 sec afterward

lost iconic memory

## Sensory Memory

The longer the delay, the greater the memory loss.



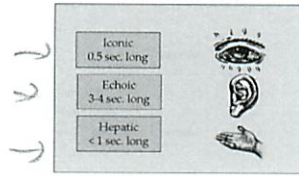


memory

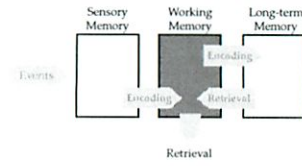
- Iconic - a momentary sensory memory of visual stimuli
- Echoic - a momentary sensory memory of auditory stimuli.

Sensory Memories

The duration of sensory memory varies for the different senses.



Working Memory



before: short term memory

Working Memory

Working memory, the new name for short-term memory, has a limited capacity (7±2) and a short duration (20 seconds).



Sir George Hamilton observed that he could accurately remember up to 7 beans thrown on the floor. If there were more beans, he guessed.

Capacity

*The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information* (1956).

Ready?

MUTGIKTLRSYP

You should be able to recall 7±2 letters.



George Miller

Chunking

The capacity of the working memory may be increased by "Chunking."

F-B-I-T-W-A-C-I-A-I-B-M

FBI TWA CIA IBM  
4 chunks

length declines if not repeated

- better w/ hearing  
- better w/ # than letters w/ similar sounds

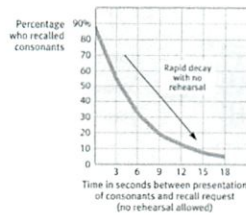
Duration

Brown/Peterson and Peterson (1958/1959) measured the duration of working memory by manipulating rehearsal.

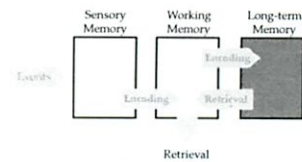


The duration of the working memory is about 20 sec.

Working Memory Duration



Long-Term Memory



more you rehearse the more you remember

## Long-Term Memory

Unlimited capacity store. Estimates on capacity range from 1000 billion to 1,000,000 billion bits of information (Landauer, 1986).



The Clark's nutcracker can locate 6,000 caches of buried pine seeds during winter and spring.

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## Memory Feats

WORLD MEMORY CHAMPIONSHIP RECORDS

From world memory competitions, here are some current records, as of 2009:

Content	Description	Record
Speed cards	Shortest time to memorize a shuffled pack of 52 playing cards	33 seconds
One hour cards	Most cards memorized in one hour (12 points for every pack correct; 25 points if a wildcard)	1076 cards
Speed numbers	Most random digits memorized in 5 minutes	324 digits
Names and faces	Most first and last names memorized in 15 minutes after being shown with faces (1 point for every correctly spelled first or last name; 1/2 point for every phonetically correct but misspelled name)	1673 names
Binary digits	Most binary digits (zeros, etc.) memorized in 30 minutes when presented in rows of 20 digits	3705

Source: www.memory.com and www.theworldmemory.org

## Memory Stores

Feature	Sensory Memory	Working Memory	LTM
Encoding	Copy	Phonemic	Semantic
Capacity	Unlimited	7±2 Chunks	Very Large
Duration	0.25 sec.	20 sec.	Years

Limitless - stuff is not pushed out

- Some people can remember extremely well

- hamster remember which way to turn (long-term memory) even when brain frozen

## Storing Memories in the Brain

- Through electrical stimulation of the brain, Wilder Penfield (1967) concluded that old memories were etched into the brain.
- Loftus and Loftus (1980) reviewed Penfield's data and showed that only a handful of brain stimulated patients reported flashbacks.
- Using rats, Lashley (1950) suggested that even after removing parts of the brain, the animals retain partial memory of the maze.

no specific area for memory

\* new info only interferes with retrieval - memory trace decays

## Stress Hormones & Memory

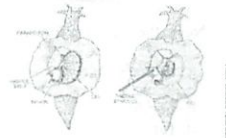
Heightened emotions (stress-related or otherwise) make for stronger memories. Continued stress may disrupt memory.



- Vivid recollections can be burned in
- weak emotions = weak memories
- stress blocks memories

## Synaptic Changes

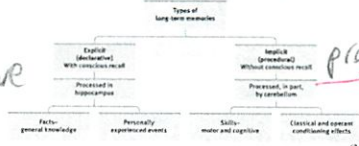
In *Aplysia*, Kandel and Schwartz (1982) showed that serotonin release from neurons increased after conditioning.



Synapse - nerve cells communicate w/ each other  
- releases serotonin  
? makes signals more efficient

## Storing Implicit & Explicit Memories

Explicit Memory refers to facts and experiences that one can consciously know and declare. Implicit memory involves learning an action while the individual does not know or declare what she knows.



declarative procedural action

amnesia - forgetfulness  
- but people can still be classically conditioned!  
2 memory systems  
explicit implicit

## Synaptic Changes

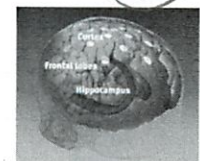
Long-Term Potentiation (LTP) refers to synaptic enhancement after learning (Lynch, 2002). An increase in neurotransmitter release or receptors on the receiving neuron indicates strengthening of synapses.



prolonged strengthening

- w/o it can't learn
- drug companies think it can boost memory
- (REB enhancements may work by boosting gene production)

Hippocampus - a neural center in the limbic system that processes explicit memories



left damage: can't remember verbal  
right damage: trouble w/ visual + locations  
Short-term memories  
? only for ~30 days before archived

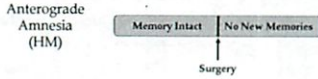


hippocampus is one of last to develop  
 - why we don't remember as children

\* memories not just in 1 place - stored all over  
 - amnesia only

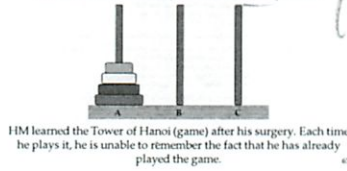
**Anterograde Amnesia**

After losing his hippocampus in surgery, patient Henry M. (HM) remembered everything before the operation but cannot make new memories. We call this anterograde amnesia.



**Implicit Memory**

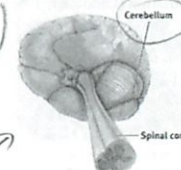
HM is unable to make new memories that are declarative (explicit), but he can form new memories that are procedural (implicit).



returns fragments (sights, smells)

**Cerebellum**

Cerebellum - a neural center in the hindbrain that processes implicit memories.



classical conditioning w/o it - no reflexes

**Retrieval: Getting Information Out**

Retrieval refers to getting information out of the memory store.



also recognize relearning

**Measures of Memory**

In recognition, the person must identify an item amongst other choices. (A multiple-choice test requires recognition.)

- Name the capital of France.
  - Brussels
  - Rome
  - London
  - Paris

**Measures of Memory**

In recall, the person must retrieve information using effort. (A fill-in-the blank test requires recall.)

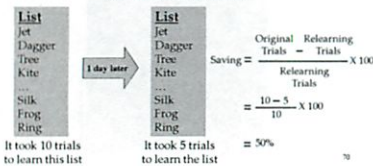
- The capital of France is \_\_\_\_\_.

Very fast

- recognize is easier than pure recall  
 - can relearn much easier

**Measures of Memory**

In relearning, the individual shows how much time (or effort) is saved when learning material for the second time.



relearning - takes less each time

**Retrieval Cues**

Memories are held in storage by a web of associations. These associations are like anchors that help retrieve memory.



**Priming**

To retrieve a specific memory from the web of associations, you must first activate one of the strands that leads to it. This process is called priming.

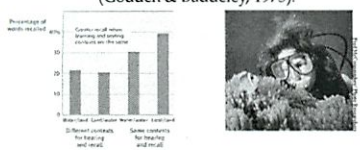


can be subconscious

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### Context Effects

Scuba divers recall more words underwater if they learned the list underwater, while they recall more words on land if they learned that list on land (Godden & Baddeley, 1975).



play back info you were not consciously aware of before

### Déjà Vu

Déjà Vu means "I've experienced this before." Cues from the current situation may unconsciously trigger retrieval of an earlier similar experience.



perie feeling of recognition

### Context Effects

After learning to move a mobile by kicking, infants most strongly respond when retested in the same context rather than in a different context (Butler & Rovee-Collier, 1989).



- the environment (context) gets remembered too

### Moods and Memories

We usually recall experiences that are consistent with our current mood. Emotions, or moods, serve as retrieval cues.



how we felt at this time

emotion is a primer  
↑ mood-congruent recall  
happier memories when you are happy  
influence how we interpret behavior

### Forgetting

An inability to retrieve information due to poor encoding, storage, or retrieval.

problems in all 3 stages

- good to forget old info
- 3 sins of forgetting
  - absent mindedness
  - transience (decay)
  - blocking

### Encoding Failure

We cannot remember what we do not encode.



- age affected  
- old people recall less

### Which penny is real?

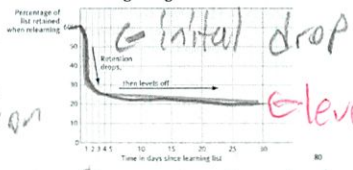


vicious cycle of depression

we don't need to know what they look like

### Storage Decay

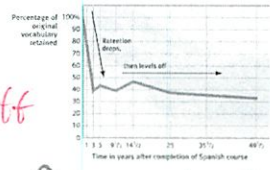
Poor durability of stored memories leads to their decay. Ebbinghaus showed this with his forgetting curve.



much of what we learn is quickly forget

### Retaining Spanish

Bahrick (1984) showed a similar pattern of forgetting and retaining over 50 years.



gradual fading of a memory trace



### Retrieval Failure

Although the information is retained in the memory store, it cannot be accessed.



Tip-of-the-tongue (TOT) is a retrieval failure phenomenon. Given a cue (What makes blood cells red?) the subject says the word begins with an H (hemoglobin).

Contributes to older adults memory problems

### Interference

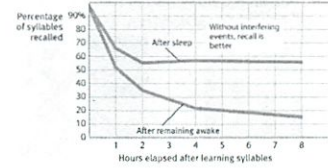
Learning some new information may disrupt retrieval of other information.



proactive - old info disrupts learning new info

### Retroactive Interference

Sleep prevents retroactive interference. Therefore, it leads to better recall.



new info makes it harder to remember old stuff  
- easier if you sleep

### Motivated Forgetting

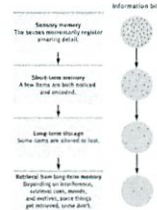
Motivated Forgetting: People unknowingly revise their memories.



Sigmund Freud

Repression: A defense mechanism that banishes anxiety-arousing thoughts, feelings, and memories from consciousness.

Forgetting can occur at any memory stage. We filter, alter, or lose much information during these stages.



Freud: we suppress bad memories

? now we doubt this

always processing - only remember what we need

### Memory Construction

While tapping our memories, we filter or fill in missing pieces of information to make our recall more coherent.

Misinformation Effect: Incorporating misleading information into one's memory of an event.

\* we recall what we have encoded  
people add a lot to memories

### Misinformation and Imagination Effects

Eyewitnesses reconstruct their memories when questioned about the event.



Depiction of the actual accident.

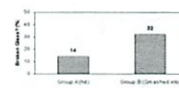
### Misinformation

Group A: How fast were the cars going when they *hit* each other?

Group B: How fast were the cars going when they *smashed into* each other?

### Memory Construction

A week later they were asked: Was there any broken glass? Group B (*smashed into*) reported more broken glass than Group A (*hit*).



- people think it is more serious when you ask *smashed*?

\* Visualizing + actually perceiving something happens in same brain area

### Misinformation effect

- more as time goes on  
- hard to tell real vs filled in  
- more susceptible if have good imagination

Are memories = perceptions of the past ???

### Source Amnesia

Source Amnesia: Attributing an event to the wrong source that we experienced, heard, read, or imagined (misattribution).

frailest part of memory = source

↑ happens to authors

### Children's Eyewitness Recall

Children's eyewitness recall can be unreliable if leading questions are posed. However, if cognitive interviews are neutrally worded, the accuracy of their recall increases. In cases of sexual abuse, this usually suggests a lower percentage of abuse.

- can ask pointed qus
- recollection best if 1st talk to neutral person
- psychologists can't tell
- Not very valuable

### Consensus on Childhood Abuse

Leading psychological associations of the world agree on the following concerning childhood sexual abuse:

1. Injustice happens.
2. Incest and other sexual abuse happens. - no 1 symptom
3. People may forget.
4. Recovered memories are commonplace.
5. Recovered memories under hypnosis or drugs are unreliable.
6. Memories of things happening before 3 years of age are unreliable.
7. Memories, whether real or false, are emotionally upsetting.

↑ "false memories" are upsetting

- but traumatic events are burned into memory

### Discerning True & False Memories

Just like true perception and illusion, real memories and memories that seem real are difficult to discern.



When students formed a happy or angry memory of morphed (computer blended) faces, they made the (computer assisted) faces (a), either happier or (b) angrier.

↑ those who remember face as angry - make it more angrier than it is  
- false = more just gist

### Memories of Abuse

Are memories of abuse repressed or constructed?

Many psychotherapists believe that early childhood sexual abuse results in repressed memories.

However, other psychologists question such beliefs and think that such memories may be constructed.

recovering or creating?  
Construct b/c what you want to hear

### Improving Memory

1. Study repeatedly to boost long-term recall. Overlearn
2. Spend more time rehearsing or actively thinking about the material. Exercise for brain
3. Make material personally meaningful.
4. Use mnemonic devices: Form associations
  - associate with peg words - something already stored
  - make up a story
  - chunk - acronyms

### False Memories

Repressed or Constructed?

Some adults actually do forget childhood episodes of abuse.

False Memory Syndrome

A condition in which a person's identity and relationships center around a false but strongly believed memory of a traumatic experience, which is sometimes induced by well-meaning therapists.

← eyewitnesses are easily persuaded when right or wrong  
- remember what happened years ago wrongly  
- police get you to explain everything 1st - then ask qus  
Constructed Memories

Loftus' research shows that if false memories (lost at the mall or drowned in a lake) are implanted in individuals, they construct (fabricate) their memories.



### Improving Memory

5. Activate retrieval cues - mentally recreate the situation and mood.
6. Recall events while they are fresh - before you encounter misinformation.
7. Minimize interference:
  1. Test your own knowledge
  2. Rehearse and then determine what you do not yet know.



Self testing helps you  
Only study what you don't know



There is a 41-year-old woman, an administrative assistant from California known in the medical literature only as "AJ," who remembers almost every day of her life since age 11. There is an 85-year-old man, a retired lab technician called "EP," who remembers only his most recent thought. She might have the best memory in the world. He could very well have the worst.

"My memory flows like a movie—nonstop and uncontrollable," says AJ. She remembers that at 12:34 p.m. on Sunday, August 3, 1986, a young man she had a crush on called her on the telephone. She remembers what happened on *Murphy Brown* on December 12, 1988. And she remembers that on March 28, 1992, she had lunch with her father at the Beverly Hills Hotel. She remembers world events and trips to the grocery store, the weather and her emotions. Virtually every day is there. She's not easily stumped.

There have been a handful of people over the years with uncommonly good memories. Kim Peek, the 56-year-old savant who inspired the movie *Rain Man*, is said to have memorized nearly 12,000 books (he reads a page in 8 to 10 seconds). "S," a Russian journalist studied for three decades by the Russian neuropsychologist Alexander Luria, could remember impossibly long strings of words, numbers, and nonsense syllables years after he'd first heard them. But AJ is unique. Her extraordinary memory is not for facts or figures, but for her own life. Indeed, her inexhaustible memory for autobiographical details is so unprecedented and so poorly understood that James McGaugh, Elizabeth Parker, and Larry Cahill, the neuroscientists at the University of California, Irvine who have been studying her for the past seven years, had to coin a new medical term to describe her condition: hyperthymestic syndrome.

EP is six-foot-two (1.9 meters), with perfectly parted white hair and unusually long ears. He's personable, friendly, gracious. He laughs a lot. He seems at first like your average genial grandfather. But 15 years ago, the herpes simplex virus chewed its way through his brain, coring it like an apple. By the time the virus had run its course, two walnut-size chunks of brain matter in the medial temporal lobes had disappeared, and with them most of EP's memory.

The virus struck with freakish precision. The medial temporal lobes—there's one on each side of the brain—include an arch-shaped structure called the hippocampus and several adjacent regions that together perform the magical feat of turning our perceptions into long-term memories. The memories aren't actually stored in the hippocampus—they reside elsewhere, in the brain's corrugated outer layers, the neocortex—but the hippocampal area is the part of the brain that makes them stick. EP's hippocampus was destroyed, and without it he is like a camcorder without a working tape head. He sees, but he doesn't record.

EP has two types of amnesia—anterograde, which means he can't form new memories, and retrograde, which means he can't remember old memories either, at least not since 1960. His childhood, his service in the merchant marine, World War II—all that is perfectly vivid. But as far as he knows, gas costs less than a dollar a gallon, and the moon landing never happened.

AJ and EP are extremes on the spectrum of human memory. And their cases say more than any brain scan about the extent to which our memories make us who we are. Though the rest of us are somewhere between those two poles of remembering everything and nothing, we've all experienced some small taste of the promise of AJ and dreaded the fate of EP. Those three pounds or so of wrinkled flesh balanced atop our spines can retain the most trivial details about childhood experiences for a lifetime but often can't hold on to even the most important telephone number for just two minutes. Memory is strange like that.

What is a memory? The best that neuroscientists can do for the moment is this: A memory is a stored pattern of connections between neurons in the brain. There are about a hundred billion of those neurons,



each of which can make perhaps 5,000 to 10,000 synaptic connections with other neurons, which makes a total of about five hundred trillion to a thousand trillion synapses in the average adult brain. By comparison there are only about 32 trillion bytes of information in the entire Library of Congress's print collection. Every sensation we remember, every thought we think, alters the connections within that vast network. Synapses are strengthened or weakened or formed anew. Our physical substance changes. Indeed, it is always changing, every moment, even as we sleep.

I met EP at his home, a bright bungalow in suburban San Diego, on a warm spring day. I drove there with Larry Squire, a neuroscientist and memory researcher at the University of California, San Diego, and the San Diego VA Medical Center, and Jen Frascino, the research coordinator in Squire's lab who visits EP regularly to administer cognitive tests. Even though Frascino has been to EP's home some 200 times, he always greets her as a stranger.

Frascino sits down opposite EP at his dining room table and asks a series of questions that gauge his common sense. She quizzes him about what continent Brazil is on, the number of weeks in a year, the temperature water boils at. She wants to demonstrate what IQ tests have already proved: EP is no dummy. He patiently answers the questions—all correctly—with roughly the same sense of bemusement I imagine I would have if a total stranger walked into my house, sat down at my table, and very earnestly asked me if I knew the boiling point of water.

"What is the thing to do if you find an envelope in the street that is sealed, addressed, and has a stamp on it?" Frascino asks.

"Well, you'd put it in the mailbox. What else?" He chuckles and shoots me a sidelong and knowing glance, as if to say, Do these people think I'm an idiot? But sensing that the situation calls for politeness, he turns back to Frascino and adds, "But that's a really interesting question you've got there. Really interesting." He has no idea he's heard it many times before.

"Why do we cook food?"

"Because it's raw?" The word raw carries his voice clear across the tonal register, his bemusement giving way to incredulity.

"Why do we study history?"

"Well, we study history to know what happened in the past."

"But why do we want to know what happened in the past?"

"Because, it's just interesting, frankly."

EP wears a metal medical alert bracelet around his left wrist. Even though it's obvious what it's for, I ask him anyway. He turns his wrist over and casually reads it.

"Hmm. It says memory loss."

EP doesn't even remember that he has a memory problem. That is something he discovers anew every moment. And since he forgets that he always forgets, every lost thought seems like just a casual slip—an annoyance and nothing more—the same way it would to you or me.

Ever since his sickness, space for EP has existed only as far as he can see it. His social universe is only as large as the people in the room. He lives under a narrow spotlight, surrounded by darkness.

On a typical morning, EP wakes up, has breakfast, and returns to bed to listen to the radio. But back in bed, it's not always clear whether he's just had breakfast or just woken up. Often he'll have breakfast again, and return to bed to listen to some more radio. Some mornings he'll have breakfast a third time. He watches TV, which can be very exciting from second to second, though shows with a clear beginning, middle, and end

funny  
meta

→



can pose a problem. He prefers the History Channel, or anything about World War II. He takes walks around the neighborhood, usually several times before lunch, and sometimes for as long as three-quarters of an hour. He sits in the yard. He reads the newspaper, which one can only imagine must feel like stepping out of a time machine. Bush who? Iraq what? Computers when? By the time EP gets to the end of a headline, he's usually forgotten how it began. Most of the time, after reading the weather, he just doodles on the paper, drawing mustaches on the photographs or tracing his spoon. When he sees home prices in the real estate section, he invariably announces his shock.

Without a memory, EP has fallen completely out of time. He has no stream of consciousness, just droplets that immediately evaporate. If you were to take the watch off his wrist—or, more cruelly, change the time—he'd be completely lost. Trapped in this limbo of an eternal present, between a past he can't remember and a future he can't contemplate, he lives a sedentary life, completely free from worry. "He's happy all the time. Very happy. I guess it's because he doesn't have any stress in his life," says his daughter Carol, who lives nearby.

"How old are you now?" Squire asks him.

"Let's see, 59 or 60. You got me. My memory is not that perfect. It's pretty good, but sometimes people ask me questions that I just don't get. I'm sure you have that sometimes."

"Sure, I do," says Squire, kindly, even though EP is almost a quarter of a century off.

**An enormous amount of what science knows about memory** was learned from a damaged brain that is remarkably similar to EP's. It belongs to an 81-year-old man known as "HM," an amnesiac who lives in a nursing home in Connecticut. As a child, HM suffered from epilepsy that began after a bike accident at age nine. By the time he was 27, he was blacking out ten times a week and unable to do much of anything. A neurosurgeon named William Scoville thought he could cure HM's epilepsy with an experimental surgery that would excise the part of the brain that he suspected was causing the problem.

In 1953, while HM lay awake on the operating table, his scalp anesthetized, Scoville drilled a pair of holes just above the patient's eyes. The surgeon lifted the front of HM's brain with a small metal spatula while a metal straw sucked out most of the hippocampus, along with much of the surrounding medial temporal lobes. The surgery reduced the number of HM's seizures, but it soon became clear that he'd also been robbed of his memory.

Over the next five decades, HM was the subject of countless experiments and became the most studied patient in the history of brain science. Given the horrific outcome of Scoville's surgery, everyone assumed HM would be a singular case study.

EP shattered that assumption. What Scoville did to HM with a metal straw, nature did to EP with herpes simplex. Side by side, the grainy black-and-white MRIs of their brains are uncannily similar, though EP's damage is a bit more extensive. Even if you have no idea what a normal brain ought to look like, the gaping symmetrical holes stare back at you like eyes.

Like EP, HM was able to hold on to memories just long enough to think about them, but once his brain moved to something else, he could never bring them back. In one famous experiment, Brenda Milner, a Canadian psychologist, asked HM to remember the number 584 for as long as possible. To keep the number on the tip of his tongue, he used a complicated system, which he recounted to Milner:

"It's easy. You just remember 8. You see 5, 8, and 4 add to 17. You remember 8, subtract it from 17, and it leaves 9. Divide 9 in half and you get 5 and 4 and there you are: 584. Easy."



He concentrated on this elaborate mantra for several minutes. But as soon as he was distracted, the number dissolved. He couldn't even remember that he'd been asked to remember something. Though scientists had known that there was a difference between long- and short-term memory since the late 19th century, they now had evidence in HM that the two types of memory happened in different parts of the brain, and that without most of the hippocampal area, HM couldn't turn a short-term memory into a long-term one.

Researchers also learned more about another kind of remembering from HM. Even though he couldn't say what he'd had for breakfast or name the current President, there were some things that he could remember. Milner found that he was capable of learning complicated tasks without even realizing it. In one study, she showed that HM could learn how to trace inside a five-pointed star on a piece of paper while looking at its reflection in a mirror. Each time Milner gave HM the task, he claimed never to have tried it before. And yet, each day his brain got better at guiding his hand to work in reverse. Despite his amnesia, he was remembering.

Though there is disagreement about just how many memory systems there are, scientists generally divide memories into two types: declarative and nondeclarative (sometimes referred to as explicit and implicit). Declarative memories are things you know you remember, like the color of your car or what happened yesterday afternoon. EP and HM have lost the ability to make new declarative memories. Nondeclarative memories are the things you know without consciously thinking about them, like how to ride a bike or how to draw a shape while looking at it in a mirror. Those unconscious memories don't rely on the hippocampal region to be consolidated and stored. They happen in completely different parts of the brain. Motor skill learning takes place at the base of the brain in the cerebellum, perceptual learning in the neocortex, habit learning at the brain's center. As EP and HM so strikingly demonstrate, you can damage one part of the brain, and the rest will keep on working.

The metaphors we most often use to describe memory—the photograph, the tape recorder, the mirror, the hard drive—all suggest mechanical accuracy, as if the mind were some sort of meticulous transcriber of our experiences. And for a long time it was a commonly held view that our brains function as perfect recorders—that a lifetime of memories are socked away somewhere in the cerebral attic, and if they can't be found it isn't because they've disappeared, but only because we've lost access to them.

A Canadian neurosurgeon named Wilder Penfield thought he'd proved that theory by the 1940s after using electrical probes to stimulate the brains of epileptic patients while they were lying conscious on the operating table. He was trying to pinpoint the source of their epilepsy, but he found that when his probe touched certain parts of the temporal lobe, the patients started describing vivid experiences. When he touched the same spot again, he often elicited the same descriptions. Penfield came to believe that the brain records everything to which it pays any degree of conscious attention, and that this recording is permanent.

Most scientists now agree that the strange recollections triggered by Penfield were closer to fantasies or hallucinations than to memories, but the sudden reappearance of long-lost episodes from one's past is an experience surely familiar to everyone. Still, as a recorder, the brain does a notoriously wretched job.

Tragedies and humiliations seem to be etched most sharply, often with the most unbearable exactitude, while those memories we think we really need—the name of the acquaintance, the time of the appointment, the location of the car keys—have a habit of evaporating.

Michael Anderson, a memory researcher at the University of Oregon in Eugene, has tried to estimate the cost of all that evaporation. According to a decade's worth of "forgetting diaries" kept by his undergraduate



students (the amount of time it takes to find the car keys, for example), Anderson calculates that people squander more than a month of every year just compensating for things they've forgotten.

AJ remembers when she first realized that her memory was not the same as everyone else's. She was in the seventh grade, studying for finals. "I was not happy because I hated school," she says. Her mother was helping her with her homework, but her mind had wandered elsewhere. "I started thinking about the year before, when I was in sixth grade and how I loved sixth grade. But then I started realizing that I was remembering the exact date, exactly what I was doing a year ago that day." At first she didn't think much of it. But a few weeks later, playing with a friend, she remembered that they had also spent the day together exactly one year earlier.

"Each year has a certain feeling, and then each time of year has a certain feeling. The spring of 1981 feels completely different from the winter of 1981," she says. Dates for AJ are like the petite madeleine cake that sent Marcel Proust's mind hurtling back in time in *Remembrance of Things Past*. Their mere mention starts her reminiscing involuntarily. "You know when you smell something, it brings you back? I'm like ten levels deeper and more intense than that."

My brother used to say, 'Oh, she's the Rain Man.' And I was like, 'No I'm not!' But I thought, what if I really . . . Am I? Is there something wrong with me?" At one point AJ considered setting up shop on the nearby boardwalk as the Human Calendar and charging people five bucks to let them try to stump her with dates. She decided against it. "I don't want to be a sideshow."

It would seem as though having a memory like AJ's would make life qualitatively different—and better. Our culture inundates us with new information, yet so little of it is captured and cataloged in a way that it can be retrieved later. What would it mean to have all that otherwise lost knowledge at our fingertips? Would it make us more persuasive, more confident? Would it make us, in some fundamental sense, smarter? To the extent that experience is the sum of our memories and wisdom the sum of experience, having a better memory would mean knowing not only more about the world, but also more about oneself. How many worthwhile ideas have gone unthought and connections unmade because of our memory's shortcomings? The dream that AJ embodies, the perfection of memory, has been with us since at least the fifth century B.C. and the supposed invention of a technique known as the "art of memory" by the Greek poet Simonides of Ceos.

Simonides had been the sole survivor of a catastrophic roof collapse at a banquet hall in Thessaly. According to Cicero, who wrote an account of the incident four centuries later, the bodies were mangled beyond recognition. But in his mind, Simonides was able to close his eyes to the chaos and see each of the guests at his seat around the table. He'd discovered the powerful technique known as the loci method. If you can convert whatever it is you're trying to remember into vivid mental images and then arrange them in some sort of imagined architectural space, known as a memory palace, memories can be made virtually indelible.

Peter of Ravenna, a noted Italian jurist and author of a renowned memory textbook of the 15th century, was said to have used the loci method to memorize the Bible, the entire legal canon, 200 of Cicero's speeches, and 1,000 verses of Ovid. For leisure, he would reread books cached away in his memory palaces. "When I left my country to visit as a pilgrim the cities of Italy, I can truly say I carry everything I own with me," he wrote.



It's hard for us to imagine what it must have been like to live in a culture before the advent of printed books or before you could carry around a ballpoint pen and paper to jot notes. "In a world of few books, and those mostly in communal libraries, one's education had to be remembered, for one could never depend on having continuing access to specific material," writes Mary Carruthers, author of *The Book of Memory*, a study of the role of memory techniques in medieval culture. "Ancient and medieval people reserved their awe for memory. Their greatest geniuses they describe as people of superior memories." Thirteenth-century theologian Thomas Aquinas, for example, was celebrated for composing his *Summa Theologica* entirely in his head and dictating it from memory with no more than a few notes. The Roman philosopher Seneca the Elder could repeat 2,000 names in the order they'd been given to him. A Roman named Simplicius could recite Virgil by heart—backward. A strong memory was seen as the greatest of virtues since it represented the internalization of a universe of external knowledge. Indeed, a common theme in the lives of the saints was that they had extraordinary memories.

After Simonides' discovery, the art of memory was codified with an extensive set of rules and instructions by the likes of Cicero and Quintilian and in countless medieval memory treatises. Students were taught not only what to remember but also techniques for how to remember it. In fact, there are long traditions of memory training in many cultures. The Jewish Talmud, embedded with mnemonics—techniques for preserving memories—was passed down orally for centuries. Koranic memorization is still considered a supreme achievement among devout Muslims. Traditional West African griots and South Slavic bards recount colossal epics entirely from memory.

But over the past millennium, many of us have undergone a profound shift. We've gradually replaced our internal memory with what psychologists refer to as external memory, a vast superstructure of technological crutches that we've invented so that we don't have to store information in our brains. We've gone, you might say, from remembering everything to remembering awfully little. We have photographs to record our experiences, calendars to keep track of our schedules, books (and now the Internet) to store our collective knowledge, and Post-it notes for our scribbles. What have the implications of this outsourcing of memory been for ourselves and for our society? Has something been lost?

**To supplement the memories in her mind**, AJ also stores a trove of external memories. In addition to the detailed diary she's kept since childhood, she has a library of close to a thousand videotapes copied off TV, a trunk full of radio recordings, and a "research library" consisting of 50 notebooks filled with facts she's found on the Internet that relate to events in her memory. "I just want to keep it all," she says.

Preserving her past has become the central compulsion of AJ's life. "When I'm blow-drying my hair in the morning, I'll think of whatever day it is. And to pass the time, I'll just run through that day in my head over the last 20-something years—like flipping through a Rolodex."

AJ traces the origins of her unusual memory to a move from New Jersey to California that her family made when she was just eight years old. Life in New Jersey had been comfortable and familiar, and California was foreign and strange. It was the first time she understood that growing up and moving on necessarily meant forgetting and leaving behind. "Because I hate change so much, after that it was like I wanted to be able to capture everything. Because I know, eventually, nothing will ever be the same," she says.

K. Anders Ericsson, a professor of psychology at Florida State University, believes that at bottom, AJ might not be all that different from the rest of us. After the initial announcement of AJ's condition in the journal *Neurocase*, Ericsson suggested that what needs to be explained about AJ is not some extraordinary,



unprecedented innate memory but rather her extraordinary obsession with her past. People always remember things that are important to them. Baseball fanatics often have an encyclopedic knowledge for statistics, chess masters often remember tricky gambits that took place years ago, actors often remember scripts long after performing them. Everyone has got a memory for something. Ericsson believes that if anyone cared about holding on to the past as much as AJ does, the feat of memorizing one's life would be well within reach.

I mention Ericsson's theory to AJ, and she becomes visibly upset. "I just want to call him on the phone and yell at him. If I spent that much time memorizing my life, then I really would be a boring person," she says. "I don't sit around and memorize it. I just know it."

Remembering everything is both maddening and lonely for AJ. "I remember good, which is very comforting. But I also remember bad—and every bad choice," she says. "And I really don't give myself a break. There are all these forks in the road, moments you have to make a choice, and then it's ten years later, and I'm still beating myself up over them. I don't forgive myself for a lot of things. Your memory is the way it is to protect you. I feel like it just hasn't protected me. I would love just for five minutes to be a simple person and not have all this stuff in my head. "Most people have called what I have a gift," AJ says, "but I call it a burden." The whole point of our nervous system, from the sensory organs that feed information to the massive glob of neurons that interpret it, is to develop a sense of what is happening in the present and what is about to happen in the future, so that we can respond in the best possible way. Our brains are fundamentally prediction machines, and to work they have to find order in the chaos of possible memories. Most of the things that pass through our brains don't need to be remembered any longer than they need to be thought about.

← good at finding PA

Harvard psychologist Daniel Schacter has developed a taxonomy of forgetting to catalog what he calls the seven sins of memory. The sin of absentmindedness: Yo-Yo Ma forgetting his 2.5-million-dollar cello in the back of a taxi. The Vietnam War veteran still haunted by the battlefield suffers from the sin of persistence. The politician who loses a word on the tip of his tongue during a stump speech is experiencing the sin of blocking. Though we curse these failures of memory on an almost daily basis, Schacter says, that's only because we don't see their benefits. Each sin is really the flip side of a virtue, "a price we pay for processes and functions that serve us well in many respects." There are good evolutionary reasons why our memories fail us in the specific ways they do. If everything we looked at, smelled, heard, or thought about was immediately filed away in the enormous database that is our long-term memory, we'd be drowning in irrelevant information.

In his short story "Funes the Memorious," Jorge Luis Borges describes a man crippled by an inability to forget. He remembers every detail of his life, but he can't distinguish between the trivial and the important. He can't prioritize, he can't generalize. He is "virtually incapable of general, platonic ideas." Perhaps, as Borges concludes in his story, it is forgetting, not remembering, that is the essence of what makes us human. "To think," Borges writes, "is to forget."

To age is to forget, also. Roughly five million Americans have Alzheimer's disease, and even more suffer from mild cognitive impairment, or lesser degrees of memory loss. When asked to recall a list of 15 words read 20 minutes earlier, octogenarians in one large study recalled fewer than 60 percent, while the twentysomethings could remember close to 90 percent.

Not surprisingly, people have been searching a long time for chemicals that might halt that tide of forgetting. According to the Franciscan Bernardo de Lavinjeta, writing in the early 1500s, "Artificial memory is twofold:



the first part consists in medicines and poultices." The second part, of course, is the art of memory, which Lavinheta deemed both safer and more effective (since memory medicines can sometimes have the unfortunate side effect of "drying up the brain"). Today ginkgo biloba is sold as an over-the-counter supplement, or added to fruit smoothies and "smart" soft drinks, even without conclusive evidence that it either boosts memory—or dries up the brain.

Within the past decades, drug companies have elevated the search to brave new heights. Armed with a sophisticated understanding of memory's molecular underpinnings, they've sought to create new drugs that amplify the brain's natural capacity to remember. In recent years, at least three companies have been formed with the express purpose of developing memory drugs. One of those companies, Cortex Pharmaceuticals, is attempting to develop a class of molecules known as ampakines, which facilitate the transmission of the neurotransmitter glutamate. Glutamate is one of the primary excitatory chemicals passed across the synapses between neurons. By amplifying its effects, Cortex hopes to improve the brain's underlying ability to form and retrieve memories. When administered to middle-age rats, one ampakine was able to fully reverse their age-related decline in the cellular mechanism of memory.

It may not be long before drugs such as ampakines begin to reach the market; when they do, they could have an enormous impact on society. Though the pharmaceutical companies are searching for therapeutic treatments to stave off Alzheimer's and combat dementia, it seems inevitable that their pills will end up in the hands of students cramming for exams and probably a whole lot of other people who just want to enhance their brains. Already psycho-stimulants designed to treat ADHD, like Adderall and Ritalin, are used as "study buddies" by as many as one in four students at some colleges trying to increase their concentration and improve their memories.

All of this raises some troubling ethical questions. Would we choose to live in a society where people have vastly better memories? In fact, what would it even mean to have a better memory? Would it mean remembering things only exactly as they happened, free from the revisions and exaggerations that our mind naturally creates? Would it mean having a memory that forgets traumas? Would it mean having a memory that remembers only those things we want it to remember? Would it mean becoming AJ?

I want to see EP's unconscious, nondeclarative memory at work, so I ask him if he's interested in taking me on a walk around his neighborhood. He says, "not really," so I wait and ask him again a couple minutes later. This time he agrees. We walk out the front door into the high afternoon sun and turn right. I ask EP why we're not turning to the left instead.

"I'd just rather not go that way. This is just the way I go. I don't know why," he says.

If I asked him to draw a map of the route he takes at least three times a day, he'd never be able to do it. He doesn't even know his own address, or (almost as improbably for someone from San Diego) which way the ocean is. But after so many years of taking the same walk, the journey has etched itself on his unconscious. His wife, Beverly, now lets him go out alone, even though a single wrong turn would leave him completely lost. Sometimes he comes back from his walks with objects he's picked up along the way: a stack of round stones, a puppy, somebody's wallet. He's never able to explain how they came into his possession. "Our neighbors love him because he'll come up to them and just start talking to them," Beverly says. Even though he thinks he's meeting them for the first time, he's learned through habit that these are people he should feel comfortable around, and he interprets those unconscious feelings of comfort as a good reason to stop and say hello.



We cross the street and I'm alone with EP for the first time. He doesn't know who I am or what I'm doing at his side, although he seems to sense that I'm there for some good reason. He is trapped in the ultimate existential nightmare, blind to the reality in which he lives. The impulse strikes me to help him escape, at least for a second. I want to take him by the arm and shake him. "You have a rare and debilitating memory disorder," I want to tell him. "The last 50 years have been lost to you. In less than a minute, you're going to forget that this conversation ever even happened." I imagine the sheer horror that would befall him, the momentary clarity, the gaping emptiness that would open up in front of him, and close just as quickly. And then the passing car or the singing bird that would snap him back into his oblivious bubble.



We turn around and walk back down the street whose name he's forgotten, past the waving neighbors he doesn't recognize, to a home he doesn't know. In front of the house, there is a car parked with tinted windows. We turn to look at our reflections. I ask EP what he sees.

