Definition of “Psychological Science”

- Psychological science is the study of mind, brain, and behavior:
  - Mind: mental activity such as thinking, feeling, remembering (e.g., thinking through a to-do list; an ice cream truck triggering a childhood memory)
  - Brain: the biological process assumed to represent the mind; associated with structures such as nerve cells and chemical reactions.
  - Behavior: all outward action like movement and talking

For many years, psychologists focused on behavior because there were few objective techniques for studying the mind.

Primary Goals of Psychology

- Describe: case studies; qualitative studies
- Explain: theory
- Predict: understanding the relationship between phenomena
- Change/Control: provide information for change

Brief History of Psychology

- What is Psychology’s birthday?
- Psychology’s early roots:
  - Philosophy-explaining what we think we know; examining how we know it
    - Socrates (Socratic method)
    - Descartes (I think therefore I am)
  - Sartre (Existentialism: What’s the point, anyway?)
Early Psychologists

- Wilhelm Wundt – German physiologist
  - Science of the mind
  - Objective introspection-thinking objectively about thoughts when presented with physical stimuli (i.e. without biases of values or beliefs)
  - First attempt to measure experience; first experimental lab

- Edward Titchener – English student of Wundt
  - Expanded from physical sensation to thoughts; conscious experience can be understood by breaking down its underlying components; thus structuralism

- William James – American physiologist
  - More concerned with how the mind operates than what it contains; how the mind helps people function on a day to day basis, thus functionalism

What was the problem with introspection?

- The problem with this approach is that experience is subjective. Each person brings to introspection a unique perceptual system, and it is difficult to determine whether subjects are using the criteria in a similar way. Accordingly, over the course of time introspection was largely abandoned in psychology.

Early Psychologists

- What about functionalism?

  - The approach is still used in various disciplines. For example, in Educational Psychology the application of psychological principles are applied to the classroom. Thus, the importance of function is key.

Critical Analysis

- The ability to think skeptically is often referred to as critical thinking, a systematic way of evaluating information in order to reach reasonable conclusions.

- Women & African Americans in Psychology
  - Why do you think the text provides you with factual information about various diverse figures in psychology (ex: Mary Calkins; Albert Beckham), but no information on their theories or ideas like we received with historical figures such as Wundt, Titchener, and James?
Gestalt – What do you see?

Brief History Continued

- Max Wertheimer & Wolfgang Kohler
  - Gestalt theory – the whole is greater than the sum of its parts
    - Whole is not simply its parts
    - This was called a phenomenological approach
    - Opposition to Structuralism:
      - Can not necessarily understand phenomena by examining its parts
      - Perception is subjective and dependent on context

Brief History Continued

- Freud, Psychological Icon
  - Freud was a doctor with patients with nervous conditions, especially women without any apparent cause
  - The explanation: repression or denial of problems that resurfaced in nervous conditions
  - Through a process of psychoanalysis, insight into the denied problem was thought to cure the nervous condition

Brief History Continued

- Behaviorism – push to abandon structuralism, psychoanalysis, & functionalism in favor of what can be observed and measured – behavior
  - Pavlov's dogs & conditioning
    - Ring a bell