"An old man," he says. "That's all."

very interesting  
- seems cool to do for a day  
but not presently

# Chap 10

## PSYCHOLOGY

(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

Worth Publishers, © 2006



## Thinking and Language

### Chapter 10

## Thinking and Language

### Thinking

- Concepts
- Solving Problems
- Making Decisions and Forming Judgments
- Belief Bias

## Thinking and Language

### Language

- Language Structure
- Language Development

### Thinking & Language

- Language Influences Thinking
- Thinking in Images

## Thinking and Language

### Animal Thinking and Language

- Do Animals Think?
- Do Animals Exhibit Language?
- The Case of the Apes

## Thinking

Thinking, or cognition, refers to a process that involves knowing, understanding, remembering, and communicating.

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mental activities to process, understand, remember, or communicate

## Cognitive Psychologists

Thinking involves a number of mental activities, which are listed below. Cognitive psychologists study these in great detail.

1. Concepts
2. Problem solving
3. Decision making
4. Judgment formation

people who don't do this have big problems

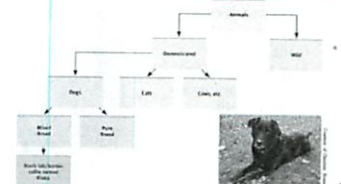
## Concept

The mental grouping of similar objects, events, ideas, or people. There are a variety of chairs but their common features define the concept of a chair.

lots of different chairs  
↑ provides names to things

## Category Hierarchies

We organize concepts into category hierarchies.

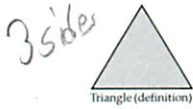


- neighborhoods



## Development of Concepts

We form some concepts with definitions. For example, a triangle has three sides. Mostly, we form concepts with mental images or typical examples (prototypes). For example, a robin is a prototype of a bird, but a penguin is not.



mental images ↑ what typically happens

"a better bird"

## Categories

Once we place an item in a category, our memory shifts toward the category prototype.



A computer generated face that was 70 percent Caucasian led people to classify it as Caucasian.

Recalled as more prototypically male

- notice when something does not fit in right

## Problem Solving

There are two ways to solve problems: Algorithms: Methodical, logical rules or procedures that guarantee solving a particular problem.

## Algorithms

Algorithms, which are very time consuming, exhaust all possibilities before arriving at a solution. Computers use algorithms.

**SPLOYOCHYG**

If we were to unscramble these letters to form a word using an algorithmic approach, we would face 907,208 possibilities.

goes through all possibilities - Jumbles  
guarantees solution

long

short

## Heuristics

Heuristics are simple, thinking strategies that allow us to make judgments and solve problems efficiently. Heuristics are less time consuming, but more error-prone than algorithms.



## Heuristics

Heuristics make it easier for us to use simple principles to arrive at solutions to problems.

**SPLOYOCHYG**  
**BBYOMOCGY**

Put a Y at the end, and see if the word begins to make sense.

## Insight

Insight involves a sudden novel realization of a solution to a problem. Humans and animals have insight.



Grande using boxes to obtain food

## Insight

Brain imaging and EEG studies suggest that when an insight strikes (the "Aha" experience), it activates the right temporal cortex (Jung-Beeman, 2004). The time between not knowing the solution and realizing it is 0.3 seconds.



right temporal lobe  
moves from subconscious to main conscious  
Joy of Jokes

## Obstacles in Solving Problems

Confirmation Bias: A tendency to search for information that confirms a personal bias.

2-4-6

Rule: Any ascending series of numbers. 1-2-3 would comply. Ss had difficulty figuring out the rule due to a confirmation bias (Wason, 1960).

- seek evidence more to confirm our prediction than to refute it  
WMD in Iraq

### Fixation

Fixation: An inability to see a problem from a fresh perspective. This impedes problem solving. Two examples of fixation are *mental set* and *functional fixedness*.

The Matchstick Problem: How would you arrange six matches to form four equilateral triangles?



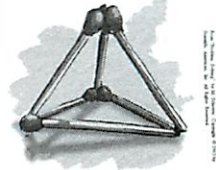
- hard to restructure how we approach a problem

### Candle-Mounting Problem

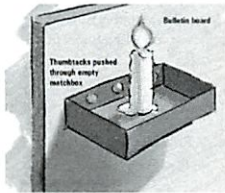
Using these materials, how would you mount the candle on a bulletin board?



### The Matchstick Problem: Solution



### Candle-Mounting Problem: Solution



### Mental Set

A tendency to approach a problem in a particular way, especially if that way was successful in the past.

- "American"  
- worked in the past

### Functional Fixedness

A tendency to think only of the familiar functions of an object.



Problem: Tie the two ropes together. Use a screw driver, cotton balls and a matchbox.

- person looks for screwdriver when a coin would work  
- Creativity  
- limited by stereotypes

### Functional Fixedness

Use the screwdriver as a weight, and tie it to the end of one rope. Swing it toward the other rope to tie the knot.



The inability to think of the screwdriver as a weight is functional fixedness.

### Using and Misusing Heuristics

Two kinds of heuristics, representative heuristics and availability heuristics, have been identified by cognitive psychologists.



- Sometimes need to make a decision fast  
- many people don't have a logical problem solving method

### Representativeness Heuristic

Judging the likelihood of things or objects in terms of how well they seem to represent, or match, a particular prototype.

If you meet a slim, short, man who wears glasses and likes poetry, what do you think his profession would be?  
An Ivy league professor or a truck driver?

more representative  
more truck drivers than professor - so chances are higher





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Language

Language, our spoken, written, or gestured work, is the way we communicate meaning to ourselves and others.



Language transmits culture.

- most tangible example of our power to think
- sets humans apart
- just pushing air

Structuring Language

Phonemes	Basic sounds (about 40) ... ea, sh.
Morphemes	Smallest meaningful units (100,000) ... un, for.
Words	Meaningful units (290,500) ... most, pumpkin.
Phrase	Composed of two or more words (325,000) ... most enter.
Sentence	Composed of many words (infinite) ... She opened the jewelry box.

Language Structure

Phonemes: The smallest distinct sound unit in a spoken language. For example:

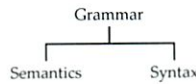
bat, has three phonemes b · a · t

chat, has three phonemes ch · a · t

- English has 50
- total 869 for humans
- consonants carry more info than vowels
- not used to ones outside our language
- so does sign language

Grammar

Grammar is the system of rules in a language that enable us to communicate with and understand others.



Language Structure

Morpheme: The smallest unit that carries a meaning. It may be a word or part of a word. For example:

- Milk = milk
- Pumpkin = pump · kin
- Unforgettable = un · for · get · table

Similar to a syllable esp

Semantics

Semantics is the set of rules by which we derive meaning from morphemes, words, and sentences. For example:

Semantic rule tells us that adding ed to the word laugh means that it happened in the past.

meaning

\* language's complexity is built on simplicity

Syntax

Syntax consists of the rules for combining words into grammatically sensible sentences. For example:

In English, syntactical rule says that adjectives come before nouns; *white house*. In Spanish, it is reversed; *casa blanca*.

determines sentence meaning

order

Language Development

Children learn their native languages much before learning to add 2+2.

We learn, on average (after age 1), 3,500 words a year, amassing 60,000 words by the time we graduate from high school.



- far outnumbers what we learn in school
- amazing that we can speak - picking out + constructing words so fast
- before 4 months
- look at faces to distinguish sounds

What you say to them affects their language

When do we learn language?

Babbling Stage: Beginning at 4 months, the infant spontaneously utters various sounds, like ah-goo. Babbling is not imitation of adult speech.



can't tell parent's language from hearing babble  
- w/o hearing other lang we become deaf to them



When do we learn language?

One-Word Stage: Beginning at or around his first birthday, a child starts to speak one word at a time and is able to make family members understand him. The word doggy may mean look at the dog out there.

When do we learn language?

Two-Word Stage: Before the 2nd year a child starts to speak in two-word sentences. This form of speech is called telegraphic speech because the child speaks like a telegram: "Go car," means I would like to go for a ride in the car.

- nouns + verbs
- follows syntax

When do we learn language?

Longer phrases: After telegraphic speech, children begin uttering longer phrases (Mommy get ball) with syntactical sense, and by early elementary school they are employing humor.

*You never starve in the desert because of all the sand-which-is there.*

When do we learn language?

SUMMARY OF LANGUAGE DEVELOPMENT	
Month (approximate)	Stage
4	Babbles many speech sounds.
10	Babbling resembles household language.
12	One-word stage.
24	Two-word, telegraphic speech.
24+	Language develops rapidly into complete sentences.

Explaining Language Development

1. Operant Learning: Skinner (1957, 1985) believed that language development may be explained on the basis of learning principles such as association, imitation, and reinforcement.

- babies learn to talk like animals press bars
- could learn to sign instead

Explaining Language Development

2. Inborn Universal Grammar: Chomsky (1959, 1987) opposed Skinner's ideas and suggested that the rate of language acquisition is so fast that it cannot be explained through learning principles, and thus most of it is inborn.

- Can put together sentences "I hate you, Daddy"
- over generalize rules of grammar
- all languages follow certain rules
- those who language in group will dev. it themselves

Explaining Language Development

3. Statistical Learning and Critical Periods: Well before our first birthday, our brains are discerning word breaks by statistically analyzing which syllables in hap-py-ba-by go together. These statistical analyses are learned during critical periods of child development.



Genes, Brain, & Language

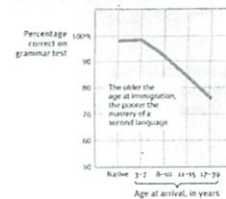
Genes design the mechanisms for a language, and experience modifies the brain.



repetition is important

- speak languages learned as adults differently
- diff. part of brain
- can't learn language after age 7

Learning new languages gets harder with age.



- different surface + deep meaning

# learning is about connection

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## Language & Thinking

Language and thinking intricately intertwine.



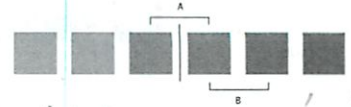
## Language Influences Thinking

Linguistic Determinism: Whorf (1956) suggested that language determines the way we think. For example, he noted that the Hopi people do not have the past tense for verbs. Therefore, the Hopi cannot think readily about the past.

- when taking personality test in Japanese - more focused on groups of people as Japanese is
- destroying language = destroying culture

## Language Influences Thinking

When a language provides words for objects or events, we can think about these objects more clearly and remember them. It is easier to think about two colors with two different names (A) than colors with the same name (B) (Özgen, 2004).



or think more similar

## Word Power

Increasing word power pays its dividends. It pays for speakers and deaf individuals who learn sign language.

- use of gender terms influences thinking even if we know it means both
- pays to ↑ word power
- even for people who sign

## Linguistic Determinism Questioned

Although people from Papua New Guinea do not use our words for colors and shapes, they still perceive them as we do (Rosch, 1974).

## Thinking in Images

To a large extent thinking is language-based. When alone, we may talk to ourselves. However, we also think in images.

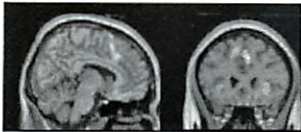
We don't think in words, when:

1. When we open the hot water tap.
2. When we are riding our bicycle.

- \* procedural memory \*
- athletes practice in their brain by thinking about event - but go over process not the outcome (standing on winner's podium)

## Images and Brain

Imagining a physical activity activates the same brain regions as when actually performing the activity.



## Language and Thinking

Traffic runs both ways between language and thinking.



- a lot happens subconsciously
- thinking creates new words
- Combo allows humans to be very resourceful

## Animals & Language

Do animals have a language?

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Honey bees communicate by dancing. The dance moves clearly indicate the direction of the nectar.

- not spoken - but language
- animals can think + sort + display insight
- and some do things differently - like cultural diversity



## Do Animals Think?

Common cognitive skills in humans and apes include the following:

1. Concept formation.
2. Insight
3. Problem Solving
4. Culture
5. Mind?



African grey parrot assorts red blocks from green balls.

like a 2 year old..

dolphins pause by a mirror when they see a dot on themselves

## Insight

Chimpanzees show insightful behavior when solving problems.



Sultan uses sticks to get food.

Creative to survive

## Problem Solving

Apes are famous, much like us, for solving problems.



Chimpanzee fishing for ants.

## Animal Culture

Animals display customs and culture that are learned and transmitted over generations.



Dolphins using sponges as foraging tools.



Chimpanzee mother using and teaching a young how to use a stone hammer.

## Mental States

Can animals infer mental states in themselves and others?

To some extent. Chimps and orangutans (and dolphins) used mirrors to inspect themselves when a researcher put paint spots on their faces or bodies.

## Do Animals Exhibit Language?

There is no doubt that animals communicate.

Vervet monkeys, whales and even honey bees communicate with members of their species and other species.



Rico (collie) has a 200-word vocabulary.

Communicate differently

- but is a lot of training  
 - don't understand syntax  
 - could just be repetition  
 - can learn from their mother  
 describe swan as a "water bird"

## The Case of Apes

Chimps do not have a vocal apparatus for human-like speech (Hayes & Hayes, 1951). Therefore, Gardner and Gardner (1969) used American Sign Language (ASL) to train Washoe, a chimp, who learned 182 signs by the age of 32.

Learned to sign

↳ did human speaking come from hand signs  
 - we make gestures

## Gestured Communication

Animals, like humans, exhibit communication through gestures. It is possible that vocal speech developed from gestures during the course of evolution.



↳ when told not to - harder for us to remember + talk

## Sign Language

American Sign Language (ASL) is instrumental in teaching chimpanzees a form of communication.



When asked, this chimpanzee uses a sign to say it is a baby.

## Computer Assisted Language

Others have shown that *bonobo* *pygmy chimpanzees* can develop even greater vocabularies and perhaps semantic nuances in learning a language (Savage-Rumbaugh, 1991). *Kanzi* and *Panbanish* developed vocabulary for hundreds of words and phrases.



## Criticism

1. Apes acquire their limited vocabularies with a great deal of difficulty, unlike children who develop vocabularies at amazing rates.
2. Chimpanzees can make signs to receive a reward, just as a pigeon who pecks at the key receives a reward. However, pigeons have not learned a language.
3. Chimpanzees use signs meaningfully but lack syntax.
4. Presented with ambiguous information, people tend to see what they want to see.

## Conclusions

If we say that animals can use meaningful sequences of signs to communicate a capability for language, our understanding would be naive... Steven Pinker (1995) concludes, "chimps do not develop language."

- Descartes thought animals were  
thoughtless robots  
- didn't have rights,



# Chap 12

4/18



## PSYCHOLOGY

(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

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## Motivation and Work

### Chapter 12

"What caused you to do that?"

### Motivation and Work

#### Perspectives on Motivation

- Instincts and Evolutionary Psychology
- Drives and Incentives
- Optimum Arousal
- A Hierarchy of Motivations

### Motivation and Work

#### Hunger

- The Physiology of Hunger
- The Psychology of Hunger

#### Sexual Motivation

- The Physiology of Sex
- The Psychology of Sex

### Motivation and Work

#### Sexual Motivation

- Adolescent Sexuality
- Sexual Orientation
- Sex and Human Values

#### The Need to Belong

### Motivation and Work

#### Motivation at Work

- Personnel Psychology
- Organizing Psychology: Motivating Achievement

Climber whose arm was pinned had strong will to live  
- broke his bones

### Motivation

Motivation is a need or desire that *energizes* behavior and *directs* it towards a goal.

Alan Ralston was motivated to cut his arm in order to free himself from a rock that pinned him down.



Alan Ralston

### Perspectives on Motivation

Four perspectives to explain motivation include the following:

1. Instinct Theory *evolution*
2. Drive-Reduction Theory
3. Arousal Theory
4. Hierarchy of Motives

### Instincts & Evolutionary Psychology

Instincts are complex behaviors that have fixed patterns throughout different species and are not learned (Tinbergen, 1951).



Where the woman builds different kinds of houses the bird builds only one kind of nest.

nature = push  
nurture = pull

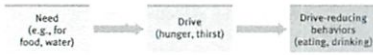
- researchers named 5,759 instincts  
- fixed pattern + unlearned  
\* "genes propel"

feedback loop



### Drive-Reduction Theory

When the instinct theory of motivation failed it was replaced by the drive-reduction theory. A physiological need creates an aroused tension state (a drive) that motivates an organism to satisfy the need (Hull, 1951).

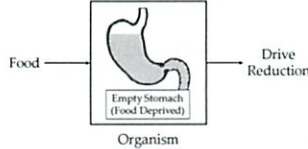


↑  
as ↑ this ↑

\* for homeostasis

### Drive Reduction

The physiological aim of drive reduction is homeostasis, the maintenance of a steady internal state (e.g., maintenance of steady body temperature).



### Incentive

Where our needs *push*, incentives (positive or negative stimuli) *pull* us in reducing our drives.

A food-deprived person who smells baking bread (incentive) feels a strong hunger drive.

- also pulled

need + incentive = strongly driven

### Optimum Arousal

Human motivation aims to seek optimum levels of arousal, not to eliminate it. Young monkeys and children are known to explore the environment in the absence of a need-based drive.



- will explore (curiosity)



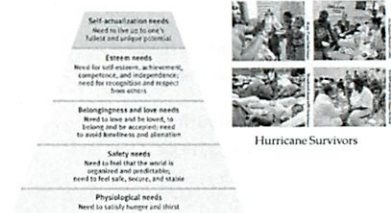
### Hierarchy of Needs

Abraham Maslow (1970) suggested that certain needs have priority over others. Physiological needs like breathing, thirst, and hunger come before psychological needs such as achievement, self-esteem, and the need for recognition.



(1908-1970)

### Hierarchy of Needs

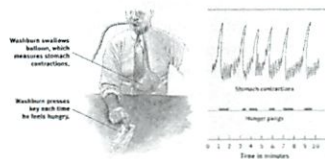


Order is not universally fixed

- people starve themselves in protest
- happiness more related to basic needs in poor nations

### The Physiology of Hunger

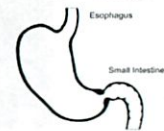
Stomach contractions (pangs) send signals to the brain making us aware of our hunger.



- can still feel hunger if you are full or have no stomach

### Stomachs Removed

Tsang (1938) removed rat stomachs, connected the esophagus to the small intestines, and the rats still felt hungry (and ate food).

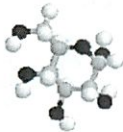


- when hungry ignore everything else - fantasize about food



### Glucose: C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>

The glucose level in blood is maintained. Insulin decreases glucose in the blood, making us feel hungry.

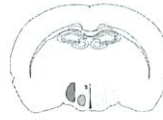


Glucose Molecule

body measures glucose levels

### Glucose & the Brain

Levels of glucose in the blood are monitored by receptors (neurons) in the stomach, liver, and intestines. They send signals to the hypothalamus in the brain.



Rat Hypothalamus

### Hypothalamic Centers

The lateral hypothalamus (LH) brings on hunger (stimulation). Destroy the LH, and the animal has no interest in eating. The reduction of blood glucose stimulates *orexin* in the LH, which leads rats to eat ravenously.

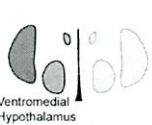
Lateral Hypothalamus



put out orexin → makes you eat

### Hypothalamic Centers

The ventromedial hypothalamus (VMH) depresses hunger (stimulation). Destroy the VMH, and the animal eats excessively.



Depresses hunger eat excessively and use less energy

### Hypothalamus & Hormones

Hormone	Tissue	Response
Orexin increase	Hypothalamus	Increases hunger
Ghrelin increase	Stomach	Increases hunger
Insulin increase	Pancreas	Increases hunger
Leptin increase	Fat cells	Decreases hunger
PPY increase	Digestive tract	Decreases hunger



The hypothalamus monitors a number of hormones that are related to hunger.

hunger inducing pills will ↓ Ghrelin or ↑ Leptin

### Set-Point Theory

Manipulating the lateral and the ventromedial hypothalamus alters the body's "weight thermostat."

If weight is lost, food intake increases and energy expenditure decreases. If weight is gained, the opposite takes place.

point can

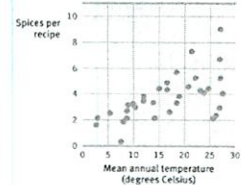
basal metabolic rate

body's resting energy expenditure

will Δ this in relation to amt of food eaten

### Hot Cultures like Hot Spices

Countries with hot climates use more bacteria-inhibiting spices in meat dishes.



↑ used to stop food from spoiling

### The Psychology of Hunger

Memory plays an important role in hunger. Due to difficulties with retention, amnesia patients eat frequently if given food (Rozin et al., 1998).

part of how we know when to eat = memory of last meal

### Taste Preference: Biology or Culture?

Body chemistry and environmental factors influence not only when we feel hunger but what we feel hungry for!



colours boost serotonin (calming)  
sweet + salty universal  
we avoid new foods  
- but will adapt to them  
this neophobia helps ancestors stay away from toxins

## Eating Disorders

Anorexia Nervosa: A condition in which a normal-weight person (usually an adolescent woman) continuously loses weight but still feels overweight.

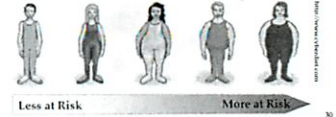


## Eating Disorders

Bulimia Nervosa: A disorder characterized by episodes of overeating, usually high-calorie foods, followed by vomiting, using laxatives, fasting, or excessive exercise.

## Obesity

A disorder characterized by being excessively overweight. Obesity increases the risk for health issues like cardiovascular diseases, diabetes, hypertension, arthritis, and back problems.



Anorexia = weight loss

- people always think they are fat

bulimia - broke restrictions and needs to purge

### Reasons for Eating Disorders

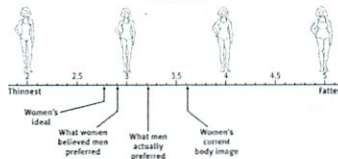
1. Sexual Abuse: Childhood sexual abuse does not cause eating disorders.
2. Family: Younger generations develop eating disorders when raised in families in which weight is an excessive concern.
3. Genetics: Twin studies show that eating disorders are more likely to occur in identical twins rather than fraternal twins.

- Comes from families where parents concerned about their weight

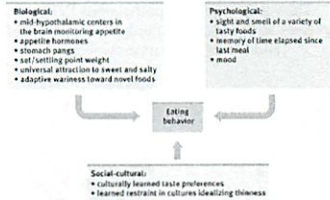
- in Africa thinness = starvation so fat is better

### Body Image (Women)

Western culture tends to place more emphasis on a thin body image in comparison to other cultures.



### Summary



brought on by culture

- Barbie very thin

## Sexual Motivation

Sexual motivation is nature's clever way of making people procreate, enabling our species to survive.

Alfred Kinsley - shocked audiences with sex research

reassured people that they have "normal" sex drives

## The Physiology of Sex

Masters and Johnson (1966) describe the human sexual response to consist of four phases:

Phase	Physiological Response
Excitement	Genitals become engorged with blood. Vagina expands secretes lubricant. Penis enlarges.
Plateau	Excitement peaks such as breathing, pulse and blood pressure.
Orgasm	Contractions all over the body. Increase in breathing, pulse & blood pressure. Sexual release.
Resolution	Engorged genital release blood. Male goes through refractory phase. Women resolve slower.

↳ in lab

push sperm up

- creates pleasurable feeling of release

## Sexual Problems

Men generally suffer from two kinds of sexual problems: premature ejaculation and erectile disorder. Women may suffer from orgasmic disorders.

These problems are not due to personality disorders and can be treated through behavior therapy and drugs such as Viagra.

↳ men refractory period: incapable of another orgasm



## Hormones and Sexual Behavior

Sex hormones effect the development of sexual characteristics and (especially in animals) activate sexual behavior.

Male	Testes	Testosterone (Small amounts of estrogen)
Female	Ovaries Adrenals	Estrogen (Small amounts of testosterone)

"in heat" →

rats w/o testicals have  
less of a sex drive

- play less of a role in humans

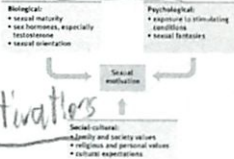
- 24% more arousal during ovulation

- men's testosterone levels vary w/ sexual arousal

- long term however, castrated men have ↓ sex drive

## The Psychology of Sex

Hunger responds to a need. If we do not eat, we die. In that sense, sex is not a need because if we do not have sex, we do not die.



internal motivations

## Dreams

Dreams, another form of imagination, are also associated with sexual arousal. Genital arousal is associated with all kinds of dreams. Nearly all men and 40% of women who dream of sexual imagery end up with an orgasm (Wells, 1986).

men fantasize about sex more often and more physically and less personal than women

## Testosterone

Levels of testosterone remain constant in males, so it is difficult to manipulate and activate sexual behavior. Castration, which reduces testosterone levels, lowers sexual interest.

## Estrogen

Female animals "in heat" express peak levels of estrogen. Female receptivity may be heightened with estrogen injections.

Sex hormones may have milder effects on humans than on animals. Women are more likely to have sex when close to ovulation (increased testosterone), and men show increased testosterone levels when socializing with women.

\* need enough (min level) to get "it" running

## External Stimuli

It is common knowledge that men become sexually aroused when browsing through erotic material. However, women experience similar heightened arousal under controlled conditions.

- pleased or disturbing  
↑ limit exposure

- women who enjoy porn  
- more likely to think women enjoy rape

- lead people to devalue own partnerships

- create expectations few can fill

## Adolescent Sexuality

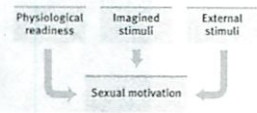
When individuals reach adolescence, their sexual behavior develops. However, there are cultural differences.

Sexual promiscuity in modern Western culture is much greater than in Arab countries and other Asian countries.

~ half of Americans HS students had sex  
↑ led to ↑ in teen pregnancy + STDs

## Imagined Stimuli

Our imagination in our brain can influence sexual arousal and desire. People with spinal cord injuries and no genital sensation can still feel sexual desire.



brain = most significant sex organ  
people w/ spinal cord injury  
can feel sexual desires

arousal can occur during sleep  
even if dreams not about sex

## Contraception

1. Ignorance: Canadian teen girls do not have the right ideas about birth control methods.
2. Guilt Related to Sexual Activity: Guilt reduces sexual activity, but it also reduces the use of contraceptives.
3. Minimal Communication: Many teenagers feel uncomfortable about discussing contraceptives.
4. Alcohol Use: Those who use alcohol prior to sex are less likely to use contraceptives.
5. Mass Media: The media's portrayal of unsafe extramarital sex decreases the use of contraceptives.

72% girls said regretted sex  
hesitate to carry condom -  
appears sexual promiscuous

## Sexually Transmitted Infections

Factors that reduce sexual activity in teens.

1. **High Intelligence:** Teens with higher intelligence are likely to delay sex.
2. **Religiosity:** Religious teens and adults often reserve sex for a marital commitment.
3. **Father Presence:** A father's absence from home can contribute to higher teen sexual activity.
4. **Learning Programs:** Teens who volunteer and tutor in programs dedicated to reducing teen pregnancy are less likely to engage in unsafe sex.

teen girls more vulnerable to STDs

many don't know sex partners multiply STD vulnerability

pendulum swing every 40 years

- now period of more commitment

## Origins of Sexual Orientation

Homosexuality is more likely based on biological factors like differing brain centers, genetics, and parental hormone exposure rather than environmental factors.



Homosexual parents

\* not changeable

woman's orientation more changeable

women somewhat more likely to feel bisexual attraction

mental health now more understanding of homosexuality

## Genes & Sexual Orientation

A number of reasons suggest that homosexuality may be due to genetic factors.

other factors at work → as well

1. **Family:** Homosexuality seems to run in families.
2. **Twin studies:** Homosexuality is more common in identical twins than fraternal twins. However, there are mixed results.
3. **Fruit flies:** Genetic engineers can genetically manipulate females to act like males during courtship and males to act like females.

- how would the gene survive?

- through realities  
- more likely on mother's side

## Sexual Orientation

Sexual orientation refers to a person's preference for emotional and sexual relationships with individuals of the same sex, the other sex, and/or either sex.



Homosexual

Heterosexual

Bisexual

Service learning) Cultures vary attitudes  
- some don't mind

- awareness of same sex pref starts at puberty

- "come out of closet" at age 20

## Animal Homosexuality

A number of animal species are devoted to same-sex partners, suggesting that homosexuality exists in the animal world.



Wendell and Cass

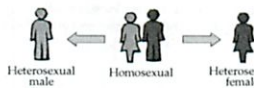
fraternal birth-order effect - 1st sons least likely to be homosexuals  
- not caused as growing up  
\* no environmental causes identified

Several hundred species

## Hormones & Sexual Orientation

Prenatal hormones affect sexual orientation during critical periods of fetal development.

1. **Animals:** Exposure of a fetus to testosterone results in females (sheep) exhibiting homosexual behavior.
2. **Humans:** Exposure of a male or female fetus to female hormones results in an attraction to males.



Heterosexual male

Homosexual

Heterosexual female

↑

Gay men have a fingerprint pattern closer to women

## Sexual Orientation Statistics

In Europe and America, based on many national surveys, homosexuality in men is 3-4% and in women is 1-2%.

As members of a minority, homosexuals often struggle with their sexual orientation.

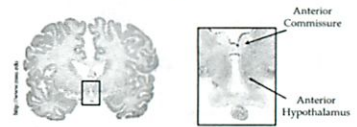
- some surveys put results as high as 20%

- many have had isolated homosexual experience

- most had occasional homosexual fantasies

## The Brain

In homosexual men, the size of the anterior hypothalamus is smaller (LeVay, 1991) and the anterior commissure is larger (Allen & Gorski, 1992).



Anterior Commissure

Anterior Hypothalamus

- when did this happen  
- birth or later?  
- gays like sex related sweat odors

## Sexual Orientation: Biology

**BIOLOGICAL CORRELATES OF SEXUAL ORIENTATION**  
On average, the evidence is strongest for subtle, normal biological and behavioral traits of gay and lesbian LGB between those of straight men and straight women. Notable findings—used in need of replication—include these:

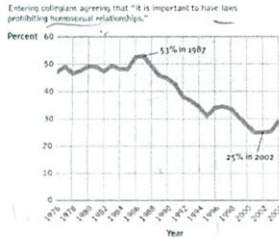
- Brain differences**
- The hypothalamic cell cluster is larger in straight men than in women and gay men; same difference is found in male sheep displaying either no same-sex attraction.
  - Anterior commissure is larger in gay men than in women or straight men.
  - Gay men's hippocampal nuclei are like a woman's in the case of sex-related hormones.
- Genetic influences**
- Sexual orientation is higher among identical twins than among fraternal twins.
  - Sexual attraction to both sexes can be genetically transmitted.
- Prenatal hormonal influences**
- These prenatal hormone exposures may lead to homosexuality in humans and other animals.
  - Not all animal studies are new; study to be done.
- These brain differences and genetic and prenatal influences may contribute to observed gay/lesbian differences in:**
- social abilities
  - cognitive style (verbal)
  - health system development
  - metabolism
  - occupational preferences
  - immune response
  - gender nonconformity
  - age of onset of puberty in males
  - male body size
  - bone strength
  - hearing capacity
  - male body weight.



proved more and more its nature  
over nurture

4/18

### Changing Attitudes



### Sex and Human Values

"Promiscuous recreational sex poses certain psychological, social, health, and moral problems that must be faced realistically" (Baumrind, 1982).



people worry fetuses could be aborted for being gay  
interesting questions for Catholics who despise gays + abortion

- can it be separated from human values - sex education - makes it seem more as a recreational thing - motivation for closeness

### The Need to Belong

"[Man] is a social animal," (Aristotle). Separation from others increases our need to belong.



"Cast Away," Tom Hanks, suffers from social starvation.

Urge for community - helped our ancestors survive - people make our life meaningful - self esteem + relatedness make people happy

### Aiding Survival

Social bonds boosted our ancestors' survival rates. These bonds led to the following:

1. Protecting against predators, especially for the young.
2. Procuring food.
3. Reproducing the next offspring.

Feel worse and are better

### Belongingness

1. Wanting to Belong: The need to belong colors our thinking and emotions.
2. Social Acceptance: A sense of belonging with others increases our self-esteem. Social segregation decreases it.
3. Maintaining Relationships: We resist breaking social bonds, even bad ones.
4. Ostracism: Social exclusion leads to demoralization, depression, and at times nasty behavior.
5. Fortifying Health: People who tend to have close friends are happier and healthier.

- we conform to societies will to fit in (peer pressure) - need to feel like we belong

The healthy life, said Sigmund Freud, is filled by love and work.



defines us

- 16% change jobs/year - many change careers - people happier w/ job + feel bad unemployed - more knowledge work

### Attitudes Towards Work

People have different attitudes toward work. Some take it as a:

1. Job: Necessary way to make money.
2. Career: Opportunity to advance from one position to another.
3. Calling: Fulfilling a socially useful activity.

### Flow & Rewards

Flow is the experience between no work and a lot of work. Flow marks immersion into one's work.

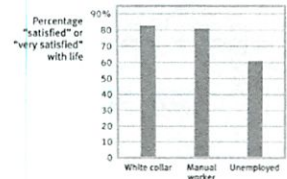


People who "flow" in their work (artists, dancers, composers etc.) are driven less by extrinsic rewards (money, praise, promotion) and more by intrinsic rewards.

- email disrupts flow

### Work and Satisfaction

In industrialized countries work and satisfaction go hand-in-hand.



## Industrial-Organizational (I/O) Psychology

Applies psychological principles to the workplace.

1. Personnel Psychology: Studies the principles of selecting and evaluating workers.
2. Organizational Psychology: Studies how work environments and management styles influence worker motivation, satisfaction, and productivity.

## Personnel Psychology

Personnel psychologists assist organizations at various stages of selecting and assessing employees.



Henri Matisse

## Harnessing Strengths

Identifying people's strengths (analytical, disciplined, eager to learn etc.) and matching them to a particular area of work is the first step toward workplace effectiveness.

? make people happy

- people sharpen skills in a certain area
- good people worry less about their faults
- want analytical, disciplined, eager to learn people over experienced ones

## Interviews & Performance

Interviewers are confident in their ability to predict long-term job performance. However, informal interviews are less informative than standardized tests.

Over confident

Work samples + tests better than our gut reactions

## The Interviewer Illusion

Interviewers often overrate their discernment.

1. Intention vs. Habits: Intentions matter, but long-lasting habits matter even more.
2. Successful Employees: Interviewers are more likely to talk about those employees that turned out successful.
3. Presumptions about Candidates: Interviewers presume (wrongly) that what we see (candidate) is what we get.
4. Preconceptions: An interviewer's prior knowledge about the candidate may affect her judgment.

missing feedback

Many people "put on a show" if told were prescreened - view them more favorable

A formal and disciplined way of gathering information from the interviewee. Structured interviews pinpoint strengths (attitudes, behaviors, knowledge, and skills). The personnel psychologist may do the following:

1. Analyze the job.
2. Script questions.
3. Train the interviewer.

- established scales
- avoids follow up qu

## Personnel Psychologist's Tasks



## Appraising Performance

Appraising performance results in two things: 1) employee retention, and 2) the encouragement of better performance.



360° feedback

- feedback affirms strengths + motivates needed improvements
- checklists
- rating scales

- cause high test scores
- self discipline
- world class experts put 10 years into their field
- grit

companies need to motivate the normal people

## Organizational Psychology: Motivating Achievement

Achievement motivation is defined as a desire for significant accomplishment.



Skinner devised a daily discipline schedule that led him to become the 20th century's most influential psychologist.

desire to attain



↓ Robert Owens' mills did better ✓

**Satisfaction & Engagement**

Harter et al., (2002) observed that employee engagement means that the worker:

1. Knows what is expected of him.
2. Feels the need to work.
3. Feels fulfilled at work.
4. Has opportunities to do his best.
5. Thinks himself to be a part of something significant.
6. Has opportunities to learn and develop.



Engaged workers are more productive than non-engaged workers at different stores of the same chain.

**Managing Well**

Every leader dreams of managing in ways that enhance people's satisfaction, engagement, and productivity in his or her organization.



Larry Brown offers 4-5 positive comments for every negative comment.

challenge for CEO

**Job-Relevant Strengths**

Effective leaders need to select the right people, determine their employees' talents, adjust their work roles to their talents, and develop their talents and strengths.



\* Employee satisfaction is key  
 ↑ modest correlation w/ performance  
 - Fortune 100 Best to Work For have ↑ productivity

- adjust work to match talents  
 - educate people  
 - don't focus on problems

**Challenging Goals**

Specific challenging goals motivate people to reach higher achievement levels, especially if there is feedback such as progress reports.

reaching it boosts self-confidence

**Leadership Style**

Different organizational demands need different kinds of leaders. Leadership varies from a boss-focused style to a democratic style.

1. Task Leadership: Involves setting standards, organizing work, and focusing on goals.
2. Social Leadership: Involves mediating conflicts and building high achieving teams.

→ directive styles

↑ democratic styles  
 - good for morale

- transformative leaders request high standards by giving them  
 - good to give people a voice  
 ↑ very successful for Harley-Davidson

Movie Project  
AP Psychology  
Mr. Siegerman  
Haverford High School  
Siegerman@havsd.net

Objective: To work on critical thinking skills by critiquing ~~two~~ <sup>one</sup> movies with a psychological theme.

Assignment: On your own you will research and find ~~two~~ <sup>one</sup> Hollywood movies that used Psychology as its premise. Upon finding these movies and receiving teacher permission, watch each movie and write a paper explaining how Hollywood exploited or helped the field of psychology. Was the movie biased? Did it help the field of Psychology or did it hurt the field. Be very critical, but be objective. Make sure you use examples to back up your statements.

Some example movies would be:

Awakenings  
Sybil  
Tuesdays with Morie  
As good as it gets  
Psycho

Mean Girls

Each movie will be worth 50 points each

Focus 25  
Content 15  
Style 10

Due date: \_\_\_\_\_



4/15

Mean Girls = stereotype  
- not all follow

- some movies make up psychology and mock it

↑ Why did the people do that  
- what psychology problems



1/12

Handwritten notes in the top section of the page, including a date and some illegible text.



Michael Plasmeier

Siegerman

AP Psychology

21 Apr 2008

50/50

### Mean Girls: An Exaggerated View of High School

Although Mean Girls is a Hollywood movie, it gets its inspiration from real life. Like any good movie, it starts with real life and exaggerates it to tell a compelling story. Furthermore, some psychologist think that the movie inspires other girls to be mean by making meanness more socially acceptable. However, the film does have a message. In the end, all of the girls face consequences for their action.

Mean Girls is the story of Cady, who just moved to America from Africa where her parents worked. She was home schooled before and is moving to conventional schooling for the first time. Her parents and her have apprehensions of what would happen in school. These apprehensions normally happen at age 6, when a child goes to school for the first time. As Cady walks to the door, she passes many groups of people who pay no attention to her.

When she finally makes it inside, she embarrasses herself on her first day. She mistakenly talks to a girl who she thinks is the teacher and the class laughs at her. She then tries to find a seat, but as she is looking for one, she bumps into teacher and send the teacher's coffee flying. This plays up the apprehensions people have on the first day that they will embarrass themselves. Most people do not, however, embarrass themselves as much as Cady does however. Cady says, "The first day at school was a blur, a stressful surreal blur. [...] I never lived in a world where adults didn't trust me."

The next day she meets outcasts Janis and Damien. They explain "The Plastics" to her, a group of beautiful, but stupid, social butterflies. Regina George is the leader for the Plastics.

Later that day, Janis hands Cady a map of the school cafeteria. In a brilliant sequence, the film breaks down the different tables of the cafeteria (freshmen, preps, Asian nerds, unfriendly black hotties, girls who don't eat anything, etc.). In my personal experience at Haverford High School, this is exaggerated to be a bit more clear cut. In general people sit with their friends and their friends usually share similar interests. However no one has ever taken the time to draw a map of the cafeteria, and would have a hard time classifying groups. This is where Hollywood exaggerates real life in my experience. People do not fit into nice, neat cliques as in the movie.

In the cafeteria, Cady meets "The Plastics" who want to make Cady one of them. Cady however, finds out that being a Plastic was not very fun. They were always stabbing each other in the back and making fun of others. They also had a lot of rules which they must follow, for example, not going out with someone else's boyfriend and requiring approval before anyone buys any new clothes.

Cady remains friends with Janis and they plan revenge on Regina George because Regina ostracized Janis a few years ago. So Cady remains friends with both groups. As the movie goes on, Cady finds herself liking the Plastics more and more while continuing to try and sabotage them for Janis.

According to A New Universal Mean Girl: Examining the Discursive Construction and Social Regulation of a New Feminine Pathology by Jessica Ringrose, "feminist psychologists and educators, including Gonick, consistently claim that it is the reactive positioning of girls' aggression in popular culture and media that has worked to pathologize and naturalize girls' aggression in highly problematic ways" (<http://fap.sagepub.com/cgi/reprint/16/4/405.pdf> Page 3).



This indicates that some psychologists think that by recognizing this behavior in popular movies, more girls will adopt the behaviors of the girls in the film. These psychologists strongly believe that Mean Girls has hurt the field of psychology.

However the author disagrees with these psychologists as argues that "these gender equivalency-seeking, sensationalist narratives do not emerge spontaneously out of a 'popular' culture or media backlash against feminism, as implied by these critics" (3). Rather, she investigates "how feminism is wrapped up in complex ways in what is a contradictory 'postfeminist' narrative of the mean girl" (3). The author goes on to talk about many stories and movies about Mean Girls including Mean Girls.

In the end, the film has a message however. The Plastics totally fall apart and turn on each other. The school finds out that all of the mean things that were said about them and are very angry at the Plastics. The group disbands and everyone becomes genuine friends with each other.

Although the movie does end positively, some psychologists believe that girls will try to imitate the mean girl behavior. Other psychologists disagree. Mean Girls gets its inspiration from real life, however it exaggerates real life to make a humorous movie. Overall, I think that this movie has helped the field of psychology by humorously portraying the interactions of high school girls for a wide audience.

Michael Plasmeier

100

## Chapter 9 and 10 Assessment

50  
50  
Nice job

1. If you can not remember information for an exam, you are having trouble recalling the information from your memory. As long as you **encoded** the information into your long-term memory, you are merely having trouble retrieving it.

First you should recognize the different types of questions which test your memory. **Recall questions**, such as fill in the blank questions, require you to search through your memory and recall the right answer. Some other types of questions are called recognition questions. These questions merely make you recognize the correct answer, for example, multiple choice questions. Recognition questions are easier because they contain more clues to help **prime** your recall of the correct answer.

When you memorize information for school, you often need to consciously study the information before the test. This is called effortful processing. There are some strategies that you could have used while studying the information, which you should use next time. You should **repeat** the information over and over to yourself, the more **repetitions** the better.



Also it helps if you **space** out your studying on different nights.

While you are studying, you automatically remember some information **subconsciously** including the place and time where you were studying. In order to recall the answers to the biology test, you should use the **method of loci**. You do this by recalling where you were and what you were doing when you studied that information. By visualizing where you were at the time you are almost like being there. This primes your memory with clues which will help your brain retrieve the information from your **long-term memory**. For example, Olympic athletes visualize their event over and over again. This activates the same parts of the brain which are active during the actual event. You could also try to visualize your textbook or notes.

Lastly, you could also try and remember **mnemonics** or clues which help prime your memory towards remembering a series. For example, the mnemonic "ROY G BIV" helps one remember the colors of a rainbow.

2. Heike is more likely to believe her parents because they told Heike that she was going to suffer from depression while she was witnessing her brother also suffering from depression. Her parents' poor choice of **framing** the statement while

Heike was going through a traumatic event made her more likely to believe it. (Framing also relates to the wording of the question, but the question does not state how Heike's parents worded the question.)

In addition, Heike is more likely to accept that she has a good chance of getting depression because of her **confirmation bias**. She is more likely to believe that she also has a good chance of having depression while being around someone who is depressed.

Once Heike is told that she has depression, she will have a hard time being convinced otherwise. This is called **belief perseverance**. Belief perseverance also blinds our president from seeing the possibility that his actions in Iraq were wrong. Heike will have trouble getting the grim possibility out of her head, even when experts tell her that her parents were wrong.

check  
stuff  
on  
poor George

Heike also is more likely to believe that she has a good chance of having depression because of **availability heuristics**. Because she is near someone with depression, she is more likely to think about people with depression and over estimate the number of people with depression. She may also generalize the effects of depression on her brother



by applying those perceived effects of depression onto all people.

Therefore, Heike's parents did Heike a disservice by misinforming Heike about the possibility that she has depression. Because Heike is around someone with severe depression, she is more likely to overestimate the chances that she has depression and the effects of that depression.

## HANDOUT 11-6

Charles and Margaret are both engineers and have been married for 5 years. Three years ago, Charles was offered a job in Europe. Margaret agreed to quit her job in the United States and move to Europe with Charles. The job was an excellent career move for Charles. Soon after the move they had a baby. After the birth, Margaret decided to start working again and, with effort, found a very exciting job that paid well and promised real security. Meanwhile, Charles was offered a transfer back to the United States. Margaret feels she needs another year or two in her new job to meaningfully advance her career. She is also tired of moving. She has already given up a lot of time following Charles around. Charles knows that his wife's job is as important as his own but he thinks returning to the United States would help both their careers in the end. What should Charles do?

Source: R. J. Sternberg, *Wisdom, schooling, and society*. Paper presented at the Annual Convention of the American Psychological Association, Chicago, IL. Copyright © 2002. Reprinted by permission of Dr. Robert Sternberg.

- move now or wait a year
- they should talk about the issue with each other
- they should also consider the child's health as where is it best for it to grow up
- Margaret gave a lot up
  - now Charles should
  - or get a job at the same place



## HANDOUT 11-8

## World War I Intelligence Test

↑ Turman gave credibility - made Psychology look valid & reliable

Match your wits with World War I-era recruits with the following questions from actual army intelligence tests. Circle the letter in front of the correct answer.

1. Bull Durham is the name of a

- A. chewing gum
- B. aluminum ware
- C. tobacco
- D. clothing

2. Seven-up is played with

- A. rackets
- B. cards
- C. pins
- D. dice

3. The Merino is a kind of

- A. horse
- B. sheep
- C. goat
- D. cow

4. The most prominent industry of Minneapolis is

- A. flour
- B. packing
- C. automobiles
- D. brewing

5. Garnets are usually

- A. yellow
- B. blue
- C. green
- D. red

6. The Orpington is a kind of

- A. fowl
- B. horse
- C. granite
- D. cattle

7. George Ade is famous as a

- A. baseball player
- B. comic artist
- C. actor
- D. author

8. Soap is made by

- A. T. Babbitt
- B. Smith & Wesson
- C. W. L. Douglas
- D. Swift & Co.

9. Laura Jean Libby is known as a

- A. singer
- B. suffragist
- C. writer
- D. army nurse

10. An air-cooled engine is used in the

- A. Buick
- B. Packard
- C. Franklin
- D. Ford

11. A house is better than a tent, because

- A. it costs more
- B. it is more comfortable
- C. it is made of wood

12. Why does it pay to get a good education?

- A. it makes a man more useful and happy
- B. it makes work for teachers
- C. it makes demand for buildings for schools and colleges

13. If the grocer should give you too much money in making change, what is the right thing to do?

- A. buy some candy off him with it
- B. give it to the first poor man you meet
- C. tell him of his mistake

14. Why should food be chewed before swallowing?

- A. it is better for the health
- B. it is bad manners to swallow without chewing
- C. chewing keeps the teeth in condition

HANDOUT 11-8 (continued)

15. If you saw a train approaching a broken track, you should

- A. telephone for an ambulance
- B. signal the engineer to stop the train
- C. look for a piece of rail to fit in

16. If you are lost in a forest in the daytime, what is the thing to do?

- A. hurry to the nearest house you know of
- B. look for something to eat
- C. use the sun or a compass for a guide

17. It is better to fight than to run, because

- A. cowards are shot
- B. it is more honorable
- C. if you run you may get shot in the back

18. Why should all parents be made to send their children to school? Because

- A. it prepares them for adult life
- B. it keeps them out of mischief
- C. they are too young to work

19. Why do some men who could afford to own a house live in a rented one? Because

- A. they don't have to pay taxes
- B. they don't have to buy a rented house
- C. they can make more by investing the money the house would cost

20. Why is beef better food than cabbage? Because

- A. it tastes better
- B. it is more nourishing
- C. it is harder to obtain

Source: Reprinted by permission of the American Social History Project/Center for Media and Learning. The Graduate Center. CUNY. [historymatters@gmu.edu](mailto:historymatters@gmu.edu).



HANDOUT 11-9

How Smart Are You?

The following twenty questions represent what you may encounter on an intelligence test, although we tried to make them a little more amusing than the average IQ-type question. Take the twenty questions and mark your answers carefully. Time yourself very carefully and work as quickly as you can.

Time Started: 7:57

1. The day before two days after the day before tomorrow is SATURDAY. What day is it today? Fri

2. What comes next, most logically, in the following sequence?  
 SAIBLCVDEERFAGNHNIJVKELRMSNAOR P-Q  
 a. PY b. BQ c. RR d. BR

3. What is one twentieth of one half of one tenth of 10,000? 1,000 - 5,000, 500 - 250 25

4. What is the following scrambled word?  
 NNREAIVARYS ~~University~~ University

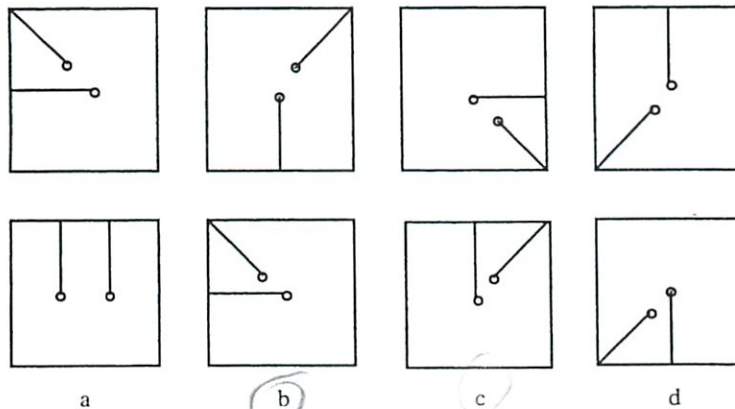
5. In the following examples, each set of symbols stands for a word. Study all three words given and the symbol equivalent and translate the fourth line into a word.

					GREEN
		E	E	N	
					GRASS
G		A	S	S	
					MARKS
n	A	R	k <sup>th</sup>	S	
					<u>MENSA</u>

6. Which of the sentences given below means approximately the same as: "beauty is only skin deep"?  
 a. Some actresses are made up by the studios so that you cannot tell what they really look like.  
 b. Don't judge a book by its cover.  
 c. Some people have prettier appearances than others.  
 d. Good looks don't matter that much.

HANDOUT 11-9 (continued)

7. Which of the figures shown below the line of drawings best continues the sequence?



8. Canoe is to ocean liner as glider is to:

- a. kite    b. airplane    c. balloon    d. car

9. Everyone at the Mensa party contest won prizes. Tom won more than Sally; Ann won less than Jane; Jane won less than Sally but more than Walter. Walter won fewer prizes than Ann. Who won the most prizes?

10. There is one five-letter word which can be inserted in each of the two blanks below. When you have put in the right word, you will have four new words, two on each line.

(Example: Place WORK on the line between HAND work PLACE, giving HANDWORK and WORK-PLACE.)

BOAT House WORK  
DOG House HOLD

11. Tom, Jim, Peter, Susan, and Jane all took the Mensa test. Jane scored higher than Tom, Jim scored lower than Peter but higher than Susan, and Peter scored lower than Tom. All of them are eligible to join Mensa, but who had the highest score?

12. If it were two hours later, it would be half as long until midnight as it would be if it were an hour later. What time is it now?

13. Pear is to apple as potato is to:

- a. banana    b. radish    c. strawberry    d. lettuce

14. Continue the following number series below with the group of numbers which best continues the series.

1 10 39 58 77 96 ??

- a. 115    b. 105    c. 104    d. 116

15. Which of the following is least like the others?

- a. poem    b. novel    c. painting    d. statue    e. flower

16. What is the following word when it is unscrambled?

H C P R A A T E U

17. What is the number that is one half of one quarter of one tenth of four hundred?

18. Which of the sentences given below means approximately the same as the proverb: "Don't count your chickens until they are hatched"?

- a. Some eggs have double yolks so you can't really count eggs and chickens.  
b. You can't walk around the henhouse to count the eggs because it will disturb the hens and they won't lay eggs.  
c. It is not really sensible to rely on something that has not yet happened and may not ever happen.  
d. Since eggs break so easily, you may not be accurate in your count of future chickens.

19. The same four-letter word can be placed on the blank lines below to make two new words from each of those shown. Put in the correct four-letter word to make four new words from those shown below.

(Example: HAND could be placed between BACK hand WORK to make BACKHAND AND HANDWORK.)

HEAD land MARK  
DREAM land FALL

Tom  
Sally  
Jane  
Ann  
Walter  
Jane  
Tom  
Peter  
Jim  
Susan

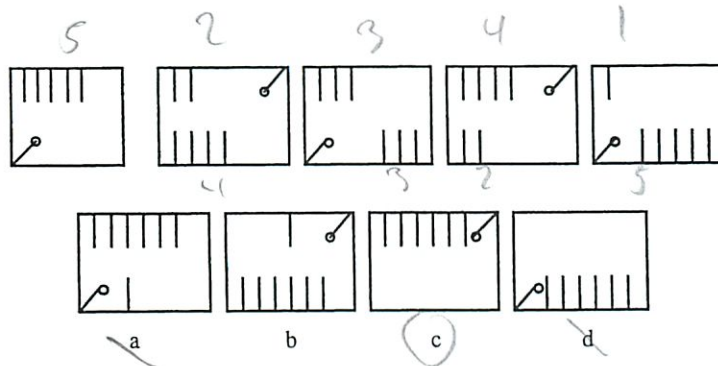
Parachute

40 → 10 → 5



HANDOUT 11-9 (continued)

20. Which of the figures shown below the line of drawings best completes the series?



Time finished: 8:05

16 + 5 = 21  
right time bonus

Source: Intelligence test from *The Mensa book of words, word games, puzzles, and oddities* (pp. 145-149) by Victor Serebriakoff and Abbie F. Salny. Copyright © 1988 by Abbie F. Salny. Reprinted by permission of HarperCollins Publishers, Inc.

Could pass Mensa exam

## HANDOUT 11-12

## Remote Associates Test

*Instructions:* In this test you are presented with three words and asked to find a fourth word that is related to all three. Write this word in the space to the right.

For example, what word do you think is related to these three?

paint                  doll                  cat                  .....

The answer in this case is "house": House paint, doll house, and house cat.

- |            |          |          |       |    |
|------------|----------|----------|-------|----|
| 1. call    | pay      | line     | _____ | 1  |
| 2. end     | burning  | blue     | _____ | 2  |
| 3. man     | hot      | sure     | _____ | 3  |
| 4. stick   | hair     | ball     | _____ | 4  |
| 5. blue    | cake     | cottage  | _____ | 5  |
| 6. man     | wheel    | high     | _____ | 6  |
| 7. motion  | poke     | down     | _____ | 7  |
| 8. stool   | powder   | ball     | _____ | 8  |
| 9. line    | birthday | surprise | _____ | 9  |
| 10. wood   | liquor   | luck     | _____ | 10 |
| 11. house  | village  | golf     | _____ | 11 |
| 12. plan   | show     | walker   | _____ | 12 |
| 13. key    | wall     | precious | _____ | 13 |
| 14. bell   | iron     | tender   | _____ | 14 |
| 15. water  | pen      | soda     | _____ | 15 |
| 16. base   | snow     | dance    | _____ | 16 |
| 17. steady | cart     | slow     | _____ | 17 |
| 18. up     | book     | charge   | _____ | 18 |
| 19. tin    | writer   | my       | _____ | 19 |
| 20. leg    | arm      | person   | _____ | 20 |
| 21. weight | pipe     | pencil   | _____ | 21 |
| 22. spin   | tip      | shape    | _____ | 22 |
| 23. sharp  | thumb    | tie      | _____ | 23 |
| 24. out    | band     | night    | _____ | 24 |
| 25. cool   | house    | fat      | _____ | 25 |
| 26. back   | short    | light    | _____ | 26 |
| 27. man    | order    | air      | _____ | 27 |
| 28. bath   | up       | gum      | _____ | 28 |
| 29. ball   | out      | jack     | _____ | 29 |
| 30. up     | deep     | rear     | _____ | 30 |



# Chap 11

4/24  
4/25

PSYCHOLOGY  
(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

Worth Publishers, © 2006



## Intelligence

### Chapter 11

## Intelligence

### What is Intelligence?

- Is Intelligence One General Ability or Several Specific Abilities?
- Emotional Intelligence
- Intelligence and Creativity
- Is Intelligence Neurologically Measurable?

## Intelligence

### Assessing Intelligence

- The Origins of Intelligence Testing
- Modern Tests of Mental Abilities
- Principles of Test Construction

### The Dynamics of Intelligence

- Stability or Change?
- Extremes of Intelligence

## Intelligence

### Genetic and Environmental Influences on Intelligence

- Genetic Influences
- Environmental Influences
- Group Differences in Intelligence Test Scores
- The Question of Bias

## Intelligence

Do we have an inborn general mental capacity (intelligence)? If so, can we quantify this capacity as a meaningful number?

- can tests measure this
- and should results be used?
- perseverance

## What is Intelligence?

Intelligence (in all cultures) is the ability to learn from experience, solve problems, and use our knowledge to adapt to new situations.

In research studies, *intelligence* is whatever the intelligence test measures. This tends to be "school smarts."

One aptitude or many?

Concept not a thing

- is an IQ too concrete?

\* what allows success in a culture

make choices

## Conceptual Difficulties

Psychologists believe that intelligence is a concept and not a thing.

When we think of intelligence as a trait (thing) we make an error called *reification* — viewing an abstract immaterial concept as if it were a concrete thing.

- manipulating  
idea ← most  
of what  
it is

## Controversies About Intelligence

Despite general agreement among psychologists about the nature of intelligence, two controversies remain:

1. Is intelligence a single overall ability or is it several specific abilities?
2. With modern neuroscience techniques, can we locate and measure intelligence within the brain?

### Intelligence: Ability or Abilities?

Have you ever thought that since people's mental abilities are so diverse, it may not be justifiable to label those abilities with only one word, intelligence?

You may speculate that diverse abilities represent different kinds of intelligences. How can you test this idea?

*Smart math student that doesn't get literature*

### General Intelligence

The idea that general intelligence (g) exists comes from the work of Charles Spearman (1863-1945) who helped develop the factor analysis approach in statistics.



Athleticism, like intelligence, is many things

*people who score high on 1 section - do very well on the others*

### General Intelligence

Spearman proposed that general intelligence (g) is linked to many clusters that can be analyzed by factor analysis.

For example, people who do well on vocabulary examinations do well on paragraph comprehension examinations, a cluster that helps define verbal intelligence. Other factors include a spatial ability factor, or a reasoning ability factor.

### General Intelligence

L. L. Thurstone, a critic of Spearman, analyzed his subjects NOT on a single scale of general intelligence, but on seven clusters of primary mental abilities, including:

1. Word Fluency
2. Verbal Comprehension
3. Spatial Ability
4. Perceptual Speed
5. Numerical Ability
6. Inductive Reasoning
7. Memory

### General Intelligence

Later psychologists analyzed Thurstone's data and found a weak relationship between these clusters, suggesting some evidence of a g factor.

*evolved to solve problems  
\* but higher level thinking is disconnected from evolutionary familiar skills  
- friendship  
- social  
- navigating*

### Contemporary Intelligence Theories

Howard Gardner (1983, 1999) supports Thurstone's idea that intelligence comes in multiple forms. Gardner notes that brain damage may diminish one type of ability but not others.



People with savant syndrome excel in abilities unrelated to general intelligence.

*Savant syndrome - low on IQ tests but have very good memories  
7/8 male, many autistic*

### Howard Gardner

Gardner proposes eight types of intelligences and speculates about a ninth one — existential intelligence. Existential intelligence is the ability to think about the question of life, death and existence.

GARDNER'S EIGHT INTELLIGENCES	
Aptitude	Exemplar
1. Linguistic	E. S. Lewis, poet
2. Logical-mathematical	Albert Einstein, scientist
3. Musical	Igor Stravinsky, composer
4. Spatial	Pablo Picasso, artist
5. Bodily-kinesthetic	Martha Graham, dancer
6. Intrapersonal (self)	Sigmund Freud, psychiatrist
7. Interpersonal (other people)	Mahatma Gandhi, leader
8. Naturalist	Charles Darwin, naturalist

*relatively separate*

*→ 9. Existential*

### Robert Sternberg

Sternberg (1985, 1999, 2003) also agrees with Gardner, but suggests three intelligences rather than eight.

1. Analytical Intelligence: Intelligence that is assessed by intelligence tests.
2. Creative Intelligence: Intelligence that makes us adapt to novel situations, generating novel ideas.
3. Practical Intelligence: Intelligence that is required for everyday tasks (e.g. street smarts).

*- traditional tests can't predict school grades  
- but managers need other skills as well*

*may be more related*

### Theories: Comparison

Theory	Summary	Strengths	Other Considerations
Spearman's general intelligence (g)	g factor explains positive correlations among various mental abilities.	g factor is linked to overall cognitive ability.	g factor is not a single general mental ability.
Thurstone's primary mental abilities	Seven clusters of primary mental abilities: word fluency, verbal comprehension, spatial ability, perceptual speed, numerical ability, inductive reasoning, and memory.	Each cluster is a distinct mental ability.	Each cluster is unrelated to general intelligence.
Sternberg's analytical intelligence	Intelligence is assessed by intelligence tests.	Intelligence is a broad, general mental ability.	Intelligence is not a single general mental ability.
Sternberg's creative intelligence	Intelligence that makes us adapt to novel situations, generating novel ideas.	Intelligence is a broad, general mental ability.	Intelligence is not a single general mental ability.
Sternberg's practical intelligence	Intelligence that is required for everyday tasks (e.g. street smarts).	Intelligence is a broad, general mental ability.	Intelligence is not a single general mental ability.



4/29

### Emotional Intelligence

Emotional intelligence is the ability to perceive, understand, and use emotions (Salovey and colleagues, 2005). The test of emotional intelligence measures overall emotional intelligence and its four components.

separate

Why smart people not get around the best

- need to recognize others' emotions
- ↳ modestly better job performance

### Emotional Intelligence: Components

Component	Description
Perceive emotion	Recognize emotions in faces, music and stories
Understand emotion	Predict emotions, how they change and blend
Manage emotion	Express emotions in different situations
Use emotion	Utilize emotions to adapt or be creative

↳ someone lost ability to feel + use emotion  
↳ he's like a robot

normal intel gets you in profession  
Other traits get you to succeed

### Emotional Intelligence: Criticism

Gardner and others criticize the idea of emotional intelligence and question whether we stretch this idea of intelligence too far when we apply it to our emotions.

↳ word stretched too far

### Intelligence and Creativity

Creativity is the ability to produce ideas that are both novel and valuable. It correlates somewhat with intelligence.

1. Expertise: A well-developed knowledge base.
2. Imaginative Thinking: The ability to see things in novel ways.
3. Adventurous Personality: A personality that seeks new experiences rather than following the pack.
4. Intrinsic Motivation: A motivation to be creative from within.
5. A Creative Environment: A creative and supportive environment allows creativity to bloom.

mentored

Certain intel needed to be creative  
- but very creative people score average on intel test

### Is Intelligence Neurologically Measurable?

Recent studies indicate some correlation (about +.40) between brain size and intelligence. As brain size decreases with age, scores on verbal intelligence tests also decrease.

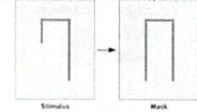


Gray matter concentration in people with high intelligence.

experience alters brain  
people w/ more intel have more synapses

### Brain Function

Studies of brain functions show that people who score high on intelligence tests perceive stimuli faster, retrieve information from memory quicker, and show faster brain response times.



People with higher intelligence respond correctly and quickly to the above question.

don't know why smart people are faster  
↳ better processing?

people made more creative colleges when not told were being evaluated

↳ companies allow employees to spend some % of time on anything

### Assessing Intelligence

Psychologists define intelligence testing as a method for assessing an individual's mental aptitudes and comparing them with others using numerical scores.

- whatever intelligence tests
- why does it differ in people?

define intelligence

Alfred Binet and his colleague Théodore Simon practiced a more modern form of intelligence testing by developing questions that would predict children's future progress in the Paris school system.



mental age  
- what average person is like at that age  
- did not say what it measures - didn't want people to be discriminated against

### Lewis Terman

In the US, Lewis Terman adapted Binet's test for American school children and named the test the Stanford-Binet Test. The following is the formula of Intelligence Quotient (IQ), introduced by William Stern:



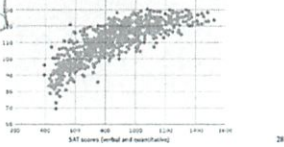
$$IQ = \frac{\text{mental age}}{\text{chronological age}} \times 100$$

- no longer uses IQ
- 2/3 people b/w 85-115
- used to discriminate against immigrants

## Aptitude and Achievement Tests

Aptitude tests are intended to predict your ability to learn a new skill and achievement tests are intended to reflect what you have already learned.

thinly designed intelligence test



- but connections b/w the 2 types of tests

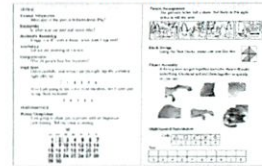
## David Wechsler

Wechsler developed the Wechsler Adult Intelligence Scale (WAIS) and later the Wechsler Intelligence Scale for Children (WISC), an intelligence test for preschoolers.



## WAIS

WAIS measures overall intelligence and 11 other aspects related to intelligence that are designed to assess clinical and educational problems.



can use subscores to test for problems

## Principles of Test Construction

For a psychological test to be acceptable it must fulfill the following three criteria:

1. Standardization
2. Reliability
3. Validity

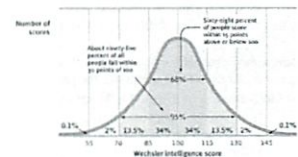
## Standardization

Standardizing a test involves administering the test to a representative sample of future test takers in order to establish a basis for meaningful comparison.

compare w/ other's performances

## Normal Curve

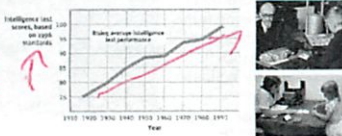
Standardized tests establish a normal distribution of scores on a tested population in a bell-shaped pattern called the normal curve.



100 avg score at each age group

## Flynn Effect

In the past 60 years, intelligence scores have risen steadily by an average of 27 points. This phenomenon is known as the Flynn effect.



- while college entrance exam scores ↓  
- now slowed + ceased  
- why? hybrid vigor??

## Reliability

A test is reliable when it yields consistent results. To establish reliability researchers establish different procedures:

1. Split-half Reliability: Dividing the test into two equal halves and assessing how consistent the scores are.
2. Reliability using different tests: Using different forms of the test to measure consistency between them.
3. Test-Retest Reliability: Using the same test on two occasions to measure consistency.

more people go to school

## Validity

Reliability of a test does not ensure validity. Validity of a test refers to what the test is supposed to measure or predict.

1. Content Validity: Refers to the extent a test measures a particular behavior or trait.
2. Predictive Validity: Refers to the function of a test in predicting a particular behavior or trait.

↑ the criterion

- predictability ↓ as we age  
- but a narrow range of students taking test - all close in scores

4/30



4/30

if you care can Δ

The Dynamics of Intelligence

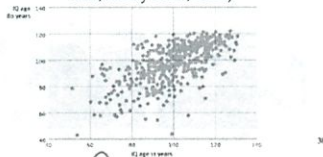
Does intelligence remain stable over a lifetime or does it change? Are individuals on the two extremes of the intelligence scale really that different?

Siegeiman says YES

- can't use baby to determine intel scores when older
- but high-scoring teens were early readers
- scores emerge at age 4
- stabilize at age 7

Stability or Change?

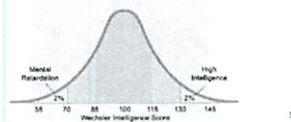
Intelligence scores become stable after about seven years of age. In numerous studies, stability of intelligence scores have been determined (Angoff, 1988; Deary et al., 2004).



- strong correlations with scores at age 11 and 80 stable
- least intel more at risk for Alzheimer

Extremes of Intelligence

A valid intelligence test divides two groups of people into two extremes: the mentally retarded (IQ 70) and individuals with high intelligence (IQ 135). These two groups are significantly different.



Mental Retardation

Mentally retarded individuals required constant supervision a few decades ago, but with a supportive family environment and special education they can now care for themselves.

Level	Approximate IQ Range	Typical Characteristics
Profound	20-25	Requires constant supervision and care throughout life.
Severe	25-35	Requires constant supervision and care throughout life.
Moderate	35-50	Requires supervision and care throughout life.
Mild	50-70	Requires supervision and care throughout life.



- physical cause: down syndrome
- get special ed if < 70 and no death penalty

High Intelligence

Contrary to popular belief, people with high intelligence test scores tend to be healthy, well adjusted, and unusually successful academically.



- some isolated
- some say gifted program makes them gifted
- tracking brings segregation
- different gifts

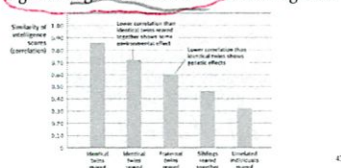
Genetic and Environmental Influences on Intelligence

No other topic in psychology is so passionately followed as the one that asks the question, "Is intelligence due to genetics or environment?"

runs in family

Genetic Influences

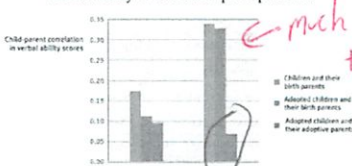
Studies of twins, family members, and adopted children together support the idea that there is a significant genetic contribution to intelligence.



- identical twins get identical scores
- can add gene to mice to help them remember

Adoption Studies

Adopted children show a marginal correlation in verbal ability to their adopted parents.



parental influence ↓ as age ↑

heredity is at least 50% of the variations  
greater % sometimes however

Environmental Influences

Studies of twins and adopted children also show the following:

1. Fraternal twins raised together tend to show similarity in intelligence scores.
2. Identical twins raised apart show slightly less similarity in their intelligence scores.

# Siggys can turn intelligence on and off

## \* Environment overrides genetic differences

### Early Intervention Effects

Early neglect from caregivers leads children to develop a lack of personal control over the environment, and it impoverishes their intelligence.



Romanian orphans with minimal human interaction are delayed in their development.

- need to interact w/ the babies
- nutrition important
- little difference b/w normal + enriched

### Schooling Effects

Schooling is an experience that pays dividends, which is reflected in intelligence scores. Increased schooling correlates with higher intelligence scores.



To increase readiness for schoolwork, projects like Head Start facilitate learning.

- increases during school year
- ↑ you choose to be smart in school
- may not choose to do well in school

### Group Differences in Intelligence Test Scores

Why do groups differ in intelligence? How can we make sense of these differences?

### Ethnic Similarities and Differences

To discuss this issue we begin with two disturbing but agreed upon facts:

1. Racial groups differ in their average intelligence scores.
2. High-scoring people (and groups) are more likely to attain high levels of education and income.

### Racial (Group) Differences

If we look at racial differences, white Americans score higher in average intelligence than black Americans (Avery and others, 1994). European New Zealanders score higher than native New Zealanders (Braden, 1994).

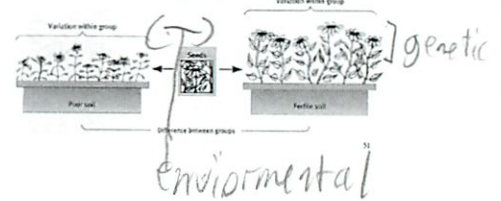
White-Americans	Black-Americans
Average IQ = 100	Average IQ = 85

Hispanic Americans

- European New Zealanders > Native " "
- Israeli Jews > Israeli Arabs
- ↑ pool of people

### Environmental Effects

Differences in intelligence among these groups are largely environmental, as if one environment is more fertile in developing these abilities than another.



### Reasons Why Environment Affects Intelligence

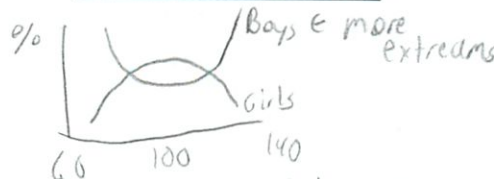
1. Races are remarkably alike genetically.
2. Race is a social category.
3. Asian students outperform North American students on math achievement and aptitude tests.
4. Today's better prepared populations would outperform populations of the 1930s on intelligence tests.
5. White and black infants tend to score equally well on tests predicting future intelligence.
6. Different ethnic groups have experienced periods of remarkable achievement in different eras.

people don't fit into nice categories  
gore around the world

### Gender Similarities and Differences

There are seven ways in which males and females differ in various abilities.

1. Girls are better spellers
2. Girls are verbally fluent and have large vocabularies
3. Girls are better at locating objects
4. Girls are more sensitive to touch, taste, and color
5. Boys outnumber girls in courts of underachievement
6. Boys outperform girls at math problem solving, but underperform at math computation
7. Women detect emotions more easily than men do



- hormones ↑ spatial ability - women - at position + recognizing emotion
- men better at math reasoning

### The Question of Bias

Aptitude tests are necessarily biased in the sense that they are sensitive to performance differences caused by cultural differences.

↑ middle-class sensibilities  
However, aptitude tests are not biased in the sense that they accurately predict performance of one group over the other.

↑ self-fulfilling  
perhaps better than alternating - personal opinion

next slide



## Stereotype Threat

A stereotype threat is a self-confirming concern that one will be evaluated based on a negative stereotype.

This phenomenon appears in some instances in intelligence testing among African-Americans and among women of all colors.

↑ self-fulfilling  
prophecy

- let schools who would benefit from early intervention

- Scores may be misinterpreted

- only 1 aspect of personal  
Competence

- practical knowledge

- talent

- character

\* not all important

# Chap 11 Test

5/1

- open-ended
  - 25 multiple choice
  - 15 fill in blank
  - 20 matching
  - 2 essays
- } → w/ answers

Due Mon 5/5

- well thought out qu
- creativity
- hardness (challenging)





Created by Michael Plasmeier  
97

5/4/08

## Chapter 11 Assessment

- Intelligence is the ability to:
  - Learn from experience
  - Solve problems
  - Use knowledge to adapt to new situations
  - All of the above
- General intelligence is made up of many factors.
- What is it called when one does well in both vocabulary and paragraph comprehension?  
Clustering
- What was NOT one of L.L. Thurstone's 7 clusters of primary mental ability?
  - Word fluency
  - Spatial ability
  - Emotional intelligence
  - Memory
- Why did general intelligence evolve according to Satoshi Kanazawa?
  - To solve novel problems our ancestors faced (like reuniting with your family across a flooded river)
  - To help us do well at the PSSAs
  - In order to be able to form friendships
  - To be able to navigate through the woods
- What syndrome supports Howard Gardner's believe that intelligence comes in several forms because a person excels at primarily one specific skill? Savant
- Has it been proven that general intelligence generally correlates with job success? Yes
- What determines what components of intelligence is valued? Culture or Context Explain
- In your opinion, is intelligence one factor or several factors? Explain. Answers may vary
- What is not one of Robert Sternberg's three multiple intelligences of his triarchic theory?
  - Analytical intelligence
  - Kinetic intelligence
  - Creative intelligence
  - Practical intelligence
- The ability to produce ideas that are novel and valuable Creativity
- The correlation between intelligence and creativity is:
  - Strong through all levels
  - Strong up to a certain intelligence score
  - Very weak
  - None existent
- Creativity does not require:
  - Expertise

I do not pick all of the above  
It is not wrong!!

ESSAY

They and keep  
your ?'s  
m.c  
fill in the blank  
matching  
ESSAY



- b. Intrinsic motivation
  - c. Creative environment
  - d. Expectations of being judged or a reward
14. Convergent thinking is:
- a. Imaginative thinking skills
  - b. The type required for intelligence tests
  - c. The ability to mix 2 separate ideas
  - d. The ability to recognize emotion
15. Divergent thinking is:
- a. Imaginative thinking skills
  - b. The type required for intelligence tests
  - c. The ability to mix 2 separate ideas
  - d. The ability to recognize emotion
16. Researchers have found:
- a. No link between brain size and intelligence (0 correlation)
  - b. A +.90 correlation between brain size and intelligence
  - c. A +.40 correlation between brain size and intelligence
  - d. Criminals always have small brains
17. Researchers have found that faster perception by teenagers does correlate with:
- a. Athleticism
  - b. Intuition
  - c. Intelligence
  - d. Brain size
18. Intelligence tests measure
- a. Success in life
  - b. Mental aptitudes
  - c. College test scores
  - d. Likelihood of getting a good job
19. Alfred Binet set out to measure intelligence for the Paris school system.
20. An average 9 year old has the mental age of:
- a. 9
  - b. An adult
  - c. The most intelligent 9 year old
  - d. A 9 year old with down syndrome
21. Lewis Terman developed the intelligence quotient by adapting Binet's test for Californians.
22. The average person has an IQ of:
- a. 100
  - b. 70
  - c. 140
  - d. 1000
23. An achievement test measures:
- a. Future performance

- b. Job success
  - c. Capacity to learn
  - d. What a person has already learned
24. When you take an intelligence test, your raw scores are compared against
- a. Everyone who took the test with you
  - b. Everyone from your hometown
  - c. A standard derived from comparing the scores of everyone
  - d. Your previous scores
25. This New Zealander discovered the Flynn effect, which states that the average score on intelligence tests have been rising over time.
26. Except for extreme instances, researchers have not found a well-defined link between a baby's behavior and their later intelligence.
27. According to the textbook, how did high scoring seventh graders spend much of their early lives?
- a. Reading
  - b. Playing an instrument
  - c. Traveling the world
  - d. Watching PBS educational programming such as *Sesame Street*, *Barney*, and *Teletubbies*.
28. Which is true about intelligence scores?
- a. Scores begin to predict adult scores around age 6 and become fairly stable and consistent around age 11
  - b. Scores begin to predict adult scores around age 4 and become fairly stable and consistent around age 7
  - c. Scores begin to predict adult scores around age 1 and become fairly stable and consistent around age 9
  - d. Scores begin to predict adult scores at birth and become fairly stable and consistent around puberty
29. Researchers have found that high scoring 11 year olds were more likely:
- a. They found no consistent correlation
  - b. To be living independently as 77 year olds
  - c. Have lower than average test scores as teenagers
  - d. Working as corporate executives
30. Which is not one of the reasons intelligence tests are high stakes around 70 points, according to the textbook?
- a. The death penalty cannot be applied to people who score under 70 points
  - b. Extra Social Security is given out to people who score below 70
  - c. Scores under 70 make people eligible for special education
  - d. Scores under 70 determine if you are able drive
31. How were researchers primarily able to find that intelligence runs in the family
- a. From their studies of identical twins raised together
  - b. From their studies of identical twins raised separately



- c. From injecting monkeys with chemicals to reduce the influence of the monkeys' brain on their bodies
  - d. From studies of children put up for adoption
32. According to Mr. Siegeman the intelligence gap in school widens because of
- a. Lack of Motivation in some students
  - b. Bad Teachers
  - c. Too much time dedicated to standardized tests
  - d. Bad Administration
33. The environment contributes to intelligence in:
- a. A fixed amount
  - b. A variable amount related to the enrichment of the environment
  - c. The environment completely determine intelligence
  - d. The environment does not affect intelligence
34. According to the textbook, whites do about 7 to 15% better than African Americans.
35. Group differences:
- a. Have been eliminated over the last 100 years
  - b. Determine how smart an individual will be
  - c. Can be explained by the innate inferiority of a race or ethnic group
  - d. Arise from differences in the environment groups live in
36. Variations inside group are greater than group differences.
37. Females are better at verbal fluency and rapid math calculations compared to the other gender.
38. Males are better at spatial ability.
39. Bias is when a test is less valid for some test takers than others.
40. Groups who have been stereotyped to do worse than the average person typically
- a. Actually do worse
  - b. Rebel against the stereotype and actually do worse
  - c. Don't let the stereotype affect them since it's a stereotype
  - d. Are not aware of the stereotype and don't let it bother them
41. Are intelligence tests fair? Answers may vary.
42. "Teen talking" Barbie doll was recalled in October 1992 for saying which of the following phrases related to the "stereotype threat":
- a. "Math class is tough!"
  - b. "Let's get it on"
  - c. "Let's go shopping"
  - d. "I need to loose weight"

Vocabulary Matching:

1. Intelligence
  2. Factor analysis
  3. General intelligence (g)
  4. Savant syndrome
  5. Emotional intelligence
  6. Creativity
  7. Intelligence Test
  8. Mental Age
  9. Stanford-Binet
  10. Intelligence Quotient (IQ)
  11. Aptitude test
  12. Achievement Test
  13. Wechsler Adult Intelligence Scale (WAIS)
  14. Standardization
  15. Normal Curve
  16. Reliability
  17. Validity
  18. Content validity
  19. Criterion
  20. Predictive Validity
  21. Mental Retardation
  22. Down Syndrome
  23. Stereotype Threat
- 
- a) A condition in which a person otherwise limited in mental ability has an exceptional specific skill, such as in computation or drawing.
  - b) A condition of limited mental ability, indicated by an intelligence score of 70 or below and difficulty in adapting to the demands of life; varies from mild to profound.
  - c) A condition of retardation and associated physical disorders caused by an extra chromosome in one's genetic makeup (presence of all or part of an extra 21st chromosome)
  - d) A general intelligence factor that according to Spearman and others underlies specific mental abilities and is therefore measured by every task on an intelligence test.
  - e) A measure of intelligence test performance devised by Binet; the chronological age that most typical corresponds to a given level of performance.
  - f) A method for assessing an individual's mental aptitudes and comparing them with those of others, using numerical scores.
  - g) A self confirming concern that one will be evaluated based on a negative stereotype.
  - h) A statistical procedure that identifies clusters of related items (called factors) on a test; used to identify different dimensions of performance that underlie one's total score.



- i) A test designed to assess what a person has LEARNED.
- j) A Test designed to PREDICT a person's future performance; aptitude is capacity of learning.
- k) Defined originally as the ratio of mental age (ma) to chronological age (ca) multiplied by 100 (thus  $IQ = ma/ca \times 100$ ). On contemporary intelligence tests, the average performance for a given age is assigned a score of 100.
- l) Defining meaningful scores by comparison with performance of a pretested standardization group.
- m) Mental quality consisting of the ability to learn from experience, solve problems, and use knowledge to adapt to new situations.
- n) The ability to perceive, understand, manage, and use emotions.
- o) The ability to produce novel and valuable ideas.
- p) The behavior that a test is designed to predict; thus the measure used in defining whether the test has predictive validity.
- q) The extent to which a test measures or predicts what it is supposed to.
- r) The extent to which a test samples the behavior that is of interest.
- s) The extent to which a test yields consistent results, as assessed by the consistency of scores on two halves of the test, on alternate forms of the test, or on retesting.
- t) The most widely used intelligence test; contains verbal and performance (nonverbal) subtests.
- u) The success with which a test predicts the behavior it is designed to predict; it is assessed by computing the correlation between test scores and the criterion behavior.
- v) The symmetrical bell shaped curve that describes the distribution of many physical and psychological attributes. Most scores fall near the average, and fewer and fewer scores lie near the extremes.
- w) The widely used American revision (by Terman at Stanford University) of Binet's original intelligence test

# Answers

Intelligence	Mental quality consisting of the ability to learn from experience, solve problems, and use knowledge to adapt to new situations.
Factor analysis	A statistical procedure that identifies clusters of related items (called <i>factors</i> ) on a test; used to identify different dimensions of performance that underlie one's total score.
General intelligence (g)	A general intelligence factor that according to Spearman and others underlies specific mental abilities and is therefore measured by every task on an intelligence test.
Savant syndrome	A condition in which a person otherwise limited in mental ability has an exceptional specific skill, such as in computation or drawing.
Emotional intelligence	The ability to perceive, understand, manage, and use emotions.
Creativity	The ability to produce novel and valuable ideas.
Intelligence Test	A method for assessing an individual's mental aptitudes and comparing them with those of others, using numerical scores.
Mental Age	A measure of intelligence test performance devised by Binet; the chronological age that most typical corresponds to a given level of performance.
Stanford-Binet	The widely used American revision (by Terman at Stanford University) of Binet's original intelligence test
Intelligence Quotient (IQ)	Defined originally as the ratio of mental age ( <i>ma</i> ) to chronological age ( <i>ca</i> ) multiplied by 100 (thus $IQ = ma/ca \times 100$ ). On contemporary intelligence tests, the average performance for a given age is assigned a score of 100.
Aptitude test	A test designed to PREDICT a person's future



	performance; <i>aptitude</i> is capacity of learning.
Achievement Test	A test designed to assess what a person has LEARNED.
Wechsler Adult Intelligence Scale (WAIS)	The most widely used intelligence test; contains verbal and performance (nonverbal) subtests.
Standardization	Defining meaningful scores by comparison with performance of a pretested standardization group.
Normal Curve	The symmetrical bell shaped curve that describes the distribution of many physical and psychological attributes. Most scores fall near the average, and fewer and fewer scores lie near the extremes.
Reliability	The extent to which a test yields consistent results, as assessed by the consistency of scores on two halves of the test, on alternate forms of the test, or on retesting.
Validity	The extent to which a test measures or predicts what it is supposed to.
Content validity	The extent to which a test samples the behavior that is of interest.
Criterion	The behavior that a test is designed to predict; thus the measure used in defining whether the test has predictive validity.
Predictive Validity	The success with which a test predicts the behavior it is designed to predict; it is assessed by computing the correlation between test scores and the criterion behavior.
Mental Retardation	A condition of limited mental ability, indicated by an intelligence score of 70 or below and difficulty in adapting to the demands of life; varies from mild to profound.
Down Syndrome	A condition of retardation and associated physical disorders caused by an extra

	chromosome in one's genetic makeup (presence of all or part of an extra 21st chromosome)
Stereotype Threat	A self confirming concern that one will be evaluated based on a negative stereotype.



# Chap 14

on own

5/1

## PSYCHOLOGY

(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

Worth Publishers, © 2006



## Stress and Health

### Chapter 14

\* Psychological states cause physical reactions

- behavioral medicine

### Stress and Health

#### Promoting Health

- Managing Stress
- Modifying Illness-Related Behaviors
- Thinking Critically About: Alternative Medicine - New Ways to Health, or Cold Snake Oil

### Stress

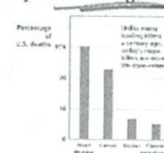
Psychological states cause physical illness. Stress is any circumstance (real or perceived) that threatens a person's well-being.



When we feel severe stress, our ability to cope with it is impaired.

### Stress and Causes of Death

Prolonged stress combined with unhealthy behaviors may increase our risk for one of today's four leading diseases.



↑ lifestyle related

### Behavioral Medicine

Centers for Disease Control (CDC) claim that half of the deaths in the US are due to people's behaviors (smoking, alcoholism, unprotected sex, insufficient exercise, drugs, and poor nutrition).

Psychologists and physicians have thus developed an interdisciplinary field of behavioral medicine that integrates behavioral knowledge with medical knowledge.

### Health Psychology

Health psychology is a field of psychology that contributes to behavioral medicine. The field studies stress-related aspects of disease and asks the following questions:

- How do emotions and personality factors influence the risk of disease?
- What attitudes and behaviors prevent illness and promote health and well-being?
- How do our perceptions determine stress?
- How can we reduce or control stress?

### Stress and Illness

Stress can be adaptive. In a fearful or stress-causing situation, we can run away and save our lives. Stress can be maladaptive. If it is prolonged (chronic stress), it increases our risk of illness and health problems.

↑ sleep + exercise less  
turn to drugs + cigarettes

Stress makes people seem older  
 -shortens end of chromosomes (telomeres)

### Stress and Stressors

Stress is a slippery concept. At times it is the stimulus (missing an appointment) and at other times it is a response (sweating while taking a test).

-depends how we appraise a stressor

- mobilizes immune system
- can allow us to conquer problems

### Stress and Stressors

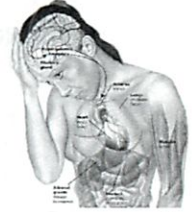
Stress is not merely a stimulus or a response. It is a process by which we appraise and cope with environmental threats and challenges.



When short-lived or taken as a challenge, stressors may have positive effects. However, if stress is threatening or prolonged, it can be harmful.

### The Stress Response System

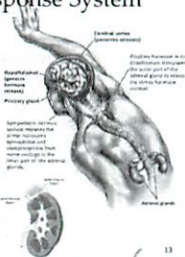
Canon proposed that the stress response (fight or flight) was a fight-or-flight response marked by the outpouring of epinephrine and norepinephrine from the inner adrenal glands, increasing heart and respiration rates, mobilizing sugar and fat, and dulling pain.



? short-term fast

### The Stress Response System

The hypothalamus and the pituitary gland also respond to stress (slow) by triggering the outer adrenal glands to secrete glucocorticoids (cortisol).

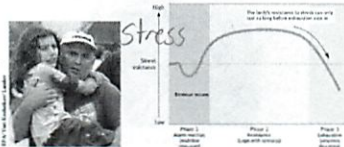


more of

long-term, more of a motivator

### General Adaptation Syndrome

According to Selye, a stress response to any kind of stimulation is similar. The stressed individual goes through three phases.



? found w/ rat sex hormone experiment gone wrong  
 -stress meant to be temporary

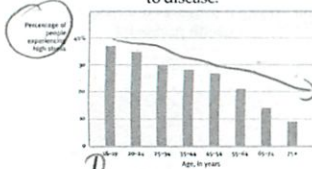
### Stressful Life Events

Catastrophic Events: Catastrophic events like earthquakes, combat stress, and floods lead individuals to become depressed, sleepless, and anxious.

- depression + anxiety ↑ 17%
- refugees very stressed

### Significant Life Changes

The death of a loved one, a divorce, a loss of job, or a promotion may leave individuals vulnerable to disease.



? teens most stressed

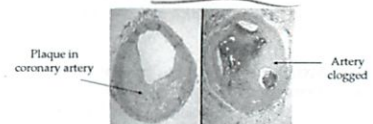
### Daily Hassles

Rush hour traffic, long lines, job stress, and becoming burnt-out are the most significant sources of stress and can damage health.

- normal events that pile up
- racism + mistrust

### Stress and the Heart

Stress that leads to elevated blood pressure may result in Coronary Heart Disease, a clogging of the vessels that nourish the heart muscle.



-stress predicts heart attack risks

\*experiencing a stressful disaster hurts us and ↑ risk of health problems



## Personality Types

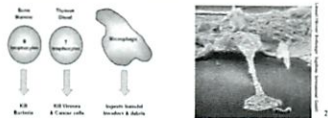
Type A is a term used for competitive, hard-driving, impatient, verbally aggressive, and anger-prone people. Type B refers to easygoing, relaxed people (Friedman and Rosenman, 1974).

Type A personalities are more likely to develop coronary heart disease.

in stressful situations  
Type A react more  
Physically ("combat ready")  
↳ mostly negative emotions  
5x as likely for heart attack

## Stress and the Immune System

B lymphocytes fight bacterial infections, T lymphocytes attack cancer cells and viruses, and macrophages ingest foreign substances. During stress, energy is mobilized away from the immune system making it vulnerable.



- could attack too much and kill healthy cells  
- or underattack and not kill attacking cell  
\* stress diverts resources from immune system

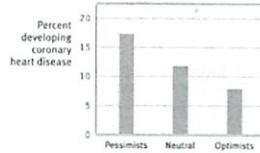
## Stress and Cancer

Stress does not create cancer cells. Researchers disagree on whether stress influences the progression of cancer. However, they do agree that avoiding stress and having a hopeful attitude cannot reverse advanced cancer.

- could speed spread  
- might have cancer patients blame themselves

## Pessimism and Heart Disease

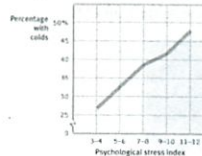
Pessimistic adult men are twice as likely to develop heart disease over a 10-year period (Kubzansky et al., 2001).



depression too hurts "disheartening"

## Stress and Colds

People with the highest life stress scores were also the most vulnerable when exposed to an experimental cold virus.



- all people who live to over 100 are able to manage stress

↳ wounds heal faster on vacation

## Stress and Immune Conditioning

If the immune system can be suppressed through conditioning, researchers believe that immune-enhancing responses can be inculcated to combat viral diseases.



- people w/ allergies sneeze at flowers they don't know are plastic  
- placebos sometimes promote healing

## Stress & Susceptibility to Disease

A psychophysical illness is any stress-related physical illness such as hypertension or headaches. Hypochondriasis is a misinterpretation of normal physical sensations as symptoms of disease.

## Stress and AIDS

Stress and negative emotions may accelerate the progression from human immunodeficiency virus (HIV) to acquired immune deficiency syndrome (AIDS).



- stress speeds disease

## Health-Related Consequences

Stress can have a variety of health-related consequences.



good + bad  
Mind + body interact

Wealth = longer life

5/2

Promoting Health

Promoting health is generally defined as the absence of disease. We only think of health when we are diseased. However, health psychologists say that promoting health begins by preventing illness and enhancing well-being, which is a constant endeavor.

- need to think healthy all of the time

better long term

Coping with Stress

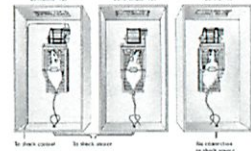
Reducing stress by changing events that cause stress or by changing how we react to stress is called problem-focused coping.

Emotion-focused coping is when we cannot change a stressful situation, and we respond by attending to our own emotional needs.

Control over situation  
think have no control over situation

Perceived Control

Research with rats and humans indicates that the absence of control over stressors is a predictor of health problems. puts out stress ↓ hormones



uncontrolled stress is worse  
↑ helps to give workers control over situation

Explanatory Style

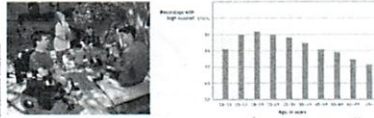
People with an optimistic (instead of pessimistic) explanatory style tend to have more control over stressors, cope better with stressful events, have better moods, and have a stronger immune system.



- Optimism helps
- ↓ stress
- live a few years longer
- relaxation
- laughter

Social Support

Supportive family members, marriage partners, and close friends help people cope with stress. Their immune functioning calms the cardiovascular system and lowers blood pressure.



- Promotes health
- families stress + provide pleasure
- more relationships = longer lives
- pets work too

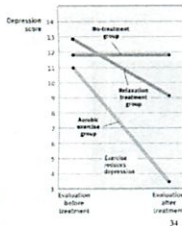
Managing Stress

Having a sense of control, an optimistic explanatory style, and social support can reduce stress and improve health.

- confiding in people helps a lot
- calms in long run

Aerobic Exercise

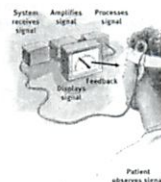
Can aerobic exercise boost spirits? Many studies suggest that aerobic exercise can elevate mood and well-being because aerobic exercise raises energy, increases self-confidence, and lowers tension, depression, and anxiety.



- exercise helps too
- exercise produces proteins which ward off diseases

Biofeedback, Relaxation, and Meditation

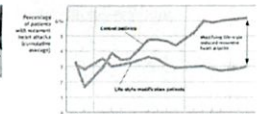
Biofeedback systems use electronic devices to inform people about their physiological responses and gives them the chance to bring their response to a healthier range. Relaxation and meditation have similar effects in reducing tension and anxiety.



- studies over blown
- normal relaxing helps too

Life-Style

Modifying a Type-A lifestyle may reduce the recurrence of heart attacks.



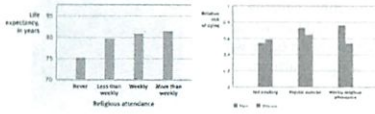
- meditation helps ↑ life span



# Alternative medicines - powerful placebo effect

## Spirituality & Faith Communities

Regular religious attendance has been a reliable predictor of a longer life span with a reduced risk of dying.



- or just women live longer & attend church more often  
 - 83 years attenders  
 - 75 years not

## Intervening Factors

Investigators suggest there are three factors that connect religious involvement and better health.



- healthy behavior  
 - social support  
 - positive emotions  
 - coherent world view  
 - acceptance  
 ↑ healthier immune system

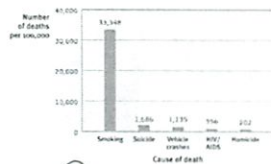
## Managing Stress: Summary

How can stress be managed?



## Modifying Illness-Related Behaviors

The elimination of smoking would increase life expectancy more than any other preventive measure.



↑ smoking  
 - kills ~10,000 day (3x 9-11 every day)

## Why Do People Smoke?

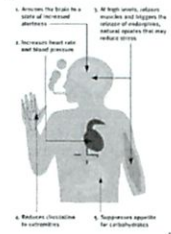
1. People smoke because it is socially rewarding. "cool"
2. Smoking is also a result of genetic factors.



97% think smoking is harmful  
 - start b/c friend offers them  
 ↑ sign of independence  
 - Hollywood movies

## Why Do People Smoke?

3. Nicotine takes away unpleasant cravings (negative reinforcement) by triggering epinephrine, norepinephrine, dopamine, and endorphins.
4. Nicotine itself is rewarding (positive reinforcement).



- 1/3 who try are hooked  
 - hard to stop  
 - \*most know is bad but can't quit  
 - \*gene determines if people can get hooked  
 Ways to Quit Smoking

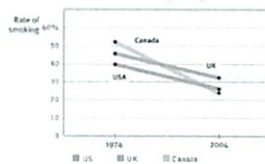
## Biopsychosocial Factors: Smoking



- nicotine releases neurotransmitters to calm anxiety + ↓ pain sensitivity

## Helping Smokers Quit

Smoking decreased in Western countries, especially in higher socioeconomic groups and more educated groups.

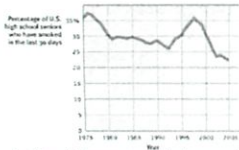


- half who have smoked have quit  
 - become rarer at ? income levels

Here are a few pointers on how to quit smoking:

1. Set a quit date.
2. Inform family and friends.
3. Throw away all cigarettes.
4. Review successful strategies.
5. Use a nicotine patch or gum.
6. Abstain from alcohol.
7. Exercise.

### Smoking Abstinence Programs



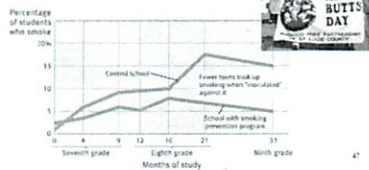
Smoking abstinence programs for teens provide:

1. Information about the effects of smoking
2. Information about peer, parent & media influence
3. Ways to refuse cigarettes

- make it immediately costly  
 - raising taxes

### Do Programs Work?

Prevention programs do have an effect on smoking.



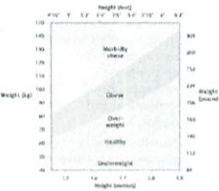
### Obesity and Weight Control

Fat is an ideal form of stored energy and is readily available. In times of famine, an overweight body was a sign of affluence.



### Body Mass Index (BMI)

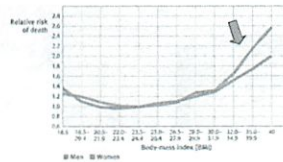
Obesity in children increases their risk of diabetes, high blood pressure, heart disease, gallstones, arthritis, and certain types of cancer, thus shortening their life expectancy.



- in certain cultures (when famine was) -> good to be fat

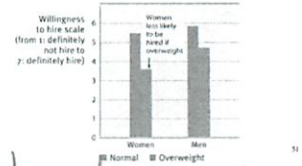
### Obesity and Mortality

The death rate is high among very overweight men.



### Social Effects of Obesity

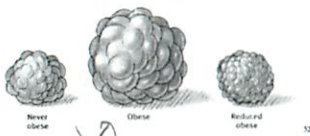
When women applicants were made to look overweight, subjects were less willing to hire them.



- slow, lazy + sloppy  
 - make 7,000 less  
 - stretching the image makes them look obnoxious

### Physiology of Obesity

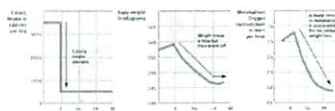
Fat Cells: There are 30-40 million fat cells in the body. These cells can increase in size or increase in number (75 million) in an obese individual (Sjöström, 1980).



2-3x size  
 - can never disappear

### Set Points and Metabolism

When reduced from 3,500 calories to 450 calories, weight loss was a minimal 6% and the metabolic rate a mere 15%.



The obese defend their weight by conserving energy

diff resting metabolism rates shows how some looking people can eat different amounts

### The Genetic Factor

Identical twin studies reveal that body weight has a genetic basis.



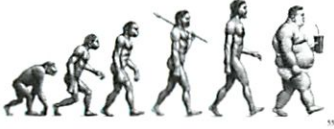
The obese mouse on the left has a defective gene for the hormone leptin. The mouse on the right sheds 40% of its weight when injected with leptin.

- adopted kid's weight like their parents real



## Activity

Lack of exercise is a major contributor to obesity. Just watching TV for two hours resulted in a 23% increase of weight when other factors were controlled (Hu et al., 2003).



- more tv = 23% fatter
- walking helps
- 3x more meals eaten fast food
- inactivity

## Food Consumption

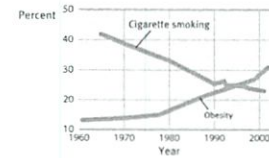
Over the past 40 years average weight gain has increased. Health professionals are pleading with US citizens to limit their food intake.

AVERAGE U.S. BODY WEIGHT (POUNDS), 1960 TO 2002				
	1960-1962	1971-1974	1988-1994	1999-2002
<b>19-year-olds</b>				
Men	160	161	161	172
Women	131	139	139	149
<b>20 to 74-year-olds</b>				
Men	166	173	182	189
Women	140	144	153	163

Source: Centers for Disease Control and Prevention report by C. L. Ogden & others (2002).

## Trading Risks

Although cigarette smoking has declined over the years in the Americas, obesity is on the rise.



## Losing Weight

In the US, two-thirds of the women and half of the men say that they want to lose weight. The majority of them lose money on diet programs.

- Most regain lost weight
- many choose to lose 15 pounds vs be 5 years younger
- some want "Twinke tax"
- subsidize healthy food
- stress has you eat more feeling of breaking diet
- ↑ stress

## Plan to Lose Weight

When you are motivated to lose weight, begin a weight-loss program, minimize your exposure to tempting foods, exercise, and forgive yourself for lapses.



- life long change
- have less choices + temptations
- exercise ↑ metabolism
- be moderate
- eat healthy
- don't save up for big meal at night
- don't binge

## Alternative Medicine

Other medicinal ways of achieving health

SUBFIELDS OF ALTERNATIVE MEDICINE	
Alternative systems of medical practice	Health care ranging from self care following popular beliefs to treatments based on alternative traditions or practices
Bioelectromagnetic applications	The study of how living organisms interact with electromagnetic (EM) fields
Diet, nutrition, lifestyle changes	The knowledge of how to prevent illness, maintain health, and reverse the effects of chronic disease through dietary or nutritional intervention
Herbal medicine	Employing plant and plant products from folk medicine traditions for pharmaceutical use
Manual healing	Using touch and manipulation with the hands as a diagnostic and therapeutic tool
Mind-body control	Expanding the mind's capacity to affect the body, based on traditional medical systems that make use of the interconnection of mind and body
Pharmacological and biological treatments	Drugs and vaccines not yet accepted by mainstream medicine

Source: (Revised and reauthorized by the National Center for Complementary and Alternative Medicine [NCCAM])

- people underestimate their health risks + problems

# Chap 13

5/17

PSYCHOLOGY  
(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

Worth Publishers, © 2006



## Emotion

### Chapter 13

- add color to your life
- save your life when you are stressed
- enhance survival by focusing attention

5/5

## Emotion

### Embodied Emotion

- Thinking Critically About: Lie Detection
- Cognition And Emotion

### Expressed Emotion

- Nonverbal Communication
- Detecting and Computing Emotion

## Emotion

### Expressed Emotion

- Culture and Emotional Expression
- The Effects of Facial Expression

### Experienced Emotion

- Fear
- Anger
- Happiness

## Emotion

Emotions are our body's adaptive response.



## Theories of Emotion

Emotions are a mix of 1) physiological activation, 2) expressive behaviors, and 3) conscious experience.



thoughts  
feelings

## Controversy

- Does physiological arousal precede or follow your emotional experience?
- Does cognition (thinking) precede emotion (feeling)?

think before act?  
act before think?

do you have to understand  
situation before you  
can react?

## Commonsense View

When you become happy, your heart starts beating faster. First comes conscious awareness, then comes physiological activity.



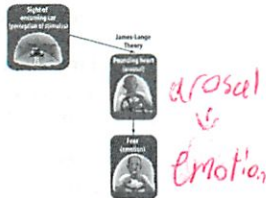


# ⊛ arousal fuels emotion-cognition channels it

## Schachter-Singer

### James-Lange Theory

William James and Carl Lange proposed an idea that was diametrically opposed to the common-sense view. The James-Lange Theory proposes that physiological activity precedes the emotional experience.

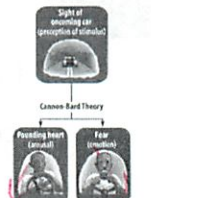


Feel Fear  
Body Responses

Arousal  
↓  
Fear } comes from the body's arousal

### Cannon-Bard Theory

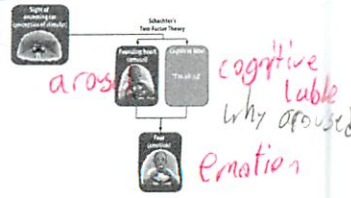
Walter Cannon and Phillip Bard questioned the James-Lange Theory and proposed that an emotion-triggering stimulus and the body's arousal take place simultaneously.



arousal + emotion  
Fear + Arousal

### Two-Factor Theory

Stanley Schachter and Jerome Singer proposed yet another theory which suggests our physiology and cognitions create emotions. Emotions have two factors—physical arousal and cognitive label.



cognitive label why aroused emotion

### Embodied Emotion

We know that emotions involve bodily responses. Some of these responses are very noticeable (butterflies in our stomach when fear arises), but others are more difficult to discern (neurons activated in the brain).

### Emotions and Autonomic Nervous System

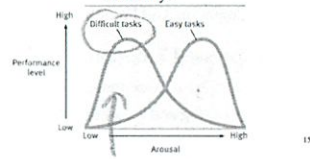
During an emotional experience, our autonomic nervous system mobilizes energy in the body that arouses us.

Autonomic Response	Sympathetic System	Parasympathetic System
Heart rate	Increases	Decreases
Blood pressure	Increases	Decreases
Respiration	Increases	Decreases
Stomach activity	Decreases	Increases
Salivary gland activity	Decreases	Increases
Bladder activity	Decreases	Increases
Sexual arousal	Increases	Decreases
Eye size	Increases	Decreases
Hand temperature	Decreases	Increases
Facial muscle activity	Increases	Decreases

Sympathetic speed ↑  
Parasympathetic slow ↓

### Arousal and Performance

Arousal in short spurts is adaptive. We perform better under moderate arousal, but optimal performance varies with task difficulty.



lower - too aroused + it distracts you (anxiety)

### Physiological Similarities

Physiological responses related to the emotions of fear, anger, love, and boredom are very similar.



Excitement and fear involve a similar physiological arousal.

externally

- hard to determine differences b/w fear, anger, + sexual arousal

but we can tell

### Physiological Differences

Physical responses, like finger temperature and movement of facial muscles, change during fear, rage, and joy.



The amygdala shows differences in activation during the emotions of anger and rage. Activity of the left hemisphere (happy) is different from the right (depressed) for emotions.

- amygdala more for anger than fear  
- right prefrontal more active in unhappy people  
- happy + upbeat in the left - more dopamine receptors

### Cognition and Emotion

What is the connection between how we think (cognition) and how we feel (emotion)?

Can we change our emotions by changing our thinking?

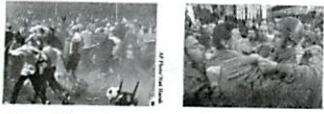
- not easy  
- depends on situation  
- do many self help things

feelings are mostly shadows of brain + body responses

Polygraphs = measure body's changes as we lie  
 diff b/w control qv (Have you taken something in last 20 years)  
 and critical qv - wrong 1/3 the time

**Cognition Can Define Emotion**

An arousal response to one event spills over into our response to the next event.



Arousal from a soccer match can fuel anger, which may lead to rioting.

Spill over

- being aroused you react more to good news
- you catch positive emotion from another
- but not if told about this

**Two Routes to Emotion**

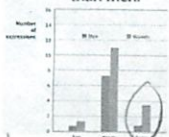


Zajonc and LeDoux (1984) emphasize that some emotions are immediate, without conscious appraisal. Lazarus, Schachter, and Singer (1998) emphasize that appraisal also determines emotions.

- we may personalize or generalize our emotions
- thinking more ⊕ about ourselves makes us feel better

**Gender, Emotion, and Nonverbal Behavior**

Women are much better at discerning nonverbal emotions than men. When shown sad, happy, and scary film clips women expressed more emotions than men.



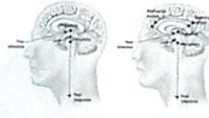
easier to tell when men are angry

Women

- good at finding the real couple or picking out the supervisor
- explain feelings more in depth
- more likely to express empathy

**Cognition Does Not Always Precede Emotion**

A subliminally presented happy face can encourage subjects to drink more than when presented with an angry face (Berridge & Winkeilman, 2003).



Emotions are felt directly through the amygdala (a) or through the cortex (b) for analysis.

- sometimes we have the feelings - but they fade from our mind - feeling still there
  - still react to subconscious face
  - shortcut to amygdala by passing behind the scenes
  - react more strongly if aroused
- Expressed Emotion 3/17

Emotions are expressed on the face, by the body, and by the intonation of voice. Is this non-verbal language of emotion universal?



- winning all over the world

- we read emotions
- can suppress emotions - but uses energy + concentration
- some people are better than others

**Detecting and Computing Emotion**

Most people find it difficult to detect deceiving emotions. Even trained professionals like police officers, psychiatrists, judges, and polygraphists detected deceiving emotions only 54% of the time.

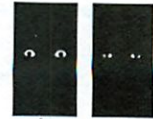


Which of Paul Ekman's smiles is genuine?

- Normal people: 50%
- some trained CIA agents 73%
- students can tell if teacher likes them
- email lacks these non verbal clues

**Cognition Does Not Always Precede Emotion**

When fearful eyes were subliminally presented to subjects, fMRI scans revealed higher levels of activity in the amygdala (Whalen et al. 2004).



- new things are being developed

- scored in forest
- then decide it was just the wind
- still appraised behind the scenes

**Nonverbal Communication**

Most of us are good at deciphering emotions through non-verbal communication. In a crowd of faces a single angry face will "pop out" faster than a single happy face (Fox et al. 2000).



- happiness from mouth
- anger from eyes

emotionalized by traumatic events

**Hindu Dance**

In classical Hindu dance, the body is trained to effectively convey 10 different emotions.





## Culture and Emotional Expression

When culturally diverse people were shown basic facial expressions, they did fairly well at recognizing them (Ekman & Matsumoto, 1989).



- gestures different in different cultures
- soldiers put middle finger up + said it was good luck
- but facial expressions are the same almost

## Emotions are Adaptive

Darwin speculated that our ancestors communicated with facial expressions in the absence of language. Nonverbal facial expressions led to our ancestor's survival.

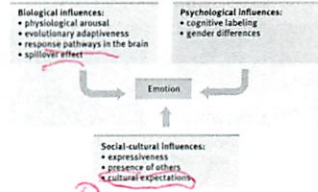


Charles Darwin (1809-1882)

- sneer is like an animal
- smile when around people
- people judge faces based on their current emotion
- surprise widens eyes - disgust closes nose

## Analyzing Emotion

Analysis of emotions are carried on different levels.



- affected by others + culture
- westerners more expressive

## The Effects of Facial Expression

If facial expressions are manipulated, like furrowing brows, people feel sad while looking at sad pictures.

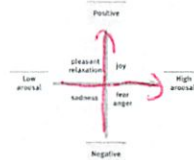


Attaching two golf tees to the face and making their tips touch causes the brow to furrow.

- faking a smile makes us feel better
- walking fast makes us feel powerful
- is a neural basis for empathy

## Dimensions of Emotion

People generally divide emotions into two dimensions.



- arousal is energizing or harmful depending on the person

Izard (1977) isolated 10 emotions. Most of them are present in infancy, except for contempt, Shame, and guilt.



- some say pride + love also

## Fear

Fear can torment us, rob us of sleep, and preoccupy our thinking. However, fear can be adaptive - it makes us run away from danger, it brings us closer as groups, and it protects us from injury and harm.

- important; need to have it
- contagious
- adaptive

## Learning Fear

We learn fear in two ways, either through conditioning and/or through observation.

falling down time + time again



- people can be afraid of anything
- persists

## The Biology of Fear

Some fears are easier to learn than others. The amygdala in the brain associates emotions like fear with certain situations.



- monkeys learn fear while watching a monkey afraid of a snake
- but don't become afraid of a flower if the flower replaces the snake

- amygdala - regulates fear
- w/o it people unusually unafraid
- some people (criminals) naturally unfeared
- carried in genes

### Anger

Anger "carries the mind away," (Virgil, 70-19 B.C.), but "makes any coward brave," (Cato 234-149 B.C.).



- calm down
  - reconciliant
  - nonaccusatory statement
  - forgiveness
- what works

### Causes of Anger

1. People generally become angry with friends and loved ones who commit wrongdoings, especially if they are willful, unjustified, and avoidable.
2. People are also angered by foul odors, high temperatures, traffic jams, and aches and pains.

- sometimes becomes maladaptive
- primes prejudice
- chronic anger → heart disease
- Western cultures: vent anger
- group societies: emotion is diffused as a group

### Catharsis Hypothesis

Venting anger through action or fantasy achieves an emotional release or "catharsis."

cleansing; cleaning

Expressing anger breeds more anger, and through reinforcement it is habit-forming.

- sometimes helps if against power, if retaliation seems justified + target not intimidating
- may ↑ anger + escalate situation
- habit forming

### Cultural & Gender Differences

1. Boys respond to anger by moving away from that situation, while girls talk to their friends or listen to music.
2. Anger breeds prejudice. The 9/11 attacks led to an intolerance towards immigrants and Muslims.
3. The expression of anger is more encouraged in cultures that do not promote group behavior than in cultures that do promote group behavior.



### Happiness

People who are happy perceive the world as being safer. They are able to make decisions easily, are more cooperative, rate job applicants more favorably, and live healthier, energized, and more satisfied lives.



- happy = healthy
- everyone desires it
- let your mood brighten

### Feel-Good, Do-Good Phenomenon

When we feel happy we are more willing to help others.



feel-good, do-good

### Subjective Well-Being

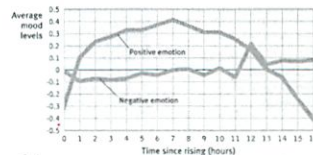
Subjective well-being is the self-perceived feeling of happiness or satisfaction with life. Research on new positive psychology is on the rise.



- find what makes you happy in long-run
- positive psychology

### Emotional Ups and Downs

Our positive moods rise to a maximum within 6-7 hours after waking up. Negative moods stay more or less the same throughout the day.



- the next day the gloom almost always lifts
- get over bad into (HIV) and feel good again
- even people sick in hospital or paralyzed

### Emotional Ups and Downs

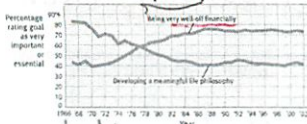
Over the long run, our emotional ups and downs tend to balance. Although grave diseases can bring individuals emotionally down, most people adapt.





### Wealth and Well-being

Many people in the West believe that if they were wealthier, they would be happier. However, data suggests that they would only be happy temporarily.



long term; lotto winners just as happy as anyone  
rich people are somewhat more happy than poor people

### Wealth and Well-being

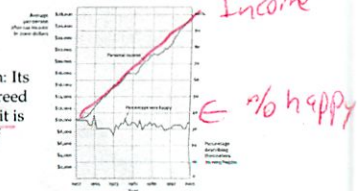
- In affluent societies, people with more money are happier than people who struggle for their basic needs.
- People in rich countries are happier than people in poor countries.
- A sudden rise in financial conditions makes people happy.

However, people who live in poverty or in slums are also satisfied with their life.

- losses have a greater effect
- more \$ has no long term effects
- some wealthy people more unhappy

### Does Money Buy Happiness?

Wealth is like health: Its utter absence can breed misery, yet having it is no guarantee of happiness.



- takes work to stay at same wealth level
- children of wealthy people more at risk for depression & substance abuse

### Happiness & Satisfaction

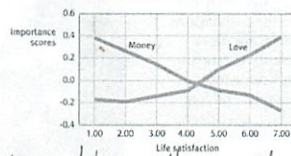
Subjective well-being (happiness + satisfaction) measured in 82 countries shows Puerto Rico and Mexico (poorer countries) at the top of the list.

The Top 10	The Bottom 10
1. Puerto Rico	73. Bulgaria
2. Mexico	74. Belarus
3. Denmark	75. Georgia
4. Ireland	76. Romania
5. Iceland	77. Moldova
6. Switzerland	78. Russia
7. Northern Ireland	79. Armenia
8. Colombia	80. Ukraine
9. Netherlands	81. Zimbabwe
10. Canada	82. Indonesia

15, USA

### Values & Life Satisfaction

Students who value love more than money report higher life satisfaction.



- wanting \$ makes you unhappy
- might be more important to emphasize conservation happiness

### Happiness & Prior Experience

Adaptation-Level Phenomenon: Like the adaptation to brightness, volume, and touch, people adapt to income levels. "Satisfaction has a short half-life" (Ryan, 1999).

- people adapt
- judge stimuli relative to previous levels
- when income ↑, we feel a surge of pleasure and then adapt to that
- could never be in utopia - adapt to it

### Happiness & Others' Attainments

Happiness is not only relative to our past, but also to our comparisons with others. Relative Deprivation is the perception that we are relatively worse off than those we compare ourselves with.

- compare myself to others
- makes other people unhappy if feelings exceed attainable
- compare themselves to people above themselves

### Predictors of Happiness

Why are some people generally more happy than others?

Researchers Have Found That Happy People Tend To:	However, Happiness Seems Not Much Related To Other Factors, Such As:
Have high self-esteem (in individualistic countries).	Age.
Be optimistic, outgoing, and agreeable.	Gender (women are more often depressed, but also more often joyful).
Have close friendships or a satisfying marriage.	Education levels.
Have work and leisure that engage their skills.	Parenthood (having children or not).
Have a meaningful religious faith.	Physical attractiveness.
Sleep well and exercise.	

- self esteem needed in Western countries
- genes matter too
- people born w/ "happiness set point"

# Chap 15

## On your Own

5/26

### PSYCHOLOGY

(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University



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### Personality

#### Chapter 15

### Personality

#### The Psychoanalytic Perspective

- Exploring the Unconscious
- Exploring the Neo-Freudian and Psychodynamic Theories
- Assessing Unconscious Processes
- Evaluating the Psychoanalytic Perspective

### Personality

#### The Humanistic Perspective

- Abraham Maslow's Self-Actualizing Person
- Carl Roger's Person-Centered Perspective
- An Assessment of the Self
- An Evaluation of the Humanistic Perspective

### Personality

#### The Trait Perspective

- Exploring Traits
- Assessing Traits
- Describing The Big Five Factors
- Evaluating the Trait Perspective

### Personality

#### The Social-Cognitive Perspective

- Reciprocal Influences
- Personal Control
- Internal Versus External Locus of Control
- Learned Helplessness Versus Personal Control

### Personality

#### The Social-Cognitive Perspective

- Evaluating Optimism Versus Pessimism
- Assessing Behavior in Situations
- Evaluating the Social-Cognitive Perspective

### Personality

#### Exploring the Self

- Benefits of Self-Esteem
- Culture and Self-Esteem
- Self-Serving Bias

### Personality

An individual's characteristic pattern of thinking, feeling, and acting.



Bashful Happy Dopey  
Sleepy Grumpy Doc Sleepy

Each dwarf has a distinct personality.

analyses of basic dimensions -  
interactions of persons + environments  
Studies of self-esteem, self-serving bias  
cultural influences on one's self



### Psychodynamic Perspective

In his clinical practice, Freud encountered patients suffering from nervous disorders. Their complaints could not be explained in terms of purely physical causes.



Sigmund Freud (1856-1939)

### Psychodynamic Perspective

Freud's clinical experience led him to develop the first comprehensive theory of personality, which included the unconscious mind, psychosexual stages, and defense mechanisms.



Sigmund Freud (1856-1939)

### Exploring the Unconscious

A reservoir (unconscious mind) of mostly unacceptable thoughts, wishes, feelings, and memories. Freud asked patients to say whatever came to their minds (free association) in order to tap the unconscious.



- love him or hate him  
- recognisable  
- much of our understanding has now changed

- line of mental dominos fell from patients past  
- also slips of the tongue reveal

### Dream Analysis

Another method to analyze the unconscious mind is through interpreting manifest and latent contents of dreams.



The Nightmare, Henry Fuseli (1791)

### Psychoanalysis

The process of free association (chain of thoughts) leads to painful, embarrassing unconscious memories. Once these memories are retrieved and released (treatment: psychoanalysis) the patient feels better.



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### Model of Mind

The mind is like an iceberg. It is mostly hidden, and below the surface lies the unconscious mind. The preconscious stores temporary memories.



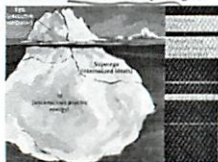
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Unconscious

- we repress items to unsettling to acknowledge

### Personality Structure

Personality develops as a result of our efforts to resolve conflicts between our biological impulses (id) and social restraints (superego).



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ego mediates

### Id, Ego and Superego

The Id unconsciously strives to satisfy basic sexual and aggressive drives, operating on the pleasure principle, demanding immediate gratification.

The ego functions as the "executive" and mediates the demands of the id and superego.

The superego provides standards for judgment (the conscience) and for future aspirations.

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### Personality Development

Freud believed that personality formed during the first few years of life divided into psychosexual stages. During these stages the id's pleasure-seeking energies focus on pleasure sensitive body areas called erogenous zones.

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\* today we agree with Freud's importance of childhood + Unconscious - but not sexual-driven nature - or ego/superego/id

### Psychosexual Stages

Freud divided the development of personality into five psychosexual stages.

Stage	Focus
Oral (0-18 months)	Pleasure centers on the mouth - sucking, biting, chewing
Anal (18-36 months)	Pleasure focuses on bowel and bladder elimination, coping with demands for control
Phallic (3-6 years)	Pleasure zone is the genitals; coping with incestuous sexual feelings
Latency (6 to puberty)	Dormant sexual feelings
Genital (puberty on)	Maturation of sexual interests

E seek mother

anyone could become stuck or fixate on one of the stages

### Oedipus Complex

A boy's sexual desire for his mother and feelings of jealousy and hatred for the rival father. A girl's desire for her father is called the Electra complex.

### Identification

Children cope with threatening feelings by repressing them and by identifying with the rival parent. Through this process of identification, their superego gains strength that incorporates their parents' values.



if you can't beat 'em - join 'em

### Defense Mechanisms

The ego's protective methods of reducing anxiety by unconsciously distorting reality.

1. Repression banishes anxiety-arousing thoughts, feelings, and memories from consciousness.
2. Regression leads an individual faced with anxiety to retreat to a more infantile psychosexual stage.

### Defense Mechanisms

3. Reaction Formation causes the ego to unconsciously switch unacceptable impulses into their opposites. People may express feelings of purity when they may be suffering anxiety from unconscious feelings about sex.
4. Projection leads people to disguise their own threatening impulses by attributing them to others.

switches

### Defense Mechanisms

5. Rationalization offers self-justifying explanations in place of the real, more threatening, unconscious reasons for one's actions.
6. Displacement shifts sexual or aggressive impulses toward a more acceptable or less threatening object or person, redirecting anger toward a safer outlet.

Ego unconsciously defends against anxiety

disciples - turned - dissenters

### The Neo-Freudians

Jung believed in the collective unconscious, which contained a common reservoir of images derived from our species' past. This is why many cultures share certain myths and images such as the mother being a symbol of nurturance.



Carl Jung (1875-1961)

### The Neo-Freudians

Like Freud, Adler believed in childhood tensions. However, these tensions were social in nature and not sexual. A child struggles with an inferiority complex during growth and strives for superiority and power.



Alfred Adler (1870-1937)

### The Neo-Freudians

Like Adler, Horney believed in the social aspects of childhood growth and development. She countered Freud's assumption that women have weak superegos and suffer from "penis envy."



Karen Horney (1885-1952)

- shared images  
 ↑ psychologists now dispute  
 ↑ inferiority complex  
 social not sexual tensions in childhood  
 ↑ anxiety from a child's hopelessness



"What do you see?"

### Assessing Unconscious Processes

Evaluating personality from an unconscious mind's perspective would require a psychological instrument (projective tests) that would reveal the hidden unconscious mind.

Different for different theories

Projective tests - asked to interpret a picture or abstract stimulus

### Thematic Apperception Test (TAT)

Developed by Henry Murray, the TAT is a projective test in which people express their inner feelings and interests through the stories they make up about ambiguous scenes.



### Rorschach Inkblot Test

The most widely used projective test uses a set of 10 inkblots and was designed by Hermann Rorschach. It seeks to identify people's inner feelings by analyzing their interpretations of the blots.



- no agreed upon way to score/interpret it  
- more of a conversation starter  
- some areas have been found valid

### Projective Tests: Criticisms

Critics argue that projective tests lack both reliability (consistency of results) and validity (predicting what it is supposed to).

1. When evaluating the same patient, even trained raters come up with different interpretations (reliability).
2. Projective tests may misdiagnose a normal individual as pathological (validity).

### Evaluating the Psychoanalytic Perspective

Modern Research

1. Personality develops throughout life and is not fixed in childhood.
2. Freud underestimated peer influence on the individual, which may be as powerful as parental influence.
3. Gender identity may develop before 5-6 years of age.

and without a same sex parent present

### Evaluating the Psychoanalytic Perspective

Modern Research

4. There may be other reasons for dreams besides wish fulfillment.
5. Verbal slips can be explained on the basis of cognitive processing of verbal choices.
6. Suppressed sexuality leads to psychological disorders. Sexual inhibition has decreased, but psychological disorders have not.

### Repression

#### Evaluating the Psychoanalytic Perspective

Freud's psychoanalytic theory rests on the repression of painful experiences into the unconscious mind.

The majority of children, death camp survivors, and battle-scarred veterans are unable to repress painful experiences into their unconscious mind.

repression is a care response most

- Holocaust survivors remember the events + can retell them

### Unconscious Mind

#### Evaluating the Psychoanalytic Perspective

Freud was right about the unconscious mind. Modern research shows the existence of unconscious information processing.

1. Schemas that automatically control perceptions and interpretations
2. Parallel processing during vision and thinking
3. Implicit memories
4. Emotions that activate instantly without consciousness

was correct somewhat but ideas very different today

stress enhances memory

- but does scroo the soul.

- fails to predict  
some say it is not supposed to  
- still survive in pop culture

#### Evaluating the Psychoanalytic Perspective

The scientific merits of Freud's theory have been criticized. Psychoanalysis is meagerly testable. Most of its concepts arise out of clinical practice, which are the after-the-fact explanation.

Motivated not by seething impulses

### terror-management theory -

faith in one's worldview + self esteem protects against fear of death + relationships w/ loved ones

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### Humanistic Perspective

By the 1960s, psychologists became discontent with Freud's negativity and the mechanistic psychology of the behaviorists.



Abraham Maslow (1908-1970)

Carl Rogers (1902-1987)

- healthy people focus on self-determination + self-realization
- 3rd force perspective
- human potential

### Assessing the Self

In an effort to assess personality, Rogers asked people to describe themselves as they would like to be (ideal) and as they actually are (real). If the two descriptions were close the individual had a positive self-concept.

All of our thoughts and feelings about ourselves, in an answer to the question, "Who am I?" refers to Self-Concept.

- Self-concept "Who am I" - don't like assessments
- when ideal = real → people 😊 - people now rate having good self image very important
- or is Maslow's self actualized just his particular views
- does not consider the evil

### Personality Type

Personality types, assessed by measures like the Myers-Briggs Type Indicator, consist of a number of traits. For example, a feeling type personality is sympathetic, appreciative, and tactful.



Feeling Type Personality

- feelings or thinker
- both are presented as strengths
- many accept results
- but results unproven

### Self-Actualizing Person

Maslow proposed that we as individuals are motivated by a hierarchy of needs. Beginning with physiological needs, we try to reach the state of self-actualization—fulfilling our potential.



- self-aware
- self accepting
- open + spontaneous
- loving + caring
- not paralyzed by other's opinions of them

### Evaluating the Humanistic Perspective

1. Humanistic psychology has a pervasive impact on counseling, education, child-rearing, and management.
2. Concepts in humanistic psychology are vague and subjective and lack scientific basis.
3. Gender identity may develop before 5-6 years of age.

### Exploring Traits

Factor analysis is a statistical approach used to describe and relate personality traits.

Cattell used this approach to develop a 16 Personality Factor (16PF) inventory.



Raymond Cattell (1905-1998)

- 18,000 words can describe people

### Growth and Fulfillment

Carl Rogers also believed in an individual's self-actualization tendencies. He said that Unconditional Positive Regard is an attitude of acceptance of others despite their failings.



- being genuine
- accepting - unconditional
- positive regard
- emphatic

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### The Trait Perspective

An individual's unique constellation of durable dispositions and consistent ways of behaving (traits) constitutes his or her personality.

#### Examples of Traits

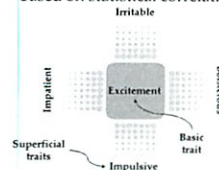
- Honest
- Dependable
- Moody
- Impulsive

Allport & Odbert (1936), identified 18,000 words representing traits.

- \* stable + enduring behaviors
- found: self reporting + peer surveys

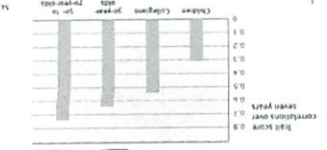
### Factor Analysis

Cattell found that large groups of traits could be reduced down to 16 core personality traits based on statistical correlations.





- but behavior is not constant  
 - tests labels doesn't really predict  
 - stabilize over time  
 - dependent?



Trait theorists argue that behaviors from a situation may be different, but average behavior remains the same. Therefore, traits matter.

The Person-Situation Controversy

Constant or Situation dependent?

Walter Mischel (1968, 1984, 2004) points out that traits may be enduring, but the resulting behavior in various situations is different. Therefore, traits are not good predictors of behavior.

Evaluating the Trait Perspective  
 Life Stage The Person-Situation Controversy

1. How stable are these traits?
  - Quite stable in adulthood. However, they change over development.
2. How heritable are they?
  - Fifty percent or so for each trait.
3. How about other cultures?
  - These traits are common across cultures.
4. Can they predict other personal attributes?
  - Yes. Conscientious people are morning type and extraverts are evening type.

Questions about the Big Five

Openness to Experience (O)	Conscientiousness (C)	Agreeableness (A)	Neuroticism (N)	Extraversion (E)
Imagination	Order	Trust	Worry	Assertiveness
Artistic interests	Dependability	Altruism	Self-consciousness	Social dominance
Intellectual curiosity	Self-discipline	Compassion	Sensitivity to stress	Warmth
Aesthetic appreciation	Organization	Interpersonal warmth	Emotional stability	Excitement-seeking
Openness to new experiences	Responsibility	Forgiveness	Stress sensitivity	Energy
Intellectual	Self-reliance	Non-judgmental	Stress tolerance	Activity
Artistic	Orderly	Helpful	Stress proneness	Assertiveness
Intellectual	Self-reliant	Non-judgmental	Stress proneness	Assertiveness
Artistic	Orderly	Helpful	Stress proneness	Assertiveness

Endpoints

- focuses more on abnormal - empirically divided - tests  
 - scored very objectively - some people fake - but can tell

The MMPI was developed by empirically testing a pool of items and then selecting those that discriminated between diagnostic groups.

MMPI

Today's trait researchers believe that Eysenck's personality dimensions are too narrow and Cattell's 16PF too large. So, a middle range (five factors) of traits does a better job of assessment.



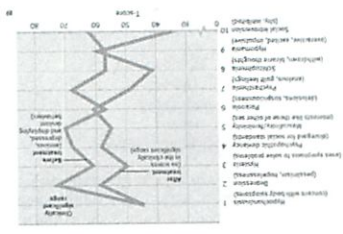
The Big Five Factors

5 Dimensions

Personality inventories are questionnaires designed to gauge a wide range of feelings and behaviors assessing several traits at once.

Assessing Traits

- astrology - doesn't work - uses "generic" predictions which apply to almost everyone "Barnum effect"  
 - pay attention to clothes + mannerisms



MMPI Test Profile

- Extraverts - brain activity normally low  
 - gives control temperament  
 - even some birds are more bold than others



Hans and Sybil Eysenck suggested that personality could be reduced down to two polar dimensions, extraversion-introversion and emotional stability-instability.

Personality Dimensions

The Person-Situation Controversy

Traits are socially significant and influence our health, thinking, and performance (Gosling et al., 2000).



Samuel Gosling

Heatness relates to one's openness to new experiences  
 Personal websites show one's extraversion, conscientiousness + openness to experiences

Reciprocal Influences

The three factors, behavior, cognition, and environment, are interlocking determinants of each other.



choose your environment + it shapes you

Consistency of Expressive Style

Expressive styles in speaking and gestures demonstrate trait consistency.

Observers are able to judge people's behavior and feelings in as little as 30 seconds and in one particular case as little as 2 seconds.

- more restrained in new + unfamiliar settings  
 - hide our traits + personality  
 - show traits more in informal setting w/ friends  
 - can read people by watching 6 sec of them  
 - tone of voice

Individuals & Environments

Specific ways in which individuals and environments interact

Different people choose different environments.

Our personalities shape how we react to events.

Our personalities shape situations.

The school you attend and the music you listen to are partly based on your dispositions.

Anxious people react to situations differently than calm people.

How we view and treat people influences how they treat us.

Social-Cognitive Perspective

Bandura (1986, 2001, 2005) believes that personality is the result of an interaction that takes place between a person and their social context.



Albert Bandura

model others + think of actions interaction

- hard to take  
 - judge people quickly  
 - depends on where see them

Behavior

Behavior emerges from an interplay of external and internal influences.



↓ "ignorance is one's own incompotence"  
 ↓ still some don't take precautions  
 ↓ but some pessimism motivates you

Personal Control

Social-cognitive psychologists emphasize our sense of personal control, whether we control the environment or the environment controls us.

External locus of control refers to the perception that chance or outside forces beyond our personal control determine our fate.

Internal locus of control refers to the perception that we can control our own fate.

internals - do better in school, more individualistic, less depressed, delay gratification, deal w/ social problems  
 ↑ self control helps very much ← depletes energy

Learned Helplessness

When unable to avoid repeated adverse events an animal or human learns helplessness.



feel helpless  
 if you are helpless for some time then if you can do something - you won't

Optimism vs. Pessimism

An optimistic or pessimistic attributional style is your way of explaining positive or negative events.

Ⓜ much better

Positive psychology aims to discover and promote conditions that enable individuals and communities to thrive.

perhaps too much choice bad  
 - if have too many options  
 - tyranny of choice  
 E-democracy  
 ? give people control in prisons + offices - ↑ morale



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### Assessing Behavior in Situations

Social-cognitive psychologists observe people in realistic and simulated situations because they find that it is the best way to predict the behavior of others in similar situations.

- spy missions
- managers
- police + fire fighters
- similar situations

### Evaluating the Social-Cognitive Perspective

Critics say that social-cognitive psychologists pay a lot of attention to the situation and pay less attention to the individual, his unconscious mind, his emotions, and his genetics.

- do traits play a larger role

### Positive Psychology and Humanistic Psychology

Positive psychology, such as humanistic psychology, attempts to foster human fulfillment. Positive psychology, in addition, seeks positive subjective well-being, positive character, and positive social groups.



Martin Seligman

### Exploring the Self

Research on the self has a long history because the self organizes thinking, feelings, and actions and is a critical part of our personality.

1. Research focuses on the different selves we possess. Some we dream and others we dread.
2. Research studies how we overestimate our concern that others evaluate our appearance, performance, and blunders (spotlight effect).
3. Research studies the self-reference effect in recall.

- also selves put forward  
 - and visions of future selves  
 \* fewer people notice problems we have with ourselves

### Benefits of Self-Esteem

Maslow and Rogers argued that a successful life results from a healthy self-image (self-esteem). The following are two reasons why low self-esteem results in personal problems.

1. When self-esteem is deflated, we view ourselves and others critically.
2. Low self-esteem reflects reality, our failure in meeting challenges, or surmounting difficulties.

- remember things better if relate it to ourselves  
 - happier  
 - or perhaps doing good > feeling good

### Culture & Self-Esteem

	Individualism	Collectivism
Example	United States	Japan
Self	Independent	Interdependent
Identity	Identity from individual traits	Identity from belonging
Life task	Discover and express one's uniqueness	Maintain consensus, fit in
What matters	Accomplishment and achievement, rights and liberties, self-esteem	Group goals and solidarity, social harmonization and consensus
Coating method	Change reality	Accommodate to reality
Honesty	Deflect or misdirect (self-denial)	Follow by social consensus (face-saving)
Relationships	Being often temporary or casual, contractual, negotiable	For, them, and enduring, far more solid
Attributing behavior	Behavior reflects one's personality and abilities	Behavior reflects social norms and roles

People maintain their self-esteem even with a low status by valuing things they achieve and comparing themselves to people with similar positions.

Certain groups do not have self-esteem

### Self-Serving Bias

We accept responsibility for good deeds and successes more than for bad deeds and failures. Defensive self-esteem is fragile and egotistic whereas secure self-esteem is less fragile and less dependent on external evaluation.

most see themselves as better than average  
 justify our faults positively  
 think our team is the best  
 under estimate our problems + over estimate our strengths  
 put our selves (in the past) down strategically

# Chap 16

5/5  
5/6



PSYCHOLOGY  
(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

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## Psychological Disorders

### Chapter 16

#### Psychological Disorders Perspectives on Psychological Disorders

- Defining Psychological Disorders
- Understanding Psychological Disorders
- Classifying Psychological Disorders
- Labeling Psychological Disorders

#### Psychological Disorders

##### Anxiety Disorders

- Generalized Anxiety Disorder and Panic Disorder
- Phobias
- Obsessive-Compulsive Disorders
- Post-Traumatic Stress Disorders
- Anxiety Disorder Explanation

#### Psychological Disorders

##### Mood Disorders

- Major Depressive Disorders
- Bipolar Disorder
- Mood Disorder Explanation

##### Schizophrenia

- Symptoms of Schizophrenia
- Subtypes of Schizophrenia

#### Psychological Disorders

##### Schizophrenia

- Understanding Schizophrenia

##### Personality Disorders

##### Rates of Psychological Disorders

Society determines norms & what's normal  
- changes over time  
Our society: be individual  
- that fits in

#### Psychological Disorders

I felt the need to clean my room ... spent four to five hour at it ... At the time I loved it but then didn't want to do it any more, but could not stop ... The clothes hung ... two fingers apart ... I touched my bedroom wall before leaving the house ... I had constant anxiety ... I thought I might be nuts.

Marc, diagnosed with obsessive-compulsive disorder (from Summers, 1996)

#### Psychological Disorders

People are fascinated by the exceptional, the unusual, and the abnormal. This fascination may be caused by two reasons:

1. During various moments we feel, think, and act like an abnormal individual.
2. Psychological disorders may bring unexplained physical symptoms, irrational fears, and suicidal thoughts.

- know friends affected by this

#### Psychological Disorders

To study the abnormal is the best way of understanding the normal.

William James (1842-1910)

1. There are 450 million people suffering from psychological disorders (WHO, 2004).
2. Depression and schizophrenia exist in all cultures of the world.



Some think can fix problems with drugs

### Defining Psychological Disorders

Mental health workers view psychological disorders as persistently harmful thoughts, feelings, and actions.

When behavior is deviant, distressful, and dysfunctional psychiatrists and psychologists label it as disordered (Comer, 2004).

deviant from social norms of a culture

- homosexuality was viewed as a problem for some time

### Deviant, Distressful & Dysfunctional

1. Deviant behavior (going naked) in one culture may be considered normal, while in others it may lead to arrest.
2. Deviant behavior must accompany distress.
3. If a behavior is dysfunctional it is clearly a disorder.



In the Wodaabe tribe men wear costumes to attract women. In Western society this would be considered abnormal.

does it disrupt your life - can't function

interferes w/ life  
could also be dangerous

### Understanding Psychological Disorders

Ancient Treatments of psychological disorders include trephination, exorcism, being caged like animals, being beaten, burned, castrated, mutilated, or transfused with animal's blood.



Trephination (boring holes in the skull to remove evil forces)

"devel made me do it"  
- demon inside

everyone has blues sometimes but sometimes it intertears w/ life

### Medical Perspective

Philippe Pinel (1745-1826) from France, insisted that madness was not due to demonic possession, but an ailment of the mind.



Dance in the madhouse.

tried moral treatments

### Medical Model

When physicians discovered that syphilis led to mental disorders, they started using medical models to review the physical causes of these disorders.

1. Etiology: Cause and development of the disorder.
2. Diagnosis: Identifying (symptoms) and distinguishing one disease from another.
3. Treatment: Treating a disorder in a psychiatric hospital.
4. Prognosis: Forecast about the disorder.

gained credibility in 1800s

### Biopsychosocial Perspective

Assumes that biological, socio-cultural, and psychological factors combine and interact to produce psychological disorders.



- all behavior comes from nature + nurture  
- no 1 problem to 'solve'  
- some problems in 1 culture others in all cultures

### Classifying Psychological Disorders

The American Psychiatric Association rendered a Diagnostic and Statistical Manual of Mental Disorders (DSM) to describe psychological disorders.

The most recent edition, DSM-IV-TR (Text Revision, 2000), describes 400 psychological disorders compared to 60 in the 1950s.

- ask objective qu to get diagnosis  
- 83% doctors agreed

### Multiaxial Classification

Axis I	Is a <i>Clinical Syndrome</i> (cognitive, anxiety, mood disorders [16 syndromes]) present?
Axis II	Is a <i>Personality Disorder</i> or <i>Mental Retardation</i> present?
Axis III	Is a <i>General Medical Condition</i> (diabetes, hypertension or arthritis etc) also present?
Axis IV	Are <i>Psychosocial or Environmental Problems</i> (school or housing issues) also present?
Axis V	What is the <i>Global Assessment</i> of the person's functioning?

= diagnosis

"Bible of Psychology" = classifying only - not solving

### Multiaxial Classification

Note 16 syndromes in Axis I

Axis I is a *Clinical Syndrome* present? Using specifically defined criteria, clinicians may select one, one, or more syndromes from the following list.

- Disorders usually first diagnosed in infancy, childhood, and adolescence
- Delirium, dementia, amnesia, and other cognitive disorders
- Mental disorders due to a general medical condition
- Substance-related disorders (Chapter 2)
- Schizophrenia and other psychotic disorders (page 444)
- Mood disorders (page 435)
- Anxiety disorders (page 444)
- Somatoform disorders
- Factitious disorders (intentionally feigned)
- Dissociative disorders (page 454)
- Eating disorders (Chapter 2)
- Sexual disorders and gender identity disorder
- Sleep disorders (Chapter 2)
- Impulse-control disorders not classified elsewhere
- Adjustment disorders
- Other conditions that may be a focus of clinical attention

could be caused by general medical condition

\*fear what can't control  
- have to be in charge  
5/7

### Multiaxial Classification

#### Note Global Assessment for Axis V

Axis II: Is a Personality Disorder (See 440) or Mental Retardation (See Chapter 12) present? Clinicians may or may not also select one of these two conditions.  
Axis III: Is a General Medical Condition, such as diabetes, hypertension, or arthritis, also present?  
Axis IV: Are Psychosocial or Environmental Problems, such as school or housing issues, also present?  
Axis V: What is the Global Assessment of this person's functioning?  
Clinicians assign a score from 0-100. For example:  
90-100 Superior functioning in a wide range of activities; life's problems never seem to get out of hand; is sought out by others because of his or her many positive qualities. No symptoms.  
70-80 Moderate symptoms (for example, the effect of occasional panic attacks) or moderate difficulty in social, occupational, or school functioning (for example, few friends, or conflicts with peers or coworkers).  
50-60 Persistent danger of harming self or others (for example, recurrent suicidal or persistent liability to maintain minimal personal hygiene or serious suicidal act with clear expectation of death).

### Goals of DSM

1. Describe (400) disorders.
2. Determine how prevalent the disorder is.

Disorders outlined by DSM-IV are reliable. Therefore, diagnoses by different professionals are similar.

Others criticize DSM-IV for "putting any kind of behavior within the compass of psychiatry."

E-normal

### Labeling Psychological Disorders

1. Critics of the DSM-IV argue that labels may stigmatize individuals.



Asylum baseball team (labeling)

- arbitrary + value judgements  
- researchers made up complaints + were diagnosed

### Labeling Psychological Disorders

2. Labels may be helpful for healthcare professionals when communicating with one another and establishing therapy.

- influenced people's thoughts about the taped interview "it told was" job interview vs psyc evaluation  
- thought "Asylum" baseball players looked weird - were staff members

### Labeling Psychological Disorders

3. "Insanity" labels raise moral and ethical questions about how society should treat people who have disorders and have committed crimes.



Theodore Kaczynski (Unabomber)

all (are) anxiety normally not intense + persistent  
- 16% of people in jail have psyc problems  
- lots of people plead defense  
- people don't want to rent out rooms  
- bad stereotypes in movies

### Anxiety Disorders

Feelings of excessive apprehension and anxiety.

1. Generalized anxiety disorders → GAD
2. Phobias
3. Panic disorders
4. Obsessive-compulsive disorders

- actually little threat of violence (if stay off drugs)  
- people treat people according to their labels  
Phobia

### Generalized Anxiety Disorder

#### Symptoms

1. Persistent and uncontrollable tenseness and apprehension.
2. Autonomic arousal.
3. Inability to identify or avoid the cause of certain feelings.

tension  
hard to concentrate  
"free floating"  
often w/ depression  
possibly physical problems

Sudden

### Panic Disorder

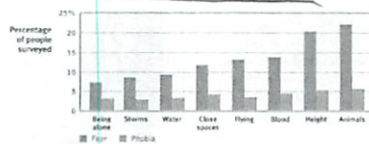
#### Symptoms

Minute-long episodes of intense dread which may include feelings of terror, chest pains, choking, or other frightening sensations.

Anxiety is a component of both disorders. It occurs more in the panic disorder, making people avoid situations that cause it.

ritual  
- strikes suddenly + hard  
- ends in ~10 min  
- people fear it  
- agoraphobia - fear of situations where can't escape - elevator, social situations

Marked by a persistent and irrational fear of an object or situation that disrupts behavior.



- Compelling but irrational desires  
- avoid stimulus that arouse fear  
- social phobia too



## Kinds of Phobias

Agoraphobia	Phobia of open places.
Acrophobia	Phobia of heights.
Claustrophobia	Phobia of closed spaces.
Hemophobia	Phobia of blood.

Obsession - repetitive thoughts

Compulsions - repetitive behaviors

## Post-Traumatic Stress Disorder

Four or more weeks of the following symptoms constitute post-traumatic stress disorder (PTSD):

1. Haunting memories
2. Nightmares
3. Social withdrawal
4. Jumpy anxiety
5. Sleep problems



Flashbacks causing fear  
 - military, accidents, prostitutes  
 - Sex-assault victims, 9/11  
 - ↓ sense of basic trust  
 - some think calling it trauma is over blown

## The Learning Perspective

Learning theorists suggest that fear conditioning leads to anxiety. This anxiety then becomes associated with other objects or events (stimulus generalization) and is reinforced.



- unpredictably + uncontrollably  
 - linked w/ general fear

## Obsessive-Compulsive Disorder

Persistence of unwanted thoughts (obsessions) and urges to engage in senseless rituals (compulsions) that cause distress.

### COMMON OBSESSIONS AND COMPULSIONS AMONG CHILDREN AND ADOLESCENTS WITH OBSSIVE-COMPULSIVE DISORDER

Thought or Behavior	Percentage Reporting Symptom
Obsessions (unwanted thoughts)	
Concerns with dirt, germs, or toxins	68
Something terrible happening (fire, death, illness)	24
Symmetry, order, or exactness	17
Compulsions (repetitive behaviors)	
Excessive hand washing, bathing, tooth brushing, or grooming	85
Repeating rituals (in/out of a door, up/down from a chair)	54
Checking doors, locks, appliances, car brakes, homework	44

- checking something 10x  
 - mostly in teens + young adults  
 - lessens w/ age  
 - ritual

## Resilience to PTSD

Only about 10% of women and 20% of men react to traumatic situations and develop PTSD.  
 - even though live through event  
 Holocaust survivors show remarkable resilience against traumatic situations.

All major religions of the world suggest that surviving a trauma leads to the growth of an individual.

- may make you stronger  
 - religions say it makes you stronger

- Post survivor's guilt

## The Learning Perspective

Investigators believe that fear responses are inculcated through observational learning. Young monkeys develop fear when they watch other monkeys who are afraid of snakes.

- stimulus generalization - extending stimulus  
 - avoiding stimulus ↓ anxiety - but reinforces fear  
 - sharp ↑ in college students over 50 years

## Brain Imaging

A PET scan of the brain of a person with Obsessive-Compulsive Disorder (OCD). High metabolic activity (red) in the frontal lobe areas are involved with directing attention.



Brain image of an OCD

## Explaining Anxiety Disorders

Freud suggested that we repress our painful and intolerable ideas, feelings, and thoughts, resulting in anxiety.

bike riding - if you fall as little kid

## The Biological Perspective

Natural Selection has led our ancestors to learn to fear snakes, spiders, and other animals. Therefore, fear preserves the species.

Twin studies suggest that our genes may be partly responsible for developing fears and anxiety. Twins are more likely to share phobias.

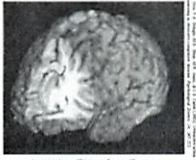
self-persuasion  
 - did not adapt to fear air bombing raids  
 - runs in families  
 - identical twins get similar phobias

# GID - Gender Identity disorder

5/7 - sometimes one personality tries to kill the body

## The Biological Perspective

Generalized anxiety, panic attacks, and even OCD are linked with brain circuits like the anterior cingulate cortex.



Anterior Cingulate Cortex of an OCD patient.

? impulse + habits

? checks for problems

fear creates fear pathways

## Dissociative Disorder

Conscious awareness becomes separated (dissociated) from previous memories, thoughts, and feelings.

### Symptoms

1. Having a sense of being unreal.
2. Being separated from the body.
3. Watching yourself as if in a movie.

- some skeptics

- sudden loss of memory or change in identity

- many have mild "out of body" experiences

- helps saved from overwhelming emotions

- sometimes unaware of the other - others talk to each other

### Mood Disorders

Emotional extremes of mood disorders come in two principal forms.

1. Major depressive disorder
2. Bipolar disorder

Only in America

## Dissociative Identity Disorder (DID)

Is a disorder in which a person exhibits two or more distinct and alternating personalities, formerly called multiple personality disorder.



Chris Sizemore (DID)

- denies awareness of problem

- sometimes (rarely) other personality is violent

- sometimes different body states or handedness

## Major Depressive Disorder

Depression is the "common cold" of psychological disorders. In a year, 5.8% of men and 9.5% of women report depression worldwide (WHO, 2002).

Blue mood	Major Depressive Disorder
Gasping for air after a hard run	Chronic shortness of breath

- very pervasiveness  
 - don't feel like living  
 - where do normal downs end?  
 - our bodies way of realigning energy to increase survival

## DID Critics

Critics argue that the diagnosis of DID increased in the late 20<sup>th</sup> century. DID has not been found in other countries.

### Critics' Arguments

1. Role-playing by people open to a therapist's suggestion.
2. Learned response that reinforces reductions in anxiety.

- more extreme versions of ourselves?  
 - triggering fantasy?  
 - actors?  
 - less in other countries - but "possessed by evil spirits"  
 - or stress from abuse?

## Major Depressive Disorder

Major depressive disorder occurs when signs of depression last two weeks or more and are not caused by drugs or medical conditions.

### Signs include:

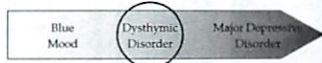
1. Lethargy and fatigue
2. Feelings of worthlessness
3. Loss of interest in family & friends
4. Loss of interest in activities

2 or more weeks

grief w/ Jet lag

## Dysthymic Disorder

Dysthymic disorder lies between a blue mood and major depressive disorder. It is a disorder characterized by daily depression lasting two years or more.



## Bipolar Disorder

Formerly called manic-depressive disorder. An alternation between depression and mania signals bipolar disorder.

Depressive Symptoms	Manic Symptoms
Gloomy	Elation
Withdrawn	Euphoria
Inability to make decisions	Desire for action
Tired	Hyperactive
Slowness of thought	Multiple ideas

hard to interrupt speech  
 ↓ sexual inhibition  
 optimism  
 self-esteem

- engineers suffer less than writers + creatives



## Bipolar Disorder

Many great writers, poets, and composers suffered from bipolar disorder. During their manic phase creativity surged, but not during their depressed phase.



- very productive 1 year  
- unproductive next year

- what goes up must come down (depression)

## Theory of Depression

- Depressive episodes self-terminate.
- Depression is increasing, especially in the teens.



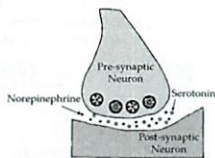
Post-partum depression

- preceded by stressful event  
3x - what was generations before  
- also people more likely to admit they have problem

## Neurotransmitters & Depression

A reduction of norepinephrine and serotonin has been found in depression.

Drugs that alleviate mania reduce norepinephrine.



Parosval →  
↑ nicotian

boosts e l h h

- Omega-3-fatty acids may ↓

## Explaining Mood Disorders

Since depression is so prevalent worldwide, investigators want to develop a theory of depression that will suggest ways to treat it.

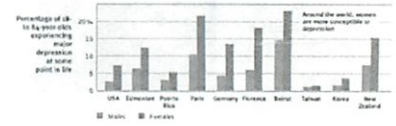
Lewinsohn et al., (1985, 1995) note that a theory of depression should explain the following:

- Behavioral and cognitive changes
- Common causes of depression

- half time express symptoms of another disease

## Theory of Depression

### 3. Gender differences

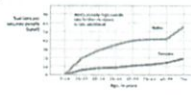


women 2x than men  
- varies w/ country

## Suicide

The most severe form of behavioral response to depression is suicide. Each year some 1 million people commit suicide worldwide.

- National differences
- Racial differences
- Gender differences
- Age differences
- Other differences



- whites 2x likely  
- women more likely to attempt  
- men more likely to succeed  
- more lethal attempt - worse it is  
- rich, nonreligious + single + gay more likely

- whole body disorder  
- rch in family

## Biological Perspective

Genetic Influences: Mood disorders run in families. The rate of depression is higher in identical (50%) than fraternal twins (20%).

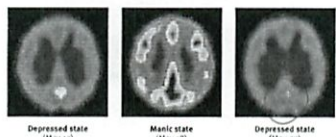
Linkage analysis and association studies link possible genes and dispositions for depression.



- attempts happen during rebound  
- alcohol addiction ↑ risk 100x  
- ? after TV programs  
- not always for revenge + hostility  
- few who think about it do it  
- most send signals

## The Depressed Brain

PET scans show that brain energy consumption rises and falls with manic and depressive episodes.



70% smaller frontal lobes than normal

## Social-Cognitive Perspective

The social-cognitive perspective suggests that depression arises partly from self-defeating beliefs and negative explanatory styles.



- more likely to feel depressed if you blame yourself  
- stable, global, internal  
- pessimism hurts  
- individualism ↓ hope to fall back on

## Depression Cycle

1. Negative stressful events.
2. Pessimistic explanatory style.
3. Hopeless depressed state.
4. These hamper the way the individual thinks and acts, fueling personal rejection.



Or that if depressed - will explain things negatively

- women tend to overthink
- people w/ depression at high risk for job loss
- rejection feeds itself & cycle

## Symptoms of Schizophrenia

The literal translation is "split mind." A group of severe disorders characterized by the following:

1. Disorganized and delusional thinking.
2. Disturbed perceptions.
3. Inappropriate emotions and actions.

- random speech
- delusions
- break down in selective

\* Attention stimuli distract them  
 ? like filtering out voices at a party

## Disturbed Perceptions

A schizophrenic person may perceive things that are not there (hallucinations). Frequently such hallucinations are auditory and lesser visual, somatosensory, olfactory, or gustatory.



- auditory - giving orders or making insulting statements
- unreal might seem real

## Inappropriate Emotions & Actions

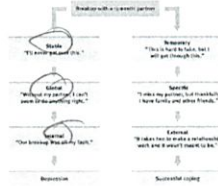
A schizophrenic person may laugh at the news of someone dying or show no emotion at all (apathy).

Patients with schizophrenia may continually rub an arm, rock a chair, or remain motionless for hours (catatonia).

- hard on social relationships + jobs
- private inner world
- some recover
- others need permanent hospital care

## Example

Stable  
Global  
Internal



Explanatory style plays a major role in becoming depressed.

9/8

## heavily researched Schizophrenia

If depression is the common cold of psychological disorders, schizophrenia is the cancer.

Nearly 1 in 100 suffer from schizophrenia, and throughout the world over 24 million people suffer from this disease (WHO, 2002).

Schizophrenia strikes young people as they mature into adults. It affects men and women equally, but men suffer from it more severely than women.

60% smoke

"mad as a hatter" eput mercury in mouths

\* split from reality

## Disorganized & Delusional Thinking

This morning when I was at Hillside [Hospital], I was making a movie. I was surrounded by movie stars ... I'm Mary Poppins. Is this room painted blue to get me upset? My grandmother died four weeks after my eighteenth birthday."

(Sheehan, 1982)

This monologue illustrates fragmented, bizarre thinking with distorted beliefs called delusions ("I'm Mary Poppins").

## Disorganized & Delusional Thinking

Many psychologists believe disorganized thoughts occur because of selective attention failure (fragmented and bizarre thoughts).

## Subtypes of Schizophrenia

Schizophrenia is a cluster of disorders. These subtypes share some features, but there are other symptoms that differentiate these subtypes.



### Positive and Negative Symptoms

Schizophrenics have inappropriate symptoms (hallucinations, disorganized thinking, deluded ways) that are not present in normal individuals (positive symptoms).

Schizophrenics also have an absence of appropriate symptoms (apathy, expressionless faces, rigid bodies) that are present in normal individuals (negative symptoms).

### Chronic and Acute Schizophrenia

When schizophrenia is slow to develop (chronic/process) recovery is doubtful. Such schizophrenics usually display negative symptoms.

When schizophrenia rapidly develops (acute/reactive) recovery is better. Such schizophrenics usually show positive symptoms.

*Withdraw*

### Subtypes

#### SUBTYPES OF SCHIZOPHRENIA

Paranoid:	Preoccupation with delusions or hallucinations, often with themes of persecution or grandiosity.
Disorganized:	Disorganized speech or behavior, or flat or inappropriate emotion.
Catatonic:	Stupor (or cataplexy), grossly motoric, extreme negativism, and/or waxy flexibility repeating of another's speech or movements.
Undifferentiated:	Many and varied symptoms.
Residual:	Withdrawal, after hallucinations and delusions have disappeared.

*Can develop fast or slow*

### Understanding Schizophrenia

Schizophrenia is a disease of the brain exhibited by the symptoms of the mind.

#### Brain Abnormalities

Dopamine Overactivity: Researchers found that schizophrenic patients express higher levels of dopamine D4 receptors in the brain.

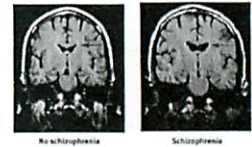
### Abnormal Brain Activity

Brain scans show abnormal activity in the frontal cortex, thalamus, and amygdala of schizophrenic patients. Adolescent schizophrenic patients also have brain lesions.



### Abnormal Brain Morphology

Schizophrenia patients may exhibit morphological changes in the brain like enlargement of fluid-filled ventricles.



- Cox dopamine receptors
- dopamine blockers help
- multiple areas

- Shrinking cerebral tissue
- becomes fluid filled
- low birth weight + famine are factors

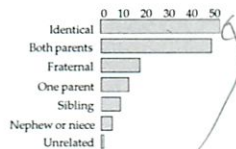
### Viral Infection

Schizophrenia has also been observed in individuals who contracted a viral infection (flu) during the middle of their fetal development.

- births*
- in the months after flu season - higher risk
  - 98% with flu do not have schitz babies

### Genetic Factors

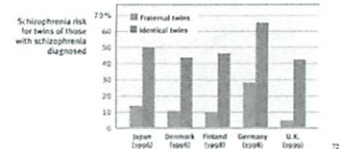
The likelihood of an individual suffering from schizophrenia is 50% if their identical twin has the disease (Gottesman, 1991).



- similar prenatal environment
- not every twin gets it

### Genetic Factors

The following shows the prevalence of schizophrenia in identical twins as seen in different countries.



## Psychological Factors

Psychological and environmental factors can trigger schizophrenia if the individual is genetically predisposed (Nicols & Gottesman, 1983).



Genain Sisters

The genetically identical Genain sisters suffer from schizophrenia. Two more than others, thus there are contributing environmental factors.

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## Warning Signs

Early warning signs of schizophrenia include:

1. A mother's long lasting schizophrenia.
2. Birth complications, oxygen deprivation and low-birth weight.
3. Short attention span and poor muscle coordination.
4. Disruptive and withdrawn behavior.
5. Emotional unpredictability.
6. Poor peer relations and solo play.

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## Personality Disorders

Personality disorders are characterized by inflexible and enduring behavior patterns that impair social functioning. They are usually without anxiety, depression, or delusions.



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- avoident - avoid people because they fear rejection
- schizoid - excentric behaviors
- histrionic - shallow - wants attention
- narcissistic - don't like criticism
- borderline - unstable identity

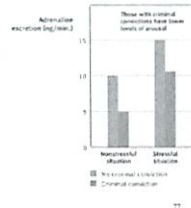
## Antisocial Personality Disorder

A disorder in which the person (usually men) exhibits a lack of conscience for wrongdoing, even toward friends and family members. Formerly, this person was called a sociopath or psychopath.

half become antisocial adults  
have no concept of wrong  
don't think killing is wrong

## Understanding Antisocial Personality Disorder

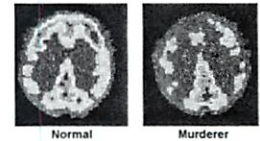
Like mood disorders and schizophrenia, antisocial personality disorder has biological and psychological reasons. Youngsters, before committing a crime, respond with lower levels of stress hormones than others do at their age.



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## Understanding Antisocial Personality Disorder

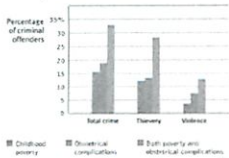
PET scans of 41 murderers revealed reduced activity in the frontal lobes. In a follow-up study repeat offenders had 11% less frontal lobe activity compared to normals (Raine et al., 1999; 2000).



- have 11% less impulse control

## Understanding Antisocial Personality Disorder

The likelihood that one will commit a crime doubles when childhood poverty is compounded with obstetrical complications (Raine et al., 1999; 2000).



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- 5% of offenders do 50% of crimes  
- Australia - a prison state developed to be ok

## Rates of Psychological Disorders

Disorder	Percentage
Alcohol abuse	5.2
Generalized anxiety	6.0
Phobias	7.8
Obsessive compulsive disorder	2.1
Mood disorder	5.1
Schizophrenia	1.0
Antisocial personality	1.5
Any mental disorder	14.9

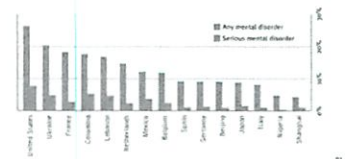
(Some people experience two or more of these disorders, such as depression and alcohol abuse, simultaneously.)  
Source: Data from Kaplan & Cohen, 1994.

80

- 1/7 Americans suffer each year  
- when people move to US their mental health ↓  
- 2x over time for people in poverty

## Rates of Psychological Disorders

The prevalence of psychological disorders during the previous year is shown below (WHO, 2004).



81



### Risk and Protective Factors

Risk and protective factors for mental disorders (WHO, 2004).

RISK AND PROTECTIVE FACTORS FOR MENTAL DISORDERS	
<b>Risk Factors</b>	<b>Protective Factors</b>
Academic failure	Academic success
Black complexion	Community efficacy, empowerment, injunctivity, and security
Caring for (chronically) ill or partner(s) with dementia	Economic independence
Child abuse and neglect	Feelings of mastery and control
Chronic insomnia	Good parenting
Chronic pain	Liberty
Family disorganization or conflict	Positive attachment and early bonding
Low birth weight	

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### Risk and Protective Factors

Low socioeconomic status	Positive parent-child relationships
Medical illness	Problem solving skills
Neurochemical imbalance	Resilient coping with stress and adversity
Parental mental illness	Self-esteem
Parental substance abuse	Social and work skills
Personal loss and bereavement	Social support from family and friends
Poor work skills and habits	
Reading disabilities	
Security disabilities	
Social incompetence	
Stressful life events	
Substance abuse	
Trauma experience	

Source: World Health Organization (2004)

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Diseases often have median age of 20-25  
 ↑ lots of teens

Medical Model - physical symptoms that can be cured

Michael Plasmeier  
Drew Gingrich

100

## Snow White and the 7 Psychological Disorders

"Where am I? What is this place? Is that dirt on my shoe! They cost \$50! I can let them have a speck of dirt on them! Why is that flower crooked? It should stand straight or not at all! Where is the order??? Who designed this? What's that buzzing?!? Get AWAY from me!!!! What pesky things; they should be banished!

What's this a little house? Perhaps a nice man could tell me what is going on and where I am. Perhaps they will have some nice tea in a proper tea set. I just can't stand tea not served in a proper tea service! Look is it too much for the saucer matches the cup???

Hello, is anyone home? Hello?", said Snow White.

"Hey there!", a voice called.

"Who is it?" said Snow White. Seven dwarves came running from the house and out of the forest and surrounded Snow White. The lead dwarf stepped forward, bowed low to the ground, and kissed Snow White on the hand.

"I'm Doc, and these are my six brrrrrrrothers! Their names are Happy, Grum Grum Grum Grruuuumpy, Sneezey, Sleepy, Baaaashful and Dopey. I'm puh-puh-puh-leased to make your acquaintance. Who are you?"

"My name is..." Snow White began to say, until she realized that the dwarf named Happy had taken over the kissing for Doc but instead was slowly and romantically kissing up her arm.

"Get off of me, perv!" Snow White screamed, kicking Happy in the shin.

"Hehehehe anything you say, babe..." Happy murmured.

"Get off of me, perv! What a won, won, wonderful name!" Doc exclaimed.

"No, no, no, no, no!" Snow White shouted, "I can't deal with this any more! You, you, you, you, you, you, and you! Get in line! NOW!" The dwarves jumped twice their height into the air and scurried into an orderly line. "Now..." Snow White said to the first dwarf, who was wearing heavy eye makeup, "Who are you?"

"I'm, uh," the emo first dwarf said, "I'm, uh, well, um, I'm, uh, DON'T TALK TO ME!" The dwarf pulled his hat over his eyes and ran into the house sobbing. On the way he tripped over a dwarf that was lying on the ground, apparently asleep. "Move Sleepy! Why won't you move for me! Why!?" sobbed the dwarf.



Snow White gave the other dwarves a puzzled look. The next dwarf said, "That was Bashful. He's very shy and emotional... and rightfully so since I hate him."

Snow White glared at the dwarf and said, "Why do you-"

"I HATE EVERYONE!!! I HATE HIM, I HATE YOU, I HATE ME, I HATE EVERYONE!!!" the dwarf, who's name was Grumpy, screamed as he dropped to his knees and grabbed and pulled his hair.

"Um...ok, sorry," said Snow White, slowly backing away from the shrieking dwarf. She bumped into one of the other dwarves, who had come rushing to the aid of Grumpy. The dwarf stopped dead in his tracks and stared at his hands that had brushed against Snow White.

"Ew, ew, ew, ew, ew! GERMS! Oh God! Now look what you've done you've gone and given me syphilis!"

"Syphilis?" said Snow White, "I barely touched you!"

"I don't care, you definitely gave me syphilis. If not that then malaria or the bubonic plague or something. God I feel so gross right now I need a shower."

"Ayo Sneezy! Chill you crazy f-ing dwarf!" growled Grumpy, who had calmed himself down and was now advancing on the hypochondriac dwarf named Sneezy.

"You don't know where she's been! You don't know what she has!" yelled Sneezy.

"Yeah, but I know where you're going to be soon! Dead!" yelled Grumpy as he ran towards Sneezy.

"Leave Sneezy alone! LEAVE HIM ALONE!" Bashful cried as he tried to pull Grumpy off of Sneezy while applying more eyeliner to his teary eyes.

"Break it uuuu-uuuu-uuup!" yelled Doc, his arms outstretched.

"I'm gonna kill all of you little punks! You never show me any respect!" Grumpy yelled as he lunged at Doc.

All the dwarves pounced on each other and began to fight. Snow White ran screaming from the brawling crowd of fun sized men and into the arms of the only dwarf not fighting, who was named Dopey.

"Ah! You're so pretty! Get away from me! Help! Help!" squealed the dwarf.

Happy poked his head up from the melee and said "Hey Dopey! She's mine man, don't get any ideas!"

"I can't deal with this madness! You dwarves are all so crazy!" Snow White said. She turned and ran crying into the forest.

"Wait!" exclaimed Doc, "I'm s-s-sorry please come back!"

Doc tried to run after Snow White, but was pulled back into the battle by the beard by a rampaging Grumpy.

Later that day after Snow White had calmed herself she became concerned that the little men may have actually killed each other. She didn't want to go back, but her conscience told her she had to, and besides, the forest was filthy.

Snow White cautiously approached the dwarves house, half expecting to find piles of maimed dwarf bodies strewn about, and saw that everything seemed to be normal. Perplexed, she knocked on the door.

Doc answered the door and gave Snow White a huge hug. "Thank you so much for coming back!" he said. His eye was blackened and he had a throbbing, red lump on his forehead. Snow White peeked around Doc and saw that the other dwarves, who were spread over the living room, were in similar states of injury.

"I'm s-sorry you had to s-see that," Doc said, "Unfortunately fights like that are a common occurrence here"

"It's alright..." Snow White quietly said, "Is everyone ok?"

"More or l-l-less," Doc stammered, " Grumpy has a-a-a bruised self esteeeeeem but that's typical." Snow White saw that Grumpy was sitting on a stool in a dark corner with his head in his hands.

"Im sorry to hear that," Snow White said.

"Heeeeyyyy, pretty lady, do you want to help us work", Happy interrupted from the corner.

"Sure, as long as I don't get my hands dirty," said Snow White.

"Well we need to wash the blood out of our clothes. It's unsanitary, you know. And don't worry it wont be boring we sing while we work!" said Sneezy.

"Ok," said Snow White, as she and the 7 dwarves got up and walked over to the river to a pile of washboards.

"Don't take my washboard," said Sneezy, pointing towards the pile of washboards, "No one else is allowed to get their dirty germs on my washboard. And that is Bashful and



Grumpy's washboard, they just are too ashamed to tell you that they don't like when anyone uses theirs."

"All right," said Snow White. "Grumpy cheer up! I have not seen you smile all day!"

"I guess I don't find enjoyment in this anymore. It's just the same old things day in and day out. Why bother? Why try anymore? Why keep living," mumbled Grumpy.

"Come on Grumpy, we finally have a guest! And the guest is a girl, Grumpy, a girl! Isn't she exciting...and hot?", said Happy.

"Mumph!", grunted Grumpy.

"Come on man, she SMOKING!" exclaimed Happy.

"What happened to Sleepy?" asked Snow White, ignoring Happy.

"Oh, a sleep attack. He just falls over and starts sleeping at random times during the day. Don't worry, he will be up in a half hour and he will have no recollection of what happened," said Grumpy.

Snow White and the seven dwarfs worked for several minutes. Then Doc broke the silence by saying "Hooowww dooo you you you like it here?"

"I don't know," said Snow White. "I miss my home and it is very dirty here. You little guys have been nice to me, but I can't see myself washing clothes everyday for the rest of my life. I shouldn't even be doing this now; the dirt will clog my pores. I must remember to exfoliate when I get home. Actually I should be leaving now... And speaking of that, what type of transportation do you have around here?"

"Walking," said Dopey.

"Walking! That hurts my feet, ruins my complexion, and it'll make these cute little shoes I just got on sale all muddy"

"What a spoiled brat," said Grumpy under his breath. "I can't wait till she leaves me alone. She's throwing Dopey into a tizzy."

Snow White glanced at Dopey, who was staring and Snow White and shivering, and continued as she had not heard what Grumpy had said, "Well I really must be going now! Goodbye Happy, and no I will not kiss you goodbye stay away from me. Sneezy, I'd hug you but I'd make you think you have gonorrhoea or something. Also I read somewhere that coming into contact with germs makes you stronger the next time. Bashful, come here shake my hand; I know Sneezy won't. Dopey, you need to get out more, meet some pretty ladies. How about a vacation? Sleepy, I know you can't hear me, but I don't want to wake you. Doc, I know of some good speech therapists back where I come from, I'll

refer you to a good one. Grumpy, cheer up. You can't always be grumpy, no one hates you. When I am in a bad mood, I just smile and I feel a lot better. Perhaps you could try that sometime. Have a nice day everyone!"

"Thanks for helping us," said Happy. "Be sure to come back and visit me, mi amore!!! I'll be waaaaittinnng"

"Cut it out," muttered Grumpy. "I think I would actually be happy if I never saw that lady again! What a bunch of trouble." And with that Snow White started back home.



## A.P. Psychology Crib Notes

### People:

Wundt- "Father of Psychology": Introspection

Wertheimer- Gestalt Psychology

Titchner- Structuralism

James- Functionalism

Watson- Behaviorism; "Little Albert Study"

Freud- Psychoanalytic; dream analysis; free association; structure of personality; stages of development; defense mechanisms

Milgram- Obedience; Ethics

Broca- left frontal lobe: associated with expressive language

Wernicke- left frontal lobe: receptive language

Pavlov- Classical conditioning: dogs

Thorndike- Instrumental learning: cats; law of effect

Skinner- Operant conditioning: rats and pigeons; Behaviorist

Tolman- Latent learning; cognitive maps

Bandura- Observational learning: Bobo Dolls, Social-Cognitive Theory

Ebbinghaus- Forgetting: Decay Model

Chomsky- (Native Theorist) Inherent Existence of sets of cognitive structures

Whorf- Linguistic Relativity Hypothesis

Washoe, Sara and Koko- Ape language studies

Jung- Collective unconscious; archetypes; Psychoanalytic

Horney- Basic childhood anxiety; Psychoanalytic

Erickson- Life crisis; psycho-social development; Psychoanalytic

Adler- Inferiority Complex; Psychoanalytic

Piaget- Stages of Cognitive Development; Cognitive theorist

Rogers- Client-centered; unconditional positive regard; transactional Analysis

Albert Ellis- Rational Emotive Therapy; Cognitive Theorist

Abraham Maslow- Hierarchy of Needs; Humanistic

Sheldon- Somatotyping: endomorph, mesomorph, ectomorph

Binet- I.Q.

Eysenck- Biological model of Personality; Trait-type hierarchy

Harlow- Monkey Studies; Attachment

Lorenz- "Survival of the Fittest Theory" and imprinting

Phineus Gage- Railroad spike; damaged (limbic system), emotions/motivational control center

Aaron Beck- Cognitive therapy treating depression

Murray- Need to achieve; TAT

Allport- Trait Approach-cardinal, central, secondary

Cattell- Crystallized Fluid Intelligence

Kelley- Personal Construct Theory

Mishel- Social-learning theory

Gilligan- examined moral differences between boys and girls based on social rules and on ethic of caring and responsibility (turtle and Hare scenario)

## Approaches:

### General:

- Behaviorism- Environmental: learning; nurture
- Biological- Physiology; genetics; nature
- Cognitive- Mental Processes
- Psychoanalytical- Unconscious, childhood
- Humanistic- Freewill; basis goodness
- Multicultural- Sociocultural; role of structure
- Gestalt- Emphasizes the organization process in behavior. Focuses on problem of perception

### Personality:

- Psychoanalytic- People are driven by instincts, largely sexual
- Behaviorist- Behavior is personality; determined by history of reinforcement
- Humanistic- People are inherently good, society ruins them, people strive to satisfy a hierarchy of motives toward self-actualization
- Cognitive- People are rational and want to predict and control their world, personal constructs help in this process
- Biological- Biological factors such as body type or genetics

### Abnormal:

- Psychoanalytic- Emerge from initial psychological conflicts that are unconscious, often arising from childhood trauma
- Biomedical- Traceable to physical abnormalities, biochemistry, structural defects
- Cognitive- Results from unusual ways of thinking, inappropriate belief system
- Behavioral- Results from faulty contingencies of reinforcement contexts contribute to the development of psychological disorders
- Cultural- Variables such as social class, gender and rural-urban contexts contribute to the development of psychological disorders
- Humanistic/Existential Model- Results from Failure to fulfill ones potential

### Treatment:

- Biomedical
  - a) ECT
  - b) Psychosurgery; ablation
  - c) Chemotherapy
  - d) Intensive light therapy (S.A.D.)
- Psychoanalytic Therapy- Alleviate unconscious conflicts
  - a) Free association
  - b) Dream analysis
  - c) Transference
  - d) Symptom substitution
- Behavior Therapy-application of learning principles
  - a) Systematic desensitization
    - 1) In vivo desensitization
    - 2) Counter Conditioning



- b) Flooding- real event
  - c) Implosive therapy- imagine the event
  - d) Aversion therapy
- Cognitive-Behavior Therapy-thoughts and behavior
- a) modeling and role play
  - b) Rational-emotive therapy-forces a more realistic look in the evaluating circumstances
  - c) Stress- inoculation therapy-retractors inappropriate thinking
  - d) Cognitive therapy- used for depression; requires the restructuring of persons invalid perceptions of self, future and the world or experience
- Humanistic-focuses on getting the person to accept the responsibility for their improvement
- a) Rogers' client-centered therapy
    - 1) unconditioned positive regard
  - b) Frankl's existential analysis-treatment attempts to help client gain sense of purpose and meaning
  - c) Gestalt therapy- client comes into contact with the whole self
- Gestalt- focuses on integrating the whole person
- a) Developed by Fritz Perls
  - b) Utilizes role playing and acting out
  - c) Focuses on the "now" experience
- Biomedical Treatment- includes medical procedures and medication that can help alleviate symptoms of psychological disorders
- 1) Psycho-surgery (ablation)
    - Surgical destruction of involved brain tissue
    - Obsessive-compulsive disorder
  - 2) Electroconvulsive therapy (ECT)
    - Major depression
  - 3) Psychopharmacological treatment
    - A) Neuroleptics (antipsychotics) i.e. Thorazine, Haloperidol, Clozapine
    - B) Antidepressants i.e. Tricyclic compounds, selective serotonin reuptake inhibitors, Prozac
    - C) Lithium Carbonate (treat bipolar disorder)
    - D) Anxiolytics (anti anxiety) such as Valium or other benzodiazepines

### **The Experiment:**

1. Two variables are studied for cause and effect
  - a. Independent variable-manipulated
  - b. Dependent variable- the response to be manipulated; measured
  - c. Confounding variable- other variables that may influence results
  - d. Experiment group- exposed to manipulation of independent variable
  - e. Control group- an unaffected comparison group
  - f. Subject bias- a subject's behavior changes due to believed expectations of experiment

- g. Researcher bias- expectations influence what is recorded
- h. Double-blind technique- control for bias by keeping placement of subject secret
- i. Placebo- inactive substance unknowingly given in place of drug
- j. Null hypothesis- negatively expressed hypothesis; X will not change Y

**Theories:**

**Piaget's Cognitive-Development Theory:**

- a) Sensory Motor- Schema assimilation and accommodation  
Circular reaction  
Object permanence
- b) Preoperational- egocentrism  
Animism  
Artificialism
- c) Concrete- Operational-reversibility  
Conservative problems
- d) Formal- Operational-personal fable

**Kohlberg's Moral Judgment:**

- a) Preconventional-good and bad, right and wrong
- b) Conventional-social rules
- c) Postconventional-universal principles

**Erickson's Psychosocial Development:**

- |                              |  |
|------------------------------|--|
| INFANCY                      | a) trust vs. mistrust<br>b) Autonomy vs. shame and doubt |
| CHILDHOOD                    | c) initiative vs. guilt<br>d) Industry vs. territory     |
| ADOLESCENCE                  | e) identity vs. role confusion                           |
| ADULTHOOD                    | f) intimacy vs. isolation                                |
| g) Generality vs. stagnation | h) Ego integrity vs. despair                             |

**Kubler-Ross' Stages of Death**

- 1) denial
- 2) anger
- 3) bargaining
- 4) depression
- 5) acceptance

**Theories:**

Weber's law- just noticeable difference

Young-Helmholtz Color Theory- (trichromatic theory)- color determined by the relative activity in red, blue, or green sensitive cones

Opponent-Process Color Theory- Color information is organized into 3 antagonistic pairs



Place Theory- relates perceived pitch to region

Frequency Theory- related pitch to the frequency of sound waves and frequency of neuron firing

Facial Feedback hypothesis- sensations from the face provide cues to the brain that help us determine what emotion we are feeling (Ekman)

Statistical Significance- .05 chance accounts for results less than 5% of the time

Template-Matching Theory-stored copies

Prototype-Matching Theory-recognition involves comparison

Feature-Analysis Theory-patterns are represented and recognized by distinctive features

Restorative Theory-We sleep in order to replenish

Adaptive Nonresponding Theory-sleep and inactivity have survived value

Activation-Synthesis hypothesis-dreams are products of spontaneous neural activity

Thorndike's Law of effect-reward and punishment encourages and discourages responding; Thorndike

Premack principle-states that any high-probability behavior can be used as a reward for any lower-probability behavior

Continuity vs. Discontinuity-theories of development, nature vs. nurture

Serial position phenomenon-sequence influences recall

Primacy effect-enhanced memory for items presented earlier

Recency effect-enhanced memory for items presented last

Decay theory-forgetting caused by learning similar materials

a) proactive-initially

b) retroactive-previously

Linguistic relativity hypothesis-person's language determines and limits a person's experiences

Hull's drive-reduction model-motivation arises out of need

Cognitive consistency theory-cognitive inconsistencies create tension and thus motivate the organism

Festinger's Cognitive dissonance theory-reconcile cognitive discrepancies

Arousal Theories-we all have optimal levels of stimulation that we try to maintain

Yerkes-Dodson law-arousal will increase performances up to a point, then further increases will impair performance; inverted U function

Incentive theory-behavior is pulled rather than pushed

James-Lange theory-emotion is caused by bodily changes

Cannon-Bard's Thalamic theory-emotional expression caused by simultaneous changing bodily event thoughts and feelings

Schachter's Cognitive-Physiological Theory-bodily changes, current stimuli, events, and memories combine to determine behavior

Attribution theory-explains how people make inferences about the causes of behavior; personal or situational; self-serving bias

Deindividuation-loss of self-restraint that occurs out of anonymity

Contact theory-proposes that equal-status contact between antagonistic groups should lower tension and bring harmony

Selye's General Adaptation Syndrome- (GAS) emergency reaction to stressful situations  
Alarm reaction, resistance and exhaustion



Lazarus's Cognitive-Psychological Model-emphasizes the process of appraisal (primary and secondary) as the primary determinant of stress  
Twin Studies-allows a researcher to test influence of heredity v. environment  
Personal Construct Theory-unique system of reality  
Deinstitutionalization-occurred because of changes in political policy and development of new drug therapies  
Ainsworth's Strange Situation-looked at attachment in young children to their parents

### **Social Psychology Studies:**

Zimbardo's Prison Study-effect of roles  
Hawthorne Effect-people change their behavior when they think that they're being observed  
Dailey and Latane's Bystander effect-diffusion of responsibility (Kitty Genovese Case Study)  
Asche Conformity Study-Lines of different lengths 75% at least once  
Milgram's Obedience Study-Shocking the confederate 65% delivered full range  
Sherif-"Autokinetic phenomenon", conformity studies. Social Psychologist

### **Social Pressure:**

1. Conformity-occurs when individuals adopt the attitudes or behavior of others because of real or imagined pressure
2. Social Norms-shared standards of behavior
3. Reciprocity norm-people tend to treat others as they have been treated
4. Compliance-to get along with a request made of you from a person who does not have authority over you, techniques include:
  - a. Foot in the door technique-if a small request is made first a larger request will be easier to fill later
  - b. Door in the face technique-making a larger request first then making a smaller one which will seem more reasonable
  - c. Low balling-getting agreement first, then adding specifics later
5. Obedience-compliance with someone who has authority

### **Altruism:** Self concern for others

1. Bystander intervention-will individuals intervene in a harmful situation to another
2. Bystander effect-people are less likely to help when several people witness an emergency due to diffusion of responsibility, thinking that someone else can be responsible
3. Social facilitation-tendency to do better on well-learned tasks when another person is present
4. Social loafing-reduction in effort by individuals when they work in groups compared to by themselves
5. Risky shift-groups often arrive at riskier decisions than do individuals
6. Deindividuation-loss of identity as a result of being part of a group
7. Groupthink-members of a cohesive group emphasize agreement at the expense of critical thinking



# appsychologyreview | Famous people

## Famous Psychology People you should know for the AP Exam

This is a list I have been compiling. It would be great if people would contribute to this page and to define and give an explanation for each person

1. **Rene Descartes** -- Believed in dualism - mind and body were separate. Some ideas are innate (nature part of nature vs. nurture).
2. **John Locke** -- Associated with empiricism. Philosopher that contradicted Descartes. Believed in tabula rasa, or "blank slate." Children are born with a blank slate that experience writes on (the nurture side of nature vs. nurture). Knowledge comes from experience through the senses; science should be observation and experimentation.
3. **Charles Darwin** -- Associated with natural selection, evolution, and adaptive traits.
4. **Wilhelm Wundt** -- Made the first scientific psychology laboratory; worked with consciousness and illusions with the senses (especially auditory).
5. William James
6. Ivan Pavlov
7. **John Watson** -- Behaviorist, thought that cognition isn't important. Did the Little Albert experiment with Rosalie Rayner -- used conditioning to make a toddler afraid of white rats. This fear was generalized to include other furry animals.
8. **B.F. Skinner** -- Worked with operant conditioning (how to control self to elicit rewards or avoid punishment. Made the Skinner Box (an operant chamber) - it contains a bar or key that an animal can press to get a reinforcer. The rate of bar pressing/key pecking is recorded. Developed reinforcement schedules: fixedratio, variable ratio, fixed interval, and variable interval. Studied the importance of operant conditioning on education, work, and parenting.
9. **Carl Rogers** -- Humanistic psychology - believed in human potential and a person-centered perspective. Believed that people are essentially good. Came up with unconditional positive regard (total acceptance towards another person). Also associated with active listening.
10. Abraham Maslow
11. **Lev Vygotsky** -- By age 7, kids are becoming more capable of thinking in words and using words to work out solutions to problems. They no longer think aloud, but internalize speech. Found of cultural historical psychology.
12. Marie-Jean-Pierre Flourens
13. Heinrich Klüver
14. Paul Bucy
15. Roger Sperry
16. Michael Gazzaniga
17. **Weber's Law** -- To be perceived as different, two stimuli must differ by a constant minimum percentage, as opposed to a constant amount.
18. David Hubel
19. Torsten Wiesel
20. Ewald Hering
21. **Georg von Békésy** -- A biophysicist, known for his research on the cochlea (in hearing). He found that the cochlea vibrates in response to sound. High frequencies vibrate at the beginning of the cochlea, and low frequencies vibrate at the end.
22. **Eric Kandel** -- worked in the memory-biology field. Studied synaptic changes during learning (conditioning) with a California sea snail. He did this research with James Schwartz. Discovered that snails release serotonin at some synapses--these synapses become more efficient.
23. **Donald Hebb** -- said that humans seem to be the most emotional species.
24. **John Garcia** -- worked with learning and conditioning. Discovered taste aversion: food that makes you sick (like in food poisoning) will become a conditioned stimulus for nausea. The US does not have to immediately follow the CS. This aversion is only true for taste, not for sights or sounds.
25. Keller Breland
26. Marian Breland
27. **Albert Bandura** -- Children learn through observation and imitation; aggressiveness can be learned = social learning theory. Observational learning can be prosocial and anti-social. Used Bobo dolls in imitation experiments. Reinforcements and punishments determine imitation. Came up with reciprocal determinism - the interacting influences between personality and environmental factors.
28. **Edward Thorndike** -- Made the law of effect (rewarded behavior is likely to recur). This helped Skinner with operant conditioning.
29. **Wolfgang Kohler** -- Gestalt psychologist. Observed insight in chimpanzees. Ex: the chimp Sultan, in a cage, displayed insight to get food with sticks.
30. Colins
31. **Elizabeth Loftus** -- Worked with memory, repression, memory construction, the effect of framing on memory, and the misinformation effect. Believed that hypnosis was inaccurate.
32. **Fergus Craik** -- older adults do well on tests that assess general vocab, knowledge, and ability to integrate information. Repeating information may not be enough to effectively store it for later recall. Worked with Endel Tulving to compare visual, acoustic, and semantic encoding. Flashed a word at people and asked a question that required visual, acoustic, or semantic encoding (see pg 357 for example). Semantic encoding led to better encoding of the word.
33. Lockart
34. **Paivio's Dual Code** -- Memory for concrete nouns (as opposed to abstract) is easier when encoded both semantically (by meaning) and visually.
35. **Noam Chomsky** - Worked with language development and learning in young children. identified 'critical age' before which language must be learned. find findings had a large effect on the wild child team.
36. Benjamin Whorf
37. **Eleanor Maccoby** -- developmental psychologist. Gender differences in power lessen w/ maturity. Females are more open and responsive to feedback. Did research with gender roles and gender development. Gender differences widen over time because people interact mostly with their own gender. Girls talk more intimately and play less aggressively than boys. Some risk for behavior problems with children who spend extended time in daycares. Children with a positive self-concept are more confident, independent, optimistic, assertive, and sociable.
38. Carol Jacklin
39. **Daniel Kahneman** - worked with Amos Tversky. Nobel Laureate. Identified two important heuristics: representative heuristic (truck driver or professor?) where we compare a subject to our mental image rather than actual likelihood. the availability heuristic is making judgements based on



how readily information comes to our mind; how available it is to us.

40. **Amos Tversky** - worked with Daniel Kahneman. see above.
41. Joy Paul Guilford
42. James Olds
43. Peter Milner
44. **Henry Murray** -- Tested the prophetic power of dreams. Came up with achievement motivation (the desire for significant accomplishment). Also developed the TAT, Thematic Apperception Test, a projective test in which people are shown ambiguous pictures. The stories they make up from the pictures supposedly project their inner feelings.
45. Carl Lange
46. Walter Cannon
47. Philip Bard
48. Stanley Schachter
49. J.E. Singer
50. **Erik Erikson** -- Developmental theorist, associated with the term basic trust. Most known for his stages of development with psychosocial tasks: 1) Infancy - trust vs. mistrust; 2) Toddlerhood - autonomy vs. shame and doubt; 3) Preschooler - initiative vs. guilt; 4) Elementary school - competence vs. inferiority; 5) Adolescence - identity vs. role confusion; 6) Young adulthood - intimacy vs. isolation; 7) Middle adulthood - generativity vs. stagnation; 8) Late adulthood - integrity vs. despair.
51. **Jean Piaget** -- Most influential observer of children; believed that children knew differently, not less. Came up with the idea of schemas (mental molds), accommodate and assimilate. Said that morality developed with cognition. Four cognitive stages: 1) Birth to 2 yrs - sensorimotor stage - experience world with senses; 2) 2 yrs to 7 yrs - preoperational stage - worked with language, not logic; 3) 7 yrs to 11 yrs - concrete operational stage - worked with logic; 4) 12 yrs to adult - formal operational - abstract reasoning.
52. **Lawrence Kohlberg** -- development of moral reasoning. Preconventional morality: before age 9, children obey to avoid punishment or gain (concrete) rewards. Conventional morality: by early adolescence, children obey laws because they are laws. Postconventional morality: those with abstract reasoning obey what they think is right, based on ethical principles. These three form a moral ladder. Emphasized thinking over acting.
53. Sigmund Freud
54. **Carl Jung** -- Psychoanalyst (analytical psychology), neo-Freudian. Believed that the unconscious exerts a powerful influence, and that there is a collective unconscious. Used to be associated with Freud. Said that people are molded by ancestral and personal history, and we are motivated by moral and spiritual values, not sex (this is part of where he differed from Freud). Came up with the idea of archetypes. Believed that libido is "life energy," not sex energy.
55. **Alfred Adler** -- personality theorist and neo-Freudian. People have a need to belong. Childhood social tensions are important. Proposed the idea of the inferiority complex - behavior is driven by the need to conquer feelings of inferiority.
56. **Karen Horney** -- neo-Freudian feminist, came up with the word womb envy (contrasting to Freud's "penis envy," it said that men are jealous of women's ability to give birth). Believed that social tensions (rather than sexual) are important for the formation of personality. Childhood anxiety triggers desire for love/security.
57. **Julian Rotter** -- Came up with the external locus of control, and the internal locus of control--perceptions of control. External = outside forces determine fate. Internal = they control their own destiny.
58. **Raymond Cattell** -- found that fluid intelligence decreases slowly until 75, and more quickly afterwards.
59. Hans J. Eysenck
60. Gordon Allport
61. David McClelland
62. **Sandra Bem** -- Developed the Bem Sex Role Inventory (BSRI), a measure of androgyny, in 1974. Also associated with gender schema theory -- you form concepts/schemas for your gender.
63. **Walter Mischel** -- Worked with personality and social psychology. Thought that people should delay gratification and become more socially responsible. Since people don't act with predictable consistency, past behavior patterns in similar situations can predict future behavior better than tests can.
64. Arthur Jensen
65. Lewis Terman
66. **Joseph Wolpe** -- Work with systematic desensitization. Used gradual exposure therapies, with the idea that you cannot be anxious and relaxed at the same time.
67. **Albert Ellis** -- Cognitive behavioral therapy. People can break fears by forcing self into situations with fears (therapy). Well-known therapist. Thought that no one and nothing is supreme, self-gratification is good, and commitment (like marriage) is bad.
68. **Aaron Beck** -- cognitive therapist. Found that people who abuse alcohol are five times more likely than others to eventually kill themselves. Analyzed dreams of depressed people and found recurring negative themes (loss, rejection, abandonment) that continued in their waking thoughts. Cognitive therapists use questioning to help people with depression (see pages 695 - 696 of the textbook for an example).
69. **Stanley Milgram** -- Social psychologist, worked with obedience. In his famous experiments, a "teacher" administers a shock to a "learner" whenever the learner gets a question wrong. The electric shocks were staged--the teacher thought they were real, but the learner knew they were not. With more wrong answers, the shocks increase in voltage. The teacher has to choose between obeying the experimenter supervising the teacher, who urges them to continue, or the learner who is in apparent pain, who begs them to stop. 63% of men proceeded to the final 450 volt shock. Teachers were most likely to obey when 1) the experimenter was nearby and with prestigious affiliation (i.e. Yale professor), 2) the victim was distanced or depersonalized, and 3) when they were told that no other teacher defied the experimenter.
70. **William McGuire** -- people are mindful of their differences when they're around people. Viewing violence doesn't necessarily cause aggression.
71. **Leon Festinger** -- came up with cognitive dissonance theory - conflict arises when a person holds contrasting cognitions. If you act in ways that contradict your beliefs/feelings, you change your attitude to fit your actions, not the other way around.
72. John Darley
73. Bibb Latane
74. **Konrad Lorenz** -- worked with imprinting (process where animals form attachments during a critical period very early in life). He made sure that he was the first moving creature the ducks saw during their critical period. The ducks followed him everywhere. Imprinting is difficult to undo.
75. **Richard Lazarus** -- worked with emotion. Brains process and react to some things without conscious awareness. Some emotional responses don't require conscious thinking. Emotions occur when we appraise an event as beneficial or harmful to ourselves, even though we may not be consciously aware of this appraisal.



# Chap 17

5/22

5/22

\* create professional bond



## PSYCHOLOGY

(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University



Worth Publishers, © 2006

we understand  
ourselves but not  
ourselves

## Therapy

Chapter 17

## Therapy

### The Psychological Therapies

- Psychoanalysis
- Humanistic Therapies
- Behavior Therapies
- Cognitive Therapies
- Group and Family Therapies

- searching for answers

- Only works if you want it to
- trust therapist
- skewed presentation in movies

## Therapy

### Evaluating Psychotherapies

- The Effectiveness of Psychotherapy
- The Relative Effectiveness of Different Therapies
- Alternative Therapies Evaluated
- Commonalities Among Psychotherapies
- Culture and Values in Psychotherapies

- in school we have so much not to do w/ school that we can't concentrate  
↑ helps us cope

## Therapy

### The Biomedical Therapies

- Drug Therapies
- Brain Stimulation Psychosurgery

### Preventing Psychological Disorders

## History of Insane Treatment

Maltreatment of the insane throughout the ages was the result of irrational views. Many patients were subjected to strange, debilitating, and downright dangerous treatments.



- burn, torture, block  
= didn't know what to do about them

## History of Insane Treatment

Philippe Pinel in France and Dorothea Dix in America founded humane movements to care for the mentally sick.



Philippe Pinel (1745-1826)



Dorothea Dix (1745-1826)

Types

## Therapies

Psychotherapy involves an emotionally charged, confiding interaction between a trained therapist and a mental patient.

Biomedical therapy uses drugs or other procedures that act on the patient's nervous system, curing him or her of psychological disorders.

An eclectic approach uses various forms of healing techniques depending upon the client's unique problems.

talking  
drugs

Biologically  
rooted problems

## Psychological Therapies

We will look at four major forms of psychotherapies based on different theories of human nature:

1. Psychoanalytical theory
2. Humanistic theory
3. Behavioral theory
4. Cognitive theory

integration combines them  
↑ what most do

# We hide our feelings

## Psychoanalysis

The first formal psychotherapy to emerge was psychoanalysis, developed by Sigmund Freud.



Sigmund Freud's famous couch

crazy

## Psychoanalysis: Aims

Since psychological problems originate from childhood repressed impulses and conflicts, the aim of psychoanalysis is to bring repressed feelings into conscious awareness where the patient can deal with them.

When energy devoted to id-ego-superego conflicts is released, the patient's anxiety lessens.

know thyself  
- release anxiety

## Psychoanalysis: Methods

Dissatisfied with hypnosis, Freud developed the method of free association to unravel the unconscious mind and its conflicts.

The patient lies on a couch and speaks about whatever comes to his or her mind.



## Psychoanalysis: Methods

During free association, the patient edits his thoughts, resisting his or her feelings to express emotions. Such resistance becomes important in the analysis of conflict-driven anxiety.

Eventually the patient opens up and reveals his or her innermost private thoughts, developing positive or negative feelings (transference) towards the therapist.

Interpret  
meaning

↓ pause  
- don't say everything

## Psychoanalysis: Criticisms

1. Psychoanalysis is hard to refute because it cannot be proven or disproven.
2. Psychoanalysis takes a long time and is very expensive.

Sometimes 10-15 years

## Psychodynamic Therapies

Influenced by Freud, in a face-to-face setting, psychodynamic therapists understand symptoms and themes across important relationships in a patient's life.



- shorter + less often

## Psychodynamic Therapies

Interpersonal psychotherapy, a variation of psychodynamic therapy, is effective in treating depression. It focuses on symptom relief here and now, not an overall personality change.

5/29

- 12-16 sessions
- talk about short-term strategies to fix

## Humanistic Therapies

Humanistic therapists aim to boost self-fulfillment by helping people grow in self-awareness and self-acceptance.

- present + future  
- not past
- conscious thoughts
- taking responsibility for one's thoughts
- promoting growth  
- not "fixing" you  
- "clients" not patients

## Person-Centered Therapy

Developed by Carl Rogers, person-centered therapy is a form of humanistic therapy.

The therapist listens to the needs of the patient in an accepting and non-judgmental way, addressing problems in a productive way and building his or her self-esteem.

- listening
- non-directive
- build a person up



Paraphrase  
 Ask for clarification  
 ↓ Reflect Feelings

### Humanistic Therapy

The therapist engages in active listening and echoes, restates, and clarifies the patient's thinking, acknowledging expressed feelings.



- genuineness
- acceptance
- empathy
- active listening
- therapists must drop their facades
- restate + confirm

### Exposure Therapy

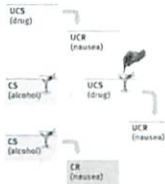
Expose patients to things they fear and avoid. Through repeated exposures, anxiety lessens because they habituate to the things feared.



Progressive relaxation - release  
 1 muscle at a time and  
 then asks you to imagine  
 ↑ correct anxiety w/ relaxation  
 - raises self confidence

### Aversive Conditioning

A type of counterconditioning that associates an unpleasant state with an unwanted behavior. With this technique, temporary conditioned aversion to alcohol has been reported.



reverse of systematic desensitization  
 for something which should  
 be avoided

- limited effectiveness - know you are being conditioned
- ↓ the effects

### Behavior Therapy

Therapy that applies learning principles to the elimination of unwanted behaviors.

To treat phobias or sexual disorders, behavior therapists do not delve deeply below the surface looking for inner causes.

- ↑ self awareness doesn't really work

### Exposure Therapy

Exposure therapy involves exposing people to fear-driving objects in real or virtual environments.



↑ Virtual reality seems to work

### Operant Conditioning

Operant conditioning procedures enable therapists to use behavior modification, in which desired behaviors are rewarded and undesired behaviors are either unrewarded or punished.

A number of withdrawn, uncommunicative 3-year-old autistic children have been successfully trained by giving and withdrawing reinforcements for desired and undesired behaviors.

problems

- what happens when it is over + rewards stop?
- rewards get them to start + will carry on w/o
- is it right to control one's behavior
- we already do sort of

### Classical Conditioning Techniques

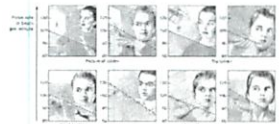
Counterconditioning is a procedure that conditions new responses to stimuli that trigger unwanted behaviors.

It is based on classical conditioning and includes exposure therapy and aversive conditioning.

exposing fear in a good environment slowly

### Systematic Desensitization

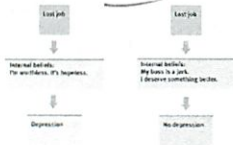
A type of exposure therapy that associates a pleasant, relaxed state with gradually increasing anxiety-triggering stimuli commonly used to treat phobias.



- successful in a lot of places

## Cognitive Therapy

Teaches people adaptive ways of thinking and acting based on the assumption that thoughts intervene between events and our emotional reactions.



*I'm worthless*

*Boss is a jerk*

*-teach people new ways of thinking*

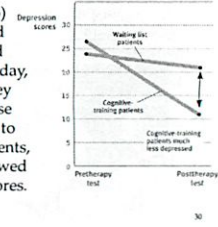
## Cognitive Therapy for Depression

Aaron Beck (1979) suggests that depressed patients believe that they can never be happy (thinking) and thus associate minor failings (e.g. failing a test [event]) in life as major causes for their depression.

Beck believes that cognitions such as "I can never be happy" need to change in order for depressed patients to recover. This change is brought about by gently questioning patients.

## Cognitive Therapy for Depression

Rabin et al., (1986) trained depressed patients to record positive events each day, and relate how they contributed to these events. Compared to other depressed patients, trained patients showed lower depression scores.



*make them feel better about themselves*

## Stress Inoculation Training

Meichenbaum (1977, 1985) trained people to restructure their thinking in stressful situations.

"Relax, the exam may be hard, but it will be hard for everyone else too. I studied harder than most people. Besides, I don't need a perfect score to get a good grade."

*stress inoculation training*

*"It is the thought that counts"*

## Cognitive-Behavior Therapy

Cognitive therapists often combine the reversal of self-defeated thinking with efforts to modify behavior.

Cognitive-behavior therapy aims to alter the way people act (behavior therapy) and alter the way they think (cognitive therapy).

## Group Therapy

Group therapy normally consists of 6-9 people attending a 90-minute session that can help more people and costs less. Clients benefit from knowing others have similar problems.



*- usually just as effective + find out that you are not alone*

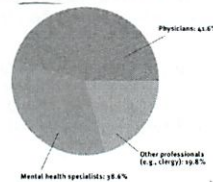
## Family Therapy

Family therapy treats the family as a system. Therapy guides family members toward positive relationships and improved communication.

- relieve family stress
- open up communication
- some groups: AIPs, alcohol, weight loss
- fulfil longing for community

## Evaluating Therapies

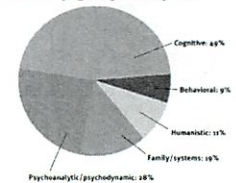
Who do people turn to for help with psychological difficulties?



*millions of people can do it*

## Evaluating Psychotherapies

Within psychotherapies cognitive therapies are most widely used, followed by psychoanalytic and family/group therapies.





people regress back to the mean  
↓

### Is Psychotherapy Effective?

It is difficult to gauge the effectiveness of psychotherapy because there are different levels upon which its effectiveness can be measured.

1. Does the patient sense improvement?
2. Does the therapist feel the patient has improved?
3. How do friends and family feel about the patient's improvement?

### Client's Perceptions

If you ask clients about their experiences of getting into therapy, they often overestimate its effectiveness. Critics however remain skeptical.

1. Clients enter therapy in crisis, but crisis may subside over the natural course of time (regression to normalcy).
2. Clients may need to believe the therapy was worth the effort.
3. Clients generally speak kindly of their therapists.

work hard to say something nice

People are satisfied + feel better but

feel good - felt like we were saved - but hard data shows little difference

### Clinician's Perceptions

Like clients, clinicians believe in therapy's success. They believe the client is better off after therapy than if the client had not taken part in therapy.

1. Clinicians are aware of failures, but they believe failures are the problem of other therapists.
2. If a client seeks another clinician, the former therapist is more likely to argue that the client has developed another psychological problem.
3. Clinicians are likely to testify to the efficacy of their therapy regardless of the outcome of treatment.

- people leave when happy

### Outcome Research

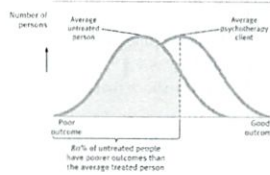
How can we objectively measure the effectiveness of psychotherapy?

Meta-analysis of a number of studies suggests that thousands of patients benefit more from therapy than those who did not go to therapy.

- placebo effect  
\* need control group

### Outcome Research

Research shows that treated patients were 80% better than untreated ones.



↑ untreated 50% better

\* many do improve - therapy ↑ the likelihood of improving  
- costs 16% less  
- "on average" effective

### The Relative Effectiveness of Different Therapies

Which psychotherapy would be most effective for treating a particular problem?

Disorder	Therapy
Depression	Behavior, Cognition, Interpersonal
Anxiety	Cognition, Exposure, Stress Inoculation
Bulimia	Cognitive-behavior
Phobia	Behavior
Bed Wetting	Behavior Modification

no | superior  
- better when problem clear-cut

### Evaluating Alternative Therapies

Lilienfeld (1998) suggests comparing scientific therapies against popular therapies through electronic means. The results of such a search are below:

COMPARISON OF SCIENTIFIC PSYCHOLOGY CITATIONS AND UNFILTERED WEB SITES

Topic	Psychology Journal Citations*	Web Sites**	Ratio
Systematic desensitization	4,014	58,800	1:19.25
Therapeutic touch	96	383,000	1:704.0216
St. John's wort (herbal remedy)	200	2,990,000	1:10,125.00
Emmergram (permanently typing)	34	775,000	1:704.2118

\*Using PsycInfo, January 2006  
\*\*Using Google, January 2006

every therapy seems effective to some

### Eye Movement Desensitization and Reprocessing (EMDR)

In EMDR therapy, the therapist attempts to unlock and reprocess previous frozen traumatic memories by waving a finger in front of the eyes of the client.

EMDR has not held up under scientific testing.

said therapists were not properly trained  
- robust placebo effect

### Light Exposure Therapy

Seasonal Affective Disorder (SAD), a form of depression, has been effectively treated by light exposure therapy. This form of therapy has been scientifically validated.



does work

### Commonalities Among Psychotherapies

Three commonalities shared by all forms of psychotherapies are the following:

1. A hope for demoralized people.
2. A new perspective.
3. An empathic, trusting and caring relationship.



*different types are very similar  
\* hope through a fresh perspective offered by a caring person*

### Therapists & Their Training

Counselors: Pastoral counselors or abuse counselors work with problems arising from family relations, spouse and child abusers and their victims, and substance abusers.

Psychiatrists: They are physicians who specialize in the treatment of psychological disorders. Not all psychiatrists have extensive training in psychotherapy, but as MDs they can prescribe medications.

### Culture and Values in Psychotherapy

Psychotherapists may differ from each other and from clients in their personal beliefs, values, and cultural backgrounds.

A therapist search should include visiting two or more therapists to judge which one makes the client feel more comfortable.

*1/5 in US are atheists  
2/3 in UK  
- in US talk more about individuals  
- works better when your therapist has similar values as you*

### The Biomedical Therapies

These include physical, medicinal, and other forms of biological therapies.

1. Drug Treatments
2. Surgery - *psychosurgery*
3. Electric-shock therapy

*not psychotherapy*

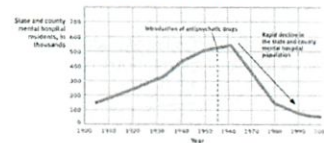
### Therapists & Their Training

Clinical psychologists: They have PhDs mostly. They are experts in research, assessment, and therapy, all of which is verified through a supervised internship.

Clinical or Psychiatric Social Worker: They have a Masters of Social Work. Postgraduate supervision prepares some social workers to offer psychotherapy, mostly to people with everyday personal and family problems.

### Drug Therapies

Psychopharmacology is the study of drug effects on mind and behavior.



With the advent of drugs, hospitalization in mental institutions has rapidly declined.

*Many became homeless*

### Drug Therapies

However, many patients are left homeless on the streets due to their ill-preparedness to cope independently outside in society.



### Double-Blind Procedures

To test the effectiveness of a drug, patients are tested with the drug and a placebo. Two groups of patients and medical health professionals are unaware of who is taking the drug and who is taking the placebo.

*- may be placebo effect or just getting better over time naturally*

### Schizophrenia Symptoms

Inappropriate symptoms present (positive symptoms)	Appropriate symptoms absent (negative symptoms)
Hallucinations, disorganized thinking, deluded ways.	Apathy, expressionless faces, rigid bodies.





5/30

### Psychosurgery

Modern methods use stereotactic neurosurgery and radiosurgery (Leksell, 1951) that refine older methods of psychosurgery.



### Preventing Psychological Disorders

"It is better to prevent than cure."  
Peruvian Folk Wisdom

Preventing psychological disorders means removing the factors that affect society. Those factors may be poverty, meaningless work, constant criticism, unemployment, racism, and sexism.

- response to problems with society
- help ↑ people's self-esteem
- but are part biological events

### Psychological Disorders are Biopsychosocial in Nature

**Biological considerations:**  
Biological disorders, including depression, PTSD, and OCD, are very real conditions. Psychosurgery is used for severe, medication-resistant cases. For example, a patient diagnosed with bipolar disorder (and mood) undergoes pre-surgical treatment to reduce the risk of a possible relapse for drugs that would reduce the amount of mood swings.

**Psychological considerations:**  
Therapy can help clients gain new insights into patterns of thinking and behavior that are causing their distress and leading to dysfunction. The client with bipolar disorder might be helped by recognizing the patterns of vulnerability brought on by the illness and to develop ways to restore the relationships with family and friends.

**Sociocultural considerations:**  
Therapy can help clients address more adaptive responses to the social and cultural influences in their environment. In addition, all types of psychosurgery need to be sensitive to cultural differences in the clients being treated. The client with bipolar disorder might be helped by recognizing the settings and components of the social context and in response to which they help the client's behavior.

? 3 causes



## Psychotherapies: Can we tell the difference?

If, as a patient or a therapist, you have tried one kind of psychotherapy, you may have tried more than one. Despite labels, different kinds of psychotherapy are often almost indistinguishable in practice. At least that's the conclusion some Harvard and Berkeley researchers have arrived at after examining the records of the National Institute of Mental Health (NIMH) Treatment of Depression Collaborative Research Program.

That clinical trial, one of the most carefully conducted ever, compared antidepressant medication, interpersonal psychotherapy, and cognitive behavioral therapy in the treatment of depressed patients. Cognitive behavioral therapy concentrates on changing maladaptive habits, irrational beliefs, and self-defeating attitudes. Interpersonal therapy, in principle, is concerned mainly with life changes and personal relationships, especially grief and loss. Detailed manuals lay out procedures for both forms of therapy.

The researchers asked experts to compare their own understanding of interpersonal and cognitive behavioral therapy with a process rating list—100 statements describing some typical features of psychotherapy sessions. The experts rated each item on the list from 1 to 100, depending on how accurately it described the proceedings during an ideal session of interpersonal or cognitive behavioral therapy. Then, without being told which kind of therapy they were observing, independent judges read transcripts of sessions from the NIMH trial and sorted items on the process rating list to match what they were reading.

Cognitive behavioral therapists rated five items as best representing their practice:

1. discussing specific activities and tasks for the patient to attempt outside of psychotherapy sessions;
2. discussing the patient's ideas or belief systems;
3. discussing the patient's treatment goals;
4. encouraging the patient to test new ways of behaving with others;
5. controlling the interaction between therapist and patient by introducing new topics.

For interpersonal therapists, the top five items were:

1. emphasizing the patient's personal relationships;
2. emphasizing the patient's feelings to help him or her experience them more deeply;
3. encouraging the patient to talk of feelings about being close to or needing someone;

4. discussing love or romantic relationships;
5. explaining the reasons for their approach to treatment.

The transcripts of 35 interpersonal and 29 cognitive behavioral therapy sessions did not show the expected contrast. No matter what the label, process ratings resembled the cognitive behavioral model more than the interpersonal model (although the interpersonal therapy sessions matched more features of the interpersonal ideal than cognitive behavioral therapy sessions did). Use of cognitive behavioral procedures was generally associated with a better outcome, but the interpersonal therapists, despite the label, were also using those procedures most of the time, and they were just as successful as the cognitive behavioral therapists.

According to the authors, other studies—including some of their own—show that in practice psychodynamic therapists often use cognitive behavioral methods as well. And in this study, even the ideal forms of cognitive behavioral therapy and interpersonal therapy as described by experts were not as different as they may seem. Six of the first 20 items on the process rating list were common to both. Successful therapists of all persuasions, the authors believe, adopt an authoritative and benevolent manner, offer advice and reassurance, and coach patients in ways to change their behavior.

The patient's contribution was also important. Readers of the transcripts found that if they judged by the patient's statements alone, the two forms of psychotherapy were almost indistinguishable. In an earlier study, what patients did and said during therapy sessions proved to be more important in determining the outcome than what therapists did and said. *← right- what I would expect*

The authors believe that most comparative tests of psychotherapy are based on the wrong assumptions. The standard description of a form of psychotherapy may be unrelated to what actually goes on in the encounters between a therapist and a patient. Better understanding of how change occurs during those encounters, they say, is the key to improving psychotherapeutic practice.

### Reference

- Ablon, J. et al. "Validity of Controlled Clinical Trials of Psychotherapy: Findings from the NIMH Treatment of Depression Collaborative Research Program," *American Journal of Psychiatry* (May 2002): Vol. 159, No. 5, pp. 775-83.



# Can Freud Get His Job Back?

In the age of happy pills and quick fixes, the “talking cure” still has something to offer

By LEV GROSSMAN

How many Freudians does it take to change a light bulb? Two. One to change the bulb, and one to hold the penis ... *I mean ladder!* Although Sigmund Freud isn't exactly famous for his sense of humor, he actually liked jokes—in fact, he wrote a book about them, *Jokes and Their Relation to the Unconscious*. But he probably wouldn't have liked that one. Freudian psychoanalysis was one of the great innovations of the 20th century, and only 50 years ago, it was a mainstay of mental-health care. But since then it has gone from a medical and cultural institution to the punch line of a mildly dirty joke told by psychiatry residents. The members of the American Psychoanalytic Association today treat fewer than 5,000 patients in the U.S. How did the treatment Freud called the “talking cure” fall from grace? And now that it has fallen, can it get up again?

For almost a century, Freud's followers have treated his techniques like Holy Scripture. Now they are being forced to update his theories to compete with new drugs and new therapies, even if it means using methods that would have been unthinkable to their patriarch. At the same time, post-Freudian psychotherapists are figuring out that the old master still has something to offer the science of mental health: an understanding of the human mind and its many malfunctions that's richer, fuller and more exciting than anything invented since.

**Cognitive therapy is everything  
psychoanalysis isn't: simple, quick,  
practical, goal oriented**

In their time—the early decades of the 20th century—Freud's ideas radically and irrevocably changed the way we think about who we are. He both explained the human mind and made it more mysterious. One of Freud's key insights was to divide the mind into the conscious and the unconscious: he showed us that beneath the surface banality of everyday

## Freudian Analysis

### Types

Classic Freudian psychoanalysis is rare. Psychodynamic therapy, a quicker variant, has become more common

### Symptoms

Used for symptoms like anxiety and depression, as well as for more general goals, like improving self-understanding

### Duration

Long, but not endless. A recent survey puts the average length of treatment at five to six and a half years

### Effectiveness

Quantitative studies of its value are surprisingly scarce, but some recent studies have shown positive results

### Analysands in U.S.

5,000

thoughts and gestures lurk subterranean caverns of forbidden longings that reach all the way back to our earliest childhood memories. Freud's therapeutic technique, psychoanalysis, was an intellectual exploration of those depths, where patients could confront their deepest, darkest desires. If they recognized and overcame those repressed desires, the theory went, they could return to the surface with a calmer, healthier mind.

By the 1920s, psychoanalysis had become wildly popular in America (a country Freud visited only once and hated). Jazz age sophisticates held “Freuding” parties at which they told one another their dreams. Samuel Goldwyn, the movie-studio magnate, offered Freud \$100,000 to write a love story that Goldwyn could turn into a motion picture. (He was rebuffed.) But Freud



died in 1939, and the golden age of psychoanalysis lasted only until the 1950s. By then competing psychotherapeutic theories and approaches had begun to spring up, among them ego psychology, self-psychology, the object-relations school, interpersonal therapy and existential therapy. All revised Freud, and some rejected him outright. *(he was crazy)*

Cognitive therapy is one of the most virulently anti-Freudian strains of post-Freudian therapy, and it has become one of the dominant approaches to therapy today. It was pioneered in the early 1960s by the psychiatrist Aaron Beck, who was trained as a Freudian but—in classic Oedipal fashion—rebelled against his master. Beck dismissed Freud's ideas about the subconscious as so much scientifically unverifiable cigar smoke. In their place he crafted a quick, pragmatic therapeutic approach that dispensed with abstract theories and focused on results. Cognitive therapy attacks such symptoms as anxiety and depression by “coaching” patients on how to think about their lives more clearly.

Not only did Beck reject Freud's idea of the unconscious self, but he also abandoned the formal reserve of the classic Freudian analyst. Freud believed the analyst should be as neutral and silent as possible. That way, Freud theorized, the patient can project personalities from his or her past onto the analyst and relive past conflicts right there on the couch. Freud called this process “transference.” Beck and his followers aren't interested in transference. Instead cognitive therapists talk back to their patients, pointing out their misconceptions and advising them on how to see their lives more clearly.

Cognitive therapy is everything psychoanalysis isn't: simple, quick, practical, goal oriented. “There's this mystique about psychoanalysis,” says Judith Beck, daughter of Aaron and herself a leading cognitive therapist. “Psychoanalysis is esoteric and creative and interesting, and the psychoanalyst holds himself up as the expert who interprets what the patient is saying and has all the answers. It's kind of the opposite in cognitive therapy.” Cognitive therapists tend to follow the same basic script for each session, so the treatment is remarkably standardized. It's also remarkably effective; research shows that when it comes to treating depression, cognitive therapy works as well as drugs like Prozac. And though it's not quite as quick as antidepressants, the results last longer after treatment stops. One study published in the *New England Journal of Medicine* found that, used together, cognitive therapy and antidepressants can help 85% of patients suffering from chronic major depression.

How can psychoanalysis compete with that? Freud's methods may be intellectually exciting, but they're slow and largely unproven. A course of cognitive therapy can take as little as six to eight sessions to finish; a course of analysis often takes five to 10 years. Even its supporters admit there are few clinical studies to show that psychoanalysis actually works. After all, they argue, the ultimate goal of psychoanalysis is deeper self-understanding, and how can you demonstrate that with a study?

But try telling that to an insurance company. Another reason cognitive therapy has been so successful—Judith Beck estimates that there are 5,000 cognitive therapists nationwide—is that it's the perfect therapy for the age of managed care: quick,

cheap and backed by statistics. Classical Freudian psychoanalysis demands four or five sessions a week, and a session with a qualified psychoanalyst can easily run you \$125, if not twice that amount. Few insurance companies will pay for a treatment that costs \$30,000 a year and has hardly any clinical outcome studies to back it up. Insurers would rather pay for a cognitive therapist—or for that matter, a psychopharmacologist, especially since the introduction of Prozac in 1987. Prozac and the other selective serotonin reuptake inhibitors are widely used to treat disorders like depression and anxiety, which were once the bread and butter of psychoanalysis. Of the 14 million patients treated for depression in the U.S. every year, around 80% take some form of antidepressant medication.

## Psychoanalysts are abandoning the formal reserve that Freud insisted on. In fact, analysis as it is practiced today has changed so much, Freud would probably not recognize it

That's how Freud has gone from being the founding father of psychotherapy to a poor, eccentric cousin on the fringes of psychotherapeutic practice. “Classical analysis is a very, very small percentage of what is practiced in this country,” says Dr. T. Byram Karasu, editor in chief of the *American Journal of Psychotherapy*. “It's almost a negligible fraction.” Judith Beck believes psychoanalysis will die out in our lifetime. “Managed-care companies and insurance companies,” she says, “are finally waking up and looking at research, and finding that it's not effective.” Practically the only place patients actually lie down on couches anymore is in Woody Allen movies and *New Yorker* cartoons.

In the hope of finding a place in modern mental-health care, however, its practitioners are trying to change with the times. One way they're doing that is by dropping the austere, formal pose of the classic Freudian analyst. “The image of Sigmund Freud sitting there smoking on his pipe is nothing like the modern 21st century analyst,” says Kerry Sulkowicz, chairman of the committee on public information at the American Psychoanalytic Association. In modern psychoanalysis, that formal reserve is disappearing, and the analyst's personality comes much more into play in treatment. “The process is far more transparent today,” says Sulkowicz. “An analyst may say, ‘I'm choosing to remain silent to allow your thoughts to bubble up.’ Analysts are much more up front. That never would have happened in Freud's day.” Many analysts have even given up the beloved couch in favor of face-to-face conversation. “I don't know if that's gotten out to the general public,” says Dr. Elio Frattaroli, a psychoanalyst who practices in Pennsylvania. “We made a lot of mistakes by being too much in our heads.”

Psychoanalysts are also learning to borrow from other disciplines. According to a survey conducted by the *Journal of the American Psychoanalytic Association*, more than 18% of pa-

*yeah its stupid*

*same w/ rest of society*



## If Everyone Were on Prozac ...

By SANJAY GUPTA, M.D.

When Prozac arrived in the U.S. in 1987, with its catchy, computer-generated name and massive marketing campaign, it didn't just take over the market for antidepressants; it expanded that market many times over, quickly becoming one of the world's best-selling drugs. Although originally approved only for adults with "symptoms of depressive illness," Prozac and its imitators (Zoloft, Paxil, Celexa, Luvox) are taken today by millions of patients—including more and more children—who don't necessarily meet the textbook criteria for clinical depression. Veterinarians have even made Prozac their No. 1 choice for dogs with the blues.

Prozac and the other so-called SSRIs have been a breakthrough on several levels. Compared with first-generation antidepressants, they are remarkably effective and relatively free of serious side effects. They work by slowing the brain's absorption of the mood-enhancing neurotransmitter serotonin (thus the term selective serotonin reuptake inhibitor).

What makes serotonin such an important brain chemical is that it affects everybody, not only depressives. According to Dr. Jonathan Metzl, author of *Prozac on the Couch*, if you were to go on the drug today, there's a good chance that you would feel better, even if you aren't depressed. Dr. Peter Kramer, author of *Listening to Prozac*, describes the effect as feeling "better than well."

And that raises an intriguing question about the future of mood-altering pharmaceuticals: If Prozac can make you feel better even if you are not depressed, why shouldn't we all be taking it? Is that the direction we're going, as the drugs become more socially acceptable and heavily marketed? (More than 11 million Americans already take some form of antidepressant.) It's a question that arises only because SSRIs are relatively mild

and subtle medications. There are plenty of drugs that can make you feel better, at least temporarily—alcohol and heroin come immediately to mind—but they tend to be addictive or toxic or both. Prozac is neither.

The drug does have its risks. According to several clinical studies, Prozac is associated with insomnia, restlessness, nausea, weakness, loss of appetite and tremors. For up to 60% of users, Prozac will interfere with their sex drive. Given indiscriminately to manic-depressives, it can trigger serious manic episodes. And there is anecdotal evidence linking Prozac with suicide and other violent behavior although whether Prozac or the underlying depression is to blame is still an open question.

But what if antidepressants like Prozac were one day made completely free of side effects and served only to elevate mood? Would there be an objection to prescribing them for the entire nation? Every psychiatrist I spoke with still answered "probably." Some see SSRIs as a kind of mental shortcut that relieves patients of the need to work through their problems. Others fear that a nation on Prozac would miss the inherent value of struggle and strife. Dr. Kramer thinks there may be an intrinsic virtue in what he calls the "unmodified personality." Although this month the FDA approved Prozac for treating children and adolescents ages 7 to 14, Dr. Jerry Rushton, a pediatrician at the University of Michigan, bemoans its use for kids, fearing that it may interfere with their emotional development.

Maybe that's something we should all worry about. It doesn't take anything away from the good that modern antidepressants have done for the clinically depressed to say that if what we are seeking is something of real and lasting value, we will probably never find it in a pill.

tients undergoing psychoanalysis in America also take some form of psychoactive medication. Some psychoanalysts even borrow techniques from cognitive therapy. "The analysts have moved more in the direction of understanding cognitive distortions," says Dr. Glen Gabbard, a psychoanalyst and professor of psychiatry at Baylor University. "If you look at good therapists on videotape, you'll find that the cognitive therapists and the analysts do many things in common." Many psychoanalysts also offer patients a treatment known as psychodynamic therapy, which requires less of a time commitment. It's like psychoanalysis lite: the same techniques are used, but the patient comes for only one or two sessions a week. "The current state of psychoanalysis is such that Freud would probably not recognize it," says Gabbard.

But old-school Freudian psychoanalysis has its true believers, and not all of them are doctors. Some are patients. "It's allowed me to figure out some pretty basic things about myself and why certain situations keep coming up," says a graduate

student in her 30s in Brooklyn, N.Y., who went into analysis after a difficult breakup. "A lot of the jokes about analysis talk about blaming your parents, but being in analysis is more about learning to take responsibility for yourself and to take care of the people around you. That kind of control only comes from understanding your past." After four years of analysis, she is more productive, less moody, less angry and less depressed. "It was one of the best decisions I ever made."

Whatever else may have changed, the intellectual adventure of psychoanalysis, the delving into the depths, is still part of the Freudian tradition, and that's not going to disappear. Psychoanalysis is based on the fundamental belief that we aren't just a collection of neurotransmitters to be fixed with a pill, or a set of cognitive skills to be coached back into shape like a slumping quarterback. To Freudians, the mind is a complex and mysterious thing, and symptoms like depression and anxiety are a language in which deep inner conflicts express themselves. "Now most psychiatrists have scorn for psychoanalysis," says

is cognitive just an upgrade? v 2.0?

Why does everyone think these methods are separate



## ANNUAL EDITIONS

Frattaroli. "In this age of the quick fix, the idea is to get rid of the symptom with a pill or some sort of therapy. But one of the problems with the current thinking is the belief that symptoms are bad. In psychoanalysis, symptoms are messages from the subconscious that something is out of balance. They have meaning. The symptom points to something deeper, and if you just get rid of the symptom, you're not solving the underlying problem."

In other words, the future of psychoanalysis depends on who, deep down, we really think we are. With or without clinical studies, the idea that the mind is a deep, mysterious place is too powerful to go away by itself. But to keep psychoanalysis alive, psychoanalysts will have to learn to innovate and evolve. A sense of humor might not be a bad place to start.

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# Computer- and Internet-Based Psychotherapy Interventions

## Abstract

Computers and Internet-based programs have great potential to make psychological assessment and treatment more cost-effective. Computer-assisted therapy appears to be as effective as face-to-face treatment for treating anxiety disorders and depression. Internet support groups also may be effective and have advantages over face-to-face therapy. However, research on this approach remains meager.

## Keywords

computer applications; Internet applications; psychotherapy and technology

C. Barr Taylor<sup>1</sup> and Kristine H. Luce

Department of Psychiatry, Stanford University Medical Center, Stanford, California

In recent years, the increasing number of users of computer and Internet technology has greatly expanded the potential of computer- and Internet-based therapy programs. Computer- and Internet-assisted assessment methods and therapy programs have the potential to increase the cost-effectiveness of standardized psychotherapeutic treatments by reducing contact time with the therapist, increasing clients' participation in therapeutic activities outside the standard clinical hour, and streamlining input and processing of clients' data related to their participation in therapeutic activities. Unfortunately, the scientific study of these programs has seriously lagged behind their purported potential, and these interventions pose important ethical and professional questions.

## COMPUTER-BASED PROGRAMS

### Information

A number of studies have demonstrated that computers can provide information effectively and economically. An analysis of a large number of studies of computer-assisted instruction (CAI) found that CAI is consistently effective in improving knowledge (Fletcher-Flinn & Gravatt, 1995). Surprisingly, few studies evaluating the use of CAI for providing information related to mental health or psychotherapy have been conducted.

### Assessment

Traditional paper-based self-report instruments are easily adapted to the computer format and offer a number of advantages that include ensuring data completeness and standardization. Research has found that computer-administered assessment instruments work as well as other kinds of self-report instruments and as well as therapist-administered ones. Clients may feel less embarrassed about reporting sensitive or potentially stigmatizing information (e.g., about sexual behavior or illegal drug use) during a computer-assisted assessment than during a face-to-face assessment, allowing for more accurate estimates of mental health behaviors. Studies show that more symptoms, including suicidal thoughts, are reported during computer-assisted interviews than face-to-face interviews. Overall, the evidence suggests that computers can make assessments more efficient, more accurate, and less expensive. Yet computer-based assessment interviews do not allow for clinical intuition and nuance, assessment of behavior, and non-verbal emotional expression, nor do they foster a therapeutic alliance between client and therapist as information is collected.

Recently, handheld computers or personal digital assistants (PDAs) have been used to collect real-time, naturalistic data on a variety of variables. For example, clients can record their thoughts, behaviors, mood, and other variables at the same time and when directed to do so by an alarm or through instructions from the program. The assessment of events as they occur avoids retrospective recall biases. PDAs can be programmed to



beep to cue a response and also to check data to determine, for instance, if responses are in the right range. The data are easily downloaded into computer databases for further analysis. PDAs with interactive transmission capabilities further expand the potential for real-time data collection. Although PDAs have been demonstrated to be useful for research, they have not been incorporated into clinical practice.

### Computer-Assisted Psychotherapy

Much research on computer-based programs has focused on anxiety disorders (Newman, Consoli, & Taylor, 1997). Researchers have developed computer programs that direct participants through exercises in relaxation and restfulness; changes in breathing frequency, regularity, and pattern; gradual and progressive exposure to aspects of the situation, sensation, or objects they are afraid of; and changes in thinking patterns. Although the majority of studies report symptom reduction, most are uncontrolled trials or case studies and have additional methodological weaknesses (e.g., small sample sizes, no follow-up to assess whether treatment gains are maintained, focus on individuals who do not have clinical diagnoses).

Computer programs have been developed to reduce symptoms of simple phobias, panic disorder, obsessive-compulsive disorder (OCD), generalized anxiety disorder, and social phobia. In a multi-center, international treatment trial (Kenardy et al., 2002), study participants who received a primary diagnosis of panic disorder were randomly assigned to one of four groups: (a) a group that received 12 sessions of therapist-delivered cognitive behavior therapy (CBT), (b) a group that received 6 sessions of therapist-delivered CBT augmented by use of a handheld computer, (c) a group that received 6 sessions of therapist-delivered CBT augmented with a manual, or (d) a control group that was assigned to a wait list. Assessments at the end of treatment and 6 months later showed that the 12-session CBT and the 6-session CBT with the computer were equally effective. The results suggested that use of a handheld computer can reduce therapist contact time without compromising outcomes and may speed the rate of improvement.

An interactive computer program was developed to help clients with OCD, which is considered one type of anxiety disorder. The computer provided three weekly 45-min sessions of therapy involving vicarious exposure to their obsessive thoughts and response prevention (a technique by which clients with OCD are taught and encouraged not to engage in their customary rituals when they have an urge to do so). Compared with a control group, the clients who received the intervention had significantly greater improvement in symptoms. In a follow-up study with clients diagnosed with OCD, computer guided telephone behavior therapy was effective; however, clinician-guided behavior therapy was even more effective. Thus, computer-guided behavior therapy can be a helpful first step in treating patients with OCD, particularly when clinician-guided behavior therapy is unavailable. Computers have also been used to help treat individuals with other anxiety disorders, including social

phobia and generalized anxiety disorder, a condition characterized by excessive worry and constant anxiety without specific fears or avoidances.

CBT also has been adapted for the computer-delivered treatment of depressive disorders. Selmi, Klein, Greist, Sorrell, and Erdman (1990) conducted the only randomized, controlled treatment trial comparing computer- and therapist-administered CBT for depression. Participants who met the study's criteria for major, minor, or intermittent depressive disorder were randomly assigned to computer-administered CBT, therapist-administered CBT, or a wait-list control. Compared with the control group, both treatment groups reported significant improvements on depression indices. The treatment groups did not differ from each other, and treatment gains were maintained at a 2-month follow-up.

Little information exists on the use of computer-assisted therapy for treating patients with complicated anxiety disorders or other mental health problems. Thus, further study is needed.

### THE INTERNET

Internet-based programs have several advantages over stand-alone computer-delivered programs. The Internet makes health care information and programs accessible to individuals who may have economic, transportation, or other restrictions that limit access to face-to-face services. The Internet is constantly available and accessible from a variety of locations. Because text and other information on the Internet can be presented in a variety of formats, languages, and styles, and at various educational levels, it is possible to tailor messages to the learning preferences and strengths of the user. The Internet can facilitate the collection, coordination, dissemination, and interpretation of data. These features allow for interactivity among the various individuals (e.g., physicians, clients, family members, caregivers) who may participate in a comprehensive treatment plan. As guidelines, information, and other aspects of programs change, it is possible to rapidly update information on Web pages. The medium also allows for personalization of information. Users may select features and information most relevant to them, and, conversely, programs can automatically determine a user's needs and strengths and display content accordingly.

### Information

Patients widely search the Internet for mental health information. For example, the National Institute of Mental Health (NIMH) public information Web site receives more than 7 million "hits" each month. However, the mental health information on commercial Web sites is often inaccurate, misleading, or related to commercial interests. Sites sponsored by nonprofit organizations provide better and more balanced information, but search engines often list for-profit sites before they generate nonprofit sites. Furthermore, education Web sites rarely follow solid pedagogical principles.



## Screening and Assessment

Many mental health Web sites have implemented screening programs that assess individuals for signs or symptoms of various psychiatric disorders. These programs generally recommend that participants who score above a predetermined cutoff contact a mental health provider for further assessment. The NIMH and many other professional organizations provide high-quality, easily accessible information combined with screening instruments. Houston and colleagues (2001) evaluated the use of a Web site that offered a computerized version of the Center for Epidemiological Studies' depression scale (CES-D; Ogles, France, Lunnen, Bell, & Goldfarb, 1998). The scale was completed 24,479 times during the 8-month study period. Fifty-eight percent of participants screened positive for depression, and fewer than half of those had previously been treated for depression. The Internet can incorporate interactive screening, which already has been extensively developed for desktop computers. Screening can then be linked to strategies that are designed to increase the likelihood that a participant will accept a referral and initiate further assessment or treatment.

## On-Line Support Groups

Because Internet-delivered group interventions can be accessed constantly from any location that has Internet access, they offer distinct advantages over their face-to-face counterparts. Face-to-face support groups often are difficult to schedule, meet at limited times and locations, and must accommodate inconsistent attendance patterns because of variations in participants' health status and schedules. On-line groups have the potential to help rural residents and individuals who are chronically ill or physically or psychiatrically disabled increase their access to psychological interventions.

A wide array of social support groups is available to consumers in synchronous (i.e., participants on-line at the same time) or asynchronous formats. The Pew Internet and American Life Project ([www.pewinternet.org](http://www.pewinternet.org)) estimated that 28% of Internet users have attended an on-line support group for a medical condition or personal problem on at least one occasion. After a morning television show featured Edward M. Kennedy, Jr., promoting free on-line support groups sponsored by the Wellness Community ([www.wellness-community.org](http://www.wellness-community.org)), the organization received more than 440,000 inquiries during the following week! The majority of published studies on Internet-based support groups suggest that the groups are beneficial; however, scientific understanding of how and when is limited. Studies that examine the patterns of discourse that occur in these groups indicate that members' communication is similar to that found in face-to-face support groups (e.g., high levels of mutual support, acceptance, positive feelings).

Only a few controlled studies have examined the effects of Internet-based support programs. One such study investigated the effects of a program named Bosom Buddies on reducing psychosocial distress in women with breast cancer (Winzelberg et al., in press). Compared with a wait-list control group, the in-

tervention group reported significantly reduced depression, cancer-related trauma, and perceived stress.

## On-Line Consultation

On-line consultation with "experts" is readily available on the Internet. There are organizations for on-line therapists (e.g., the International Society for Mental Health Online, [www.ismho.org](http://www.ismho.org)) and sites that verify the credentials of on-line providers. However, little is known about the efficacy, reach, utility, or other aspects of on-line consultation.

## Advocacy

The Internet has become an important medium for advocacy and political issues. Many organizations use the Internet to facilitate communication among members and to encourage members to support public policy (e.g., the National Alliance for the Mentally Ill, [www.nami.org](http://www.nami.org)).

## Internet-Based Psychotherapy

The Internet facilitates the creation of treatment programs that combine a variety of interactive components. The basic components that can be combined include psychoeducation; social support; chat groups; monitoring of symptoms, progress, and use of the program; feedback; and interactions with providers. Although many psychotherapy programs developed for desktop computers and manuals are readily translatable to the Internet format, surprisingly few have been adapted in this way, and almost none have been evaluated. Studies show that Internet-based treatments are effective for reducing symptoms of panic disorder. Compared with patients in a wait-list control group, those who participated in an Internet-based posttraumatic stress group reported significantly greater improvements on trauma-related symptoms. During the initial 6-month period of operation, an Australian CBT program for depression, MoodGYM, had more than 800,000 hits (Christensen, Griffiths, & Korten, 2002). In an uncontrolled study of a small subsample of participants who registered on this site, program use was associated with significant decreases in anxiety and depression. Internet-based programs also have been shown to reduce symptoms of eating disorders and associated behaviors. Users consistently report high satisfaction with these programs.

Treatment programs for depression, mood swings, and other mental health disorders are being designed to blend computer-assisted psychotherapy and psychoeducation with case management (in which a therapist helps to manage a client's problems by following treatment and therapy guidelines) and telephone-based care. These programs might also include limited face-to-face interventions, medication, and support groups. The effectiveness of these programs remains to be demonstrated.

Eventually, the most important use of the Internet might be to deliver integrated, home-based, case-managed, psychoeducational programs that are combined with some face-to-face contact and support groups. Unfortunately, although a number

to do more internet only features



of such programs are "under development," none have been evaluated in controlled trials.

## ETHICAL AND PROFESSIONAL ISSUES

Web-based interventions present a number of ethical and professional issues (Hsiung, 2001). Privacy is perhaps the most significant concern. The Internet creates an environment where information about patients can be easily accessed and disseminated. Patients may purposely or inadvertently disclose private information about themselves and, in on-line support groups, about their peers. Although programs can be password-protected, and electronic records must follow federal privacy guidelines, participants must be clearly informed that confidentiality of records cannot be guaranteed. *can never be even on paper*

Internet interventions create the potential that services will be provided to patients who have not been seen by a professional or who live in other states or countries where the professionals providing the services are not licensed to provide therapy. Professional organizations are struggling to develop guidelines to address these concerns (e.g., Hsiung, 2001; Kane & Sands, 1998).

Because of its accessibility and relative anonymity, patients may use the Internet during crises and report suicidal and homicidal thoughts. Although providers who use Internet support groups develop statements to clearly inform patients that the medium is not to be used for psychiatric emergencies, patients may ignore these instructions. Thus, providers need to identify ancillary procedures to reduce and manage potential crises.

Given the continuing advances in technology and the demonstrated effectiveness and advantages of computer- and Internet-based interventions, one might expect that providers would readily integrate these programs into their standard care practice. Yet few do, in part because programs that are easy to install and use are not available, there is no professional or market demand for the use of computer-assisted therapy, and practitioners may have ethical and professional concerns about applying this technology in their clinical practice. Thus, in the near future this technology may primarily be used for situations in which the cost-effectiveness advantages are particularly great.

## CONCLUSION

Computers have the potential to make psychological assessments more efficient, more accurate, and less expensive. Computer-assisted therapy appears to be as effective as face-to-face therapy for treating anxiety disorders and depression and can be delivered at lower cost. However, applications of this technology are in the early stages.

A high priority is to clearly demonstrate the efficacy of this approach, particularly compared with standard face-to-face, "manualized" treatments that have been shown to be effective for common mental health disorders. Studies that compare two

potentially efficacious treatments require large samples for us to safely conclude that the therapies are comparable if no statistically significant differences are found. Kenardy et al. (2002) demonstrated that multi-site, international studies sampling large populations could be conducted relatively inexpensively, in part because the intervention they examined was standardized. If a treatment's efficacy is demonstrated, the next step would be to determine if the therapy, provided by a range of mental health professionals, is useful in large, diverse populations. Examination of combinations of therapies (e.g., CBT plus medication) and treatment modalities (Taylor, Cameron, Newman, & Junge, 2002) should follow. As the empirical study of this technology advances, research might examine the utility and cost-effectiveness of adapting these approaches to treating everyone in a community who wants therapy.

Continued use of the Internet to provide psychosocial support and group therapy is another promising avenue. As in the case of individual therapy, research is needed to compare the advantages and disadvantages between Internet and face-to-face groups, determine which patients benefit from which modality, compare the effectiveness of professionally moderated groups and self- or peer-directed groups, and compare the effectiveness of synchronous and asynchronous groups.

As research progresses, new and exciting applications can be explored. Because on-line text is stored, word content can be examined. This information may teach us more about the therapeutic process or may automatically alert providers to patients who are depressed, dangerous, or deteriorating.

Although research in many aspects of computer-assisted therapy is needed, and the professional and ethical concerns are substantial, computers and the Internet are likely to play a progressively important role in providing mental health assessment and interventions to clients. Thus, mental health professionals will need to decide how they will incorporate such programs into their practices.

## RECOMMENDED READING

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# Test Your Knowledge Form

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NAME:

DATE:

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TITLE AND NUMBER OF ARTICLE:

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BRIEFLY STATE THE MAIN IDEA OF THIS ARTICLE:

---

LIST THREE IMPORTANT FACTS THAT THE AUTHOR USES TO SUPPORT THE MAIN IDEA:

---

WHAT INFORMATION OR IDEAS DISCUSSED IN THIS ARTICLE ARE ALSO DISCUSSED IN YOUR TEXTBOOK OR OTHER READINGS THAT YOU HAVE DONE? LIST THE TEXTBOOK CHAPTERS AND PAGE NUMBERS:

---

LIST ANY EXAMPLES OF BIAS OR FAULTY REASONING THAT YOU FOUND IN THE ARTICLE:

---

LIST ANY NEW TERMS/CONCEPTS THAT WERE DISCUSSED IN THE ARTICLE, AND WRITE A SHORT DEFINITION:



## **A Reader's Theater: "Cinderella's Therapists"**

Students will be introduced to different orientations and techniques used in psychotherapy.

Materials: Several copies of scripts.

Procedures:

**1. Designate a therapist, a Cinderella, a Fairy, and a moderator for each**

page of  
dialogue.

T = Therapist  
M = Moderator  
C = Cinderella  
F = Fairy

**2. Have each group study parts, and then have a type of "reader's theater"**

for class as they read their parts.

**3. Do one at a time – Discussion optional.**

## **Biomedical**

### **Moderator: How do you conceptualize Cinderella's difficulties?**

Therapist:

I believe that Cinderella is suffering from an organic disturbance – probably a brain disturbance of some sort, for example, an overabundance or lack of a neurotransmitter. For Cinderella, we postulate that she is suffering from a psychotic disturbance, due to her delusions of being persecuted and then rescued by a handsome prince.

### **Moderator: How would you treat Cinderella?**

Therapist:

Since we believe that Cinderella is suffering from the effects of some sort of psychosis, we would recommend prescribing her an antipsychotic medicine.

## **Drug Therapy**

Cinderella: I always have to work for my mean and ugly stepmother and stepsisters and they never let me go out and have a good time.

### **Fairy: How do you envision getting free of this situation?**

Cinderella: I know that one day a handsome prince will carry me off to live as his queen in his grand castle.

### **Fairy: And how will this occur?**

Cinderella: Well, first he will invite everyone in the town to come to a ball and, of course, my stepfamily will not allow me to attend yet they all will. I'll have to get them ready but can't go myself. But I know that later that night, my fairy godmother will appear, turn my rags into a beautiful gown, mice and men, a pumpkin into a coach, and rats into horses, In this way, I will be able to attend the ball where the prince will fall instantly in love with me and nobody else will recognize me.

Oh, one last thing, I'll be wearing glass shoes and still be able to waltz better than anyone and run away at the stroke of midnight!

Fairy: Cinderella, I'm going to ask you a few questions. What year is it now?



mind no matter how trivial it seems.

Cinderella: I'm a little embarrassed about doing this. I don't really know what to say.

Fairy: Just relax and say the first thing that comes into your mind.

Cinderella: OK, ummm, cleaning, working, tired, hate, love, mice, men, Steinbeck---  
ooppss,

wrong story – handsome, wealthy, powerful, prince, palace, slipper, lost, pumpkins,  
coaches, run.....

## **Cognitive**

Moderator: As a cognitive therapist, how would you conceptualize Cinderella's difficulties?

Therapist: Cinderella's thought processes are clearly full of certain excesses, deficits, and warped worldviews that would predispose her to difficulties in life. For example, Cinderella spends much of her time engaging in avoidance behavior such as daydreaming and being self-critical. Compounding these problems is the fact that she spends too little of her time planning or making decision. In fact, she has poor problem solving skills. In addition, she tends to "Awfulize."

## **Moderator: What do you mean by "awfulizing?"**

Therapist: Cinderella tends to view her entire world as terrible. She fails to recognize any good

in her situation.

Moderator: What are the goals of therapy with Cinderella and how would you attempt to meet

these goals?

Let's look at an example.

## **Cognitive Therapy**

Cinderella: I always have to work for my mean and ugly stepmother and stepsisters and they

C:\Documents and Settings\Brad Siegerman\Desktop\AP PSYCHOLOGY\cinderalla in therapy.doc

never let me go out and have a good time.

Fairy: It seems to me that you think that your stepmother and stepsisters have control over your

life.

Cinderella: Not only that, but they make my life miserable. I have to cook and clean for them, sew their clothes, fix their hair and make-up – no easy task – tend the animals and garden. Why I hardly have time for myself!!! It's always them, them, them!

### **Fairy: When you do have spare time, what do you do?**

Cinderella: To be honest, I just sit amongst the cinders and daydream that someday a handsome

prince will come along and rescue me from this drudgery.

Fairy: Have you even tried to think of a different way out of your present situation?

Cinderella: Why NO!! I could never free myself from this mess. Besides, how can I make

plans? When I'm just plain woman in ragged clothes.

I'm worthless!

Fairy: I think that you're wrong about that. In fact, I think that you are entirely worthwhile and

that if we just put our minds to it, we can come up with a solution to your dilemma.

## **Behavioral**

### **Moderator: How do you conceptualize Cinderella's difficulties?**

Therapist: It seems to me as if Cinderella's major problem is her fear of her stepmother and

stepsisters. She has not learned how to deal with them in a way that is good for her.

### **Moderator: What would you suggest she do?**

Therapist: I would suggest that Cinderella change her behavior at home.

### **Specifically, she**

should not fear her family members. This fear is the source of her unhappiness.



## **Humanistic**

### **Moderator: How do you conceptualize her difficulties?**

Therapist: I don't think that anyone or I but Cindy can truly understand her difficulties. She is a unique person with unique experiences. Right now, it doesn't seem like Cindy understands herself or accepts herself for who she is.

### **Moderator: What would you suggest she do?**

Therapist: I think Cindy is beginning a process of self-exploration that will result in growth and

self-acceptance. The key to this process, I think, is expression of true feelings.

### **Moderator: How would you do therapy with her?**

Therapist: I am going to try and give Cindy a safe and supportive environment in which to grow. Also, I will try to facilitate her exploration of her true self. I will do this by offering her unconditional positive regard, empathizing with her, and being genuine with her.

## **Client-centered therapy**

Fairy: So Cindy- may I call you Cindy? You may call me Fairy - What brings you here today?

Cinderella: I always have to work for my mean and ugly stepmother and stepsisters and they

never let me go out and have a good time.

Fairy: It sounds like you are very frustrated with your current situation.

Cinderella: Oh yes!!! I just can't believe that they make me work so hard without a reprieve.

Fairy: It must make you very angry. Can you tell me more about how you are treated by your

stepmother and stepsisters?

Cinderella: Well, they constantly tell me how ugly and useless I am.

Fairy: How does it make you feel when they say this to you?

Cinderella: It makes me feel ugly.

Fairy: When people criticize me, it hurts me. Is that how you feel when your stepfamily call

you ugly and worthless?

## **Cinderella: Yes**

Fairy: Let's talk more about that.

# Chap 18

## On your Own

5/31

PSYCHOLOGY  
(8th Edition)  
David Myers

PowerPoint Slides  
Aneeq Ahmad  
Henderson State University

Worth Publishers, © 2006



## Social Psychology

### Chapter 18

### Social Psychology

#### Social Thinking

- Attribution of Behavior to Persons or Situations
- Attitudes and Action

#### Social Influence

- Conformity and Obedience
- Group Influence

National Tragedies triggers mass anger + anxiety  
- but also a mass outpouring of help + compassion  
Why do people want to kill themselves + others?  
Why do we rush to help others?

### Social Psychology

#### Social Relations

- Prejudice
- Aggression
- Conflict
- Attraction
- Altruism
- Peace Making

### Focuses in Social Psychology

"We cannot live for ourselves alone."  
Herman Melville

Social psychology scientifically studies how we think about, influence, and relate to one another.

### Social Thinking

1. Does his absenteeism signify illness, laziness, or a stressful work atmosphere?
2. Was the horror of 9/11 the work of crazed evil people or ordinary people corrupted by life events?

Social thinking involves thinking about others, especially when they engage in doing things that are unexpected.

### Attributing Behavior to Persons or to Situations

Attribution Theory: Fritz Heider (1958) suggested that we have a tendency to give causal explanations for someone's behavior, often by crediting either the situation or the person's disposition.



Fritz Heider

### Attributing Behavior to Persons or to Situations

A teacher may wonder whether a child's hostility reflects an aggressive personality (*dispositional attribution*) or is a reaction to stress or abuse (*a situational attribution*).

Dispositions are enduring personality traits. So, if Joe is a quiet, shy, and introverted child, he is likely to be like that in a number of situations.



### Fundamental Attribution Error

The tendency to overestimate the impact of personal disposition and underestimate the impact of the situations in analyzing the behaviors of others leads to the fundamental attribution error.

We see Joe as quiet, shy, and introverted most of the time, but with friends he is very talkative, loud, and extroverted.

- aggressive personality  
or  
- reaction to stress/abuse

but

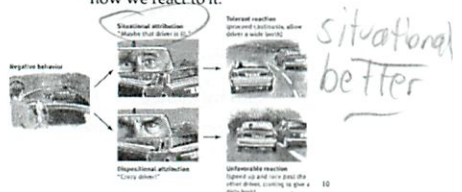
people didn't care when told behavior was situational  
- Still thought was unfriendly  
- but don't think that they do  
- weird to see people in other roles



- helps to see from someone else's perspective
- Nazi death camp commanders seemed normal w/ family

**Effects of Attribution**

How we explain someone's behavior affects how we react to it.



- conservatives: poor are lazy
- liberals: poor have bad situation
- people were not lazy leaving for Katrina - didn't have means

**Attitude**

A belief and feeling that predisposes a person to respond in a particular way to objects, other people, and events.

If we believe a person is mean, we may feel dislike for the person and act in an unfriendly manner.

self fulfilling prophesy  
\*key: change the way people think

**Attitudes Can Affect Action**

Our attitudes predict our behaviors imperfectly because other factors, including the external situation, also influence behavior.

Democratic leaders supported Bush's attack on Iraq under public pressure. However, they had their private reservations.

**Attitudes Can Affect Action**

Not only do people stand for what they believe in (attitude), they start believing in what they stand for.



Cooperative actions can lead to mutual liking (beliefs).

← linked

**Small Request - Large Request**

In the Korean War, Chinese communists solicited cooperation from US army prisoners by asking them to carry out small errands. By complying to small errands they were likely to comply to larger ones.

Foot-in-the-Door Phenomenon: The tendency for people who have first agreed to a small request to comply later with a larger request.

Start small + build "spiral"  
works for good + bad deeds

**Role Playing Affects Attitudes**

Zimbardo (1972) assigned the roles of guards and prisoners to random students and found that guards and prisoners developed role-appropriate attitudes.



at first you pretend - then you start to act  
brought on by bad working conditions

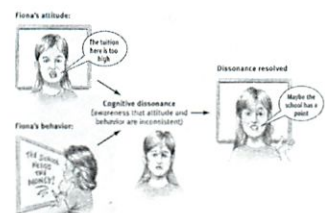
**Actions Can Affect Attitudes**

Why do actions affect attitudes? One explanation is that when our attitudes and actions are opposed, we experience tension. This is called cognitive dissonance.

To relieve ourselves of this tension we bring our attitudes closer to our actions (Festinger, 1957).

\*moral actions strengthen moral conviction

**Cognitive Dissonance**



- bring our attitude in line w/ our actions  
- you start believing your phony words by writing supporting tuition

**Social Influence**

The greatest contribution of social psychology is its study of attitudes, beliefs, decisions, and actions and the way they are molded by social influence.



- we act based on what we see around us - social influence

\* to fix bad attitude - act positive

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## Conformity & Obedience

Behavior is contagious, modeled by one followed by another. We follow behavior of others to conform.

Other behaviors may be an expression of compliance (obedience) toward authority.

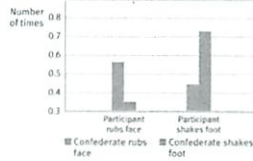
Conformity Obedience

- natural mimics  
- suicides possibly cluster at schools

- mood linkage  
- shared up + down moods  
\* most emphatic people mimic the most

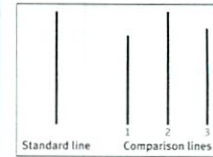
## The Chameleon Effect

Conformity: Adjusting one's behavior or thinking to coincide with a group standard (Chartrand & Bargh, 1999).



## Group Pressure & Conformity

Suggestibility is a subtle type of conformity, adjusting our behavior or thinking toward some group standard.



## Group Pressure & Conformity

An influence resulting from one's willingness to accept others' opinions about reality.



↑ people hesitate to differ from the group

## Conditions that Strengthen Conformity

1. One is made to feel incompetent or insecure.
2. The group has at least three people.
3. The group is unanimous.
4. One admires the group's status and attractiveness.
5. One has no prior commitment or response.
6. The group observes one's behavior.
7. One's culture strongly encourages respect for a social standard.

## Reasons for Conformity

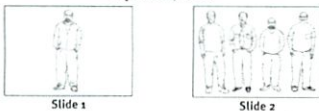
**Normative Social Influence:** Influence resulting from a person's desire to gain approval or avoid rejection. A person may respect normative behavior because there may be a severe price to pay if not respected.

**Informative Social Influence:** The group may provide valuable information, but stubborn people will never listen to others.

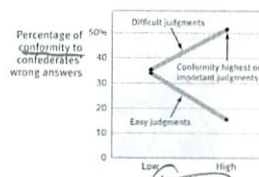
deserting people punished  
they love themselves more than others  
- someone drove wrong way on highway for 30 mi thinking everyone else was wrong

## Informative Social Influence

Baron and colleagues (1996) made students do an eyewitness identification task. If the task was easy (lineup exposure 5 sec.), conformity was low in comparison to a difficult (1/2 sec. exposure) task.



## Informative Social Influence



Baron et al., (1996)

- when being right mattered people conformed more than others

- conformity lower in Western individualist nations

People comply to social pressures. How would they respond to outright command?

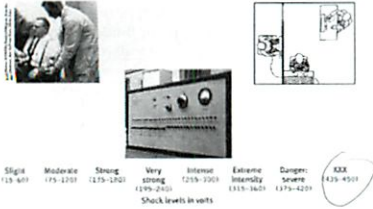
Stanley Milgram designed a study that investigates the effects of authority on obedience.



Stanley Milgram (1933-1984)



## Milgram's Study



Shock levels in volts

Slight (15-45)	Moderate (75-135)	Strong (150-210)	Very Strong (225-285)	Intense (300-360)	Extreme Intensity (375-435)	Danger: Severe (450-510)	XXX (420-450)
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- Similar for men + women
- in surveys people said they would stop when causing pain

## Lessons from the Conformity and Obedience Studies

In both Ash's and Milgram's studies, participants were pressured to follow their standards and be responsive to others.

In Milgram's study, participants were torn between hearing the victims pleas and the experimenter's orders.

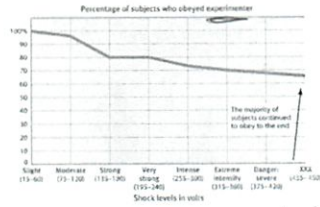
- Used foot-in-the door principles
- those who resisted did so early
- people willing to do paperwork for evil doers

## Social Loafing

The tendency of an individual in a group to exert less effort toward attaining a common goal than when tested individually (Latané, 1981).

- people pull w/ 82% effort in tug-of-war when others there
- especially common in individualistic cultures
- people feel less accountable + more dispensible in a group

## Milgram's Study: Results



- Most obedience
- Orderer close at hand + authoritative figure
  - figure supported by prestigious institution
  - victim further off
  - no role models for defiance
- ## Group Influence

How do groups affect our behavior? Social psychologists study various groups:

1. One person affecting another
2. Families
3. Teams
4. Committees

## Deindividuation

The loss of self-awareness and self-restraint in group situations that foster arousal and anonymity.



Mob behavior

- 2x more shock if victim covered up

## Individual Resistance

A third of the individuals in Milgram's study resisted social coercion.



An unarmed individual single-handedly challenged a line of tanks at Tiananmen Square.

1/3 in Milgram

## Individual Behavior in the Presence of Others

**Social facilitation:** Refers to improved performance on tasks in the presence of others. Triplett (1898) noticed cyclists race times were faster when they competed against others than when they just raced against the clock.

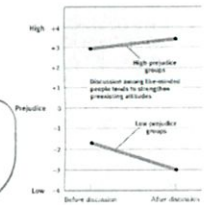


- also with traffic lights people go 15% faster when someone else there
- \* but less well on difficult tasks

Parosual full houses better for comedy

## Effects of Group Interaction

**Group Polarization** enhances a group's prevailing attitudes through a discussion. If a group is like-minded, discussion strengthens its prevailing opinions and attitudes.



- landslide counties
- terrorists are trained as "brothers" and "us vs them"
- works on internet

\* Leaders must value dissenting opinions

5/31

### Groupthink

A mode of thinking that occurs when the desire for harmony in a decision-making group overrides the realistic appraisal of alternatives.

- Attack on Pearl Harbor
- Kennedy and the Cuban Missile Crisis
- Watergate Cover-up
- Chernobyl Reactor Accident

- to preserve good feelings  
 dissenting views censored or self-censored  
 \* over confidence, conformity, self-justification, group polarization

### Power of Individuals

The power of social influence is enormous, but so is the power of the individual.



Gandhi

Non-violent fasts and appeals by Gandhi led to the independence of India from the British.

- when we are pressured may do opposite to show our independence  
 \* some people are willing to dissent \*  
 - must hold fast to decision

### Reign of Prejudice

Prejudice works at the conscious and [more at] the unconscious level. Therefore, prejudice is more like a knee-jerk response than a conscious decision.

to sway others

### Social Relations

Social psychology teaches us how we relate to one another through prejudice, aggression, and conflict to attraction, and altruism and peacemaking.

### Prejudice

Simply called "prejudgment," a prejudice is an unjustifiable (usually negative) attitude toward a group and its members. Prejudice is often directed towards different cultural, ethnic, or gender groups.

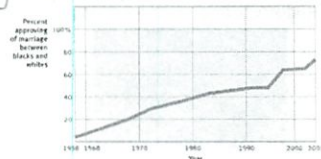
#### Components of Prejudice

1. Beliefs (stereotypes)
2. Emotions (hostility, envy, fear)
3. Predisposition to act (to discriminate)

attitude  
 discrimination  
 behavior

### How Prejudiced are People?

Over the duration of time many prejudices against interracial marriage, gender, homosexuality, and minorities have decreased.



- seems to be ↓  
 - but subtle undertones still there - just not saying them

### Racial & Gender Prejudice

Americans today express much less racial and gender prejudice, but prejudices still exist.



### Race

Nine out of ten white respondents were slow when responding to words like "peace" or "paradise" when they saw a black individual's photo compared to a white individual's photo (Hugenberg & Bodenhausen, 2003).

### Gender

Most women still live in more poverty than men. About 100,000,000 women are missing in the world. There is a preference for male children in China and India, even with sex-selected abortion outlawed.

higher female death rate in undeveloped nations



### Gender

Although prejudice prevails against women, more people feel positively toward women than men. Women rated picture b [feminized] higher (665) for a matrimonial ad (Perrett, 1998).



like subtle female  
 - women faces liked more than men

### Social Roots of Prejudice

Why does prejudice arise?

1. Social Inequalities
2. Social Divisions
3. Emotional Scapegoating

### Social Inequality

Prejudice develops when people have money, power, and prestige, and others do not. Social inequality increases prejudice.

people who "have" justify having  
 "blame the victim"

### In and Out Groups

Ingroup: People with whom one shares a common identity. Outgroup: Those perceived as different from one's ingroup. Ingroup Bias: The tendency to favor one's own group.



Scotland's famed "Tartan Army" fans.

- we have established social identities  
 - we think our school/clique/nation is the best

### Emotional Roots of Prejudice

Prejudice provides an outlet for anger [emotion] by providing someone to blame. After 9/11 many people lashed out against innocent Arab-Americans.

need a target/outlet for anger  
 ↳ scapegoat theory  
 - restores our hurt self-esteem

### Cognitive Roots of Prejudice

One way we simplify our world is to categorize. We categorize people into groups by stereotyping them.

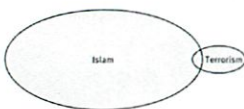


Foreign sunbathers may think Balinese look alike.

oversimplify  
 with experience we get better

### Cognitive Roots of Prejudice

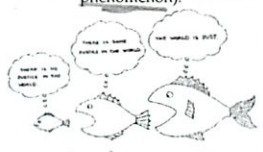
In vivid cases such as the 9/11 attacks, terrorists can feed stereotypes or prejudices (terrorism). Most terrorists are non-Muslims.



vivid cases cause stronger memories

### Cognitive Roots of Prejudice

The tendency of people to believe the world is just, and people get what they deserve and deserve what they get (the just-world phenomenon).



"good is rewarded + evil is punished"  
 ↳ so those who succeed are good

### Hindsight Bias

After learning an outcome, the tendency to believe that we could have predicted it beforehand may contribute to blaming the victim and forming a prejudice against them.

Blame victim  
 ↳ also reassures people it won't happen to them

6/1

### Aggression

Aggression can be any physical or verbal behavior intended to hurt or destroy. It may be done reactively out of hostility or proactively as a calculated means to an end.

Research shows that aggressive behavior emerges from the interaction of biology and experience.

- in psychology must want to hurt + destroy

### The Biology of Aggression

Three biological influences on aggressive behavior are:

1. Genetic Influences
2. Neural Influences
3. Biochemical Influences

- animals can be bred for aggression  
- criminals have often been hit on the head

complicated

### Influences

**Genetic Influences:** Animals have been bred for aggressiveness for sport and at times for research. Twin studies show aggression may be genetic. In men, aggression is possibly linked to the Y chromosome.

**Neural Influences:** Some centers in the brain, especially the limbic system (amygdala) and the frontal lobe, are intimately involved with aggression.

can inhibit w/ electrode

### Influences

**Biochemical Influences:** Animals with diminished amounts of testosterone (castration) become docile, and if injected with testosterone aggression increases. Prenatal exposure to testosterone also increases aggression in female hyenas.



### The Psychology of Aggression

Four psychological factors that influence aggressive behavior are:

1. Dealing with aversive events
2. Learning aggression is rewarding
3. Observing models of aggression
4. Acquiring social scripts

### Aversive Events

Studies in which animals and humans experience unpleasant events reveal that those made miserable often make others miserable.



Ron Artest (Pacers) attack on Detroit Pistons fans.

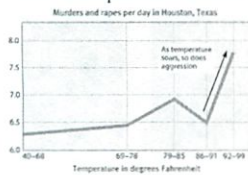
hormones, alcohol, + other

- high testosterone levels correlate w/ aggression

- So does thinking or accidentally drinking alcohol

Environment

Even environmental temperature can lead to aggressive acts. Murders and rapes increased with the temperature in Houston.



### Frustration-Aggression Principle

A principle in which frustration (caused by the blocking of an attempt to achieve a desired goal) creates anger, which can generate aggression.

- terrorism could be b/c out for revenge

when hotter

### Learning that Aggression is Rewarding

When aggression leads to desired outcomes, one learns to be aggressive. This is shown in both animals and humans.

Cultures that favor violence breed violence. Scotch-Irish settlers in the South had more violent tendencies than their Quaker Dutch counterparts in the Northeast of the US.

cultures reinforce

- 70% of juvenile delinquents have a missing parent  
- remember situation still matters  
- learned from parents



### Observing Models of Aggression

Sexually coercive men are promiscuous and hostile in their relationships with women. This coerciveness has increased due to television viewing of R- and X-rated movies.



Rape myth - that victims enjoy rape & shown on TV/movies porn - especially violent - ↑ one's wish to rape

### Acquiring Social Scripts

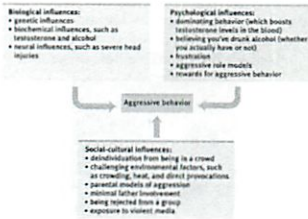
The media portrays social scripts and generates mental tapes in the minds of the viewers. When confronted with new situations individuals may rely on such social scripts. If social scripts are violent in nature, people may act them out.

### Do Video Games Teach or Release Violence?

The general consensus on violent video games is that, to some extent, they breed violence. Adolescents view the world as hostile when they get into arguments and receive bad grades after playing such games.

some overreact  
- but people who play them perceive world as more hostile  
- newer games are worse

### Summary



### Conflict

Conflict is perceived as an incompatibility of actions, goals, or ideas.

A Social Trap is a situation in which the conflicting parties, by each rationally pursuing their self-interest, become caught in mutually destructive behavior.

- distorted perspectives

### A Game of Social Trap

By pursuing our self-interest and not trusting others, we can end up losers.

		Person 1	
		Choose A	Choose B
Person 2	Choose A	Optimal outcome +\$5	+\$50
	Choose B	+\$5	-\$5
		Probable outcome	
		+\$50	0

- the longer you pursue your self-interest - the worse off you are  
(- regulation, communication, awareness)

### Enemy Perceptions

People in conflict form diabolical images of one another.



Saddam Hussein "Wicked Pharaoh"



George Bush "Evil"

vicious cycle of hostility

### Psychology of Attraction

1. Proximity: Geographic nearness is a powerful predictor of friendship. Repeated exposure to novel stimuli increases their attraction (mere exposure effect)

A rare white penguin born in a zoo was accepted after 3 weeks by other penguins just due to proximity.



we like our face better mirrored

### Psychology of Attraction

2. Physical Attractiveness: Once proximity affords contact, the next most important thing in attraction is physical appearance.



- Hollywood models this  
- most attractive = morally superior  
- unrelated to self-esteem  
- changes w/ culture  
\* average face more attractive

## Psychology of Attraction

3. Similarity: Similar views among individuals causes the bond of attraction to strengthen.

Similarity breeds content!

- not like stories of Birds, Hats + Mooses
- love many things together
- best when rewards ↑ costs ↓

## Romantic Love

Passionate Love: An aroused state of intense positive absorption in another, usually present at the beginning of a love relationship.

Two-factor theory of emotion

1. Physical arousal plus cognitive appraisal
2. Arousal from any source can enhance one emotion depending upon what we interpret or label the arousal

- attraction to woman heightened if aroused from other things (adrenaline)

## Romantic Love

Companionate Love: A deep, affectionate attachment we feel for those with whom our lives are intertwined.



- floating on a cloud feeling fades but compassionate remains
- equity + self disclosure matters

## Altruism

An unselfish regard for the welfare of others.

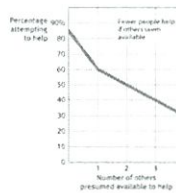
Equity: A condition in which people receive from a relationship in proportion to what they give.

Self-Disclosure: Revealing intimate aspects of oneself to others.

Kitty Genovese's murder

## Bystander Effect

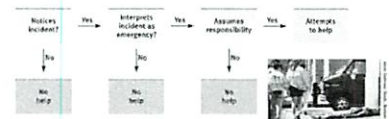
Tendency of any given bystander to be less likely to give aid if other bystanders are present.



think others will help

## Bystander Intervention

The decision-making process for bystander intervention.



## The Norms for Helping

Social Exchange Theory: Our social behavior is an exchange process. The aim is to maximize benefits and minimize costs.

- Reciprocity Norm: The expectation that we should return help and not harm those who have helped us.
- Social-Responsibility Norm: Largely learned, it is a norm that tells us to help others when they need us even though they may not repay us.

↑ religious people more

## Peacemaking

Superordinate Goals are shared goals that override differences among people and require their cooperation.



Communication and understanding developed through talking to one another. Sometimes it is mediated by a third party.

"I want to reach out, but they don't want to"  
- must not have competition + instead shared experiences

## Peacemaking

Graduated & Reciprocated Initiatives in Tension-Reduction (GRIT): This is a strategy designed to decrease international tensions. One side recognizes mutual interests and initiates a small conciliatory act that opens the door for reciprocation by the other party.

- need to discuss problems
- find win-win solutions
- increase trust + cooperation



The Breakfast Club Assignment

John Hughes' wildly popular 1985 film gave birth to the infamous "brat pack" of actors and actresses and set the standard by which all teen movies were evaluated for several years. Molly Ringwald, Ally Sheedy, Emilio Estevez, Anthony Michael Hall, and Judd Nelson star as five totally different high school kids (a princess, a kooky introvert, a jock, a nerd, and a delinquent, respectively) who get to know each other while thrown together during an all-day Saturday detention session. This film gives credence to the "storm and stress" view of adolescence. Also included are compelling insights into adolescent struggles with:

1. Identity formation
2. Moral reasoning
3. Self-esteem
4. Sexual activity
5. Peer and Parent relationship

Assignment

Using the list of the five struggles, give an example from the movie.

EXAMPLES

Identity Formation	Moral reasoning	Self-esteem	Sexual Activity	Peer and Parent Relationship
Making noises	lying to cover other people	Putting others down	"impregnate"	Parent telling kids to study
Defined by activities you do	blaming one's anger on one's parents	destroy property	talk about being a virgin	Parents going through divorce - get back at each other
Drugs form your identity	Principal wants revenge	having a large lunch	talk about "Feeling p"	no one says they like their parents
			Comparing the number of people he "laid"	

Final Exam AP Psychology  
Mr. Siegeman

Task: Part One

1. Take any unit and create a lesson plan that could be used in an AP Psychology Class. You may use your textbook to create charts and diagrams. You need to list topics and vocabulary that are germane to the subject matter.
2. How would you teach this unit? Would you lecture, discuss, etc. Explain how you would deliver the material
3. How would you check for understanding? Would you give a test, project, quiz, etc? Explain why you would use the method and cite some examples.

Part Two

What will you take away from this course? Please give some examples to backup your statement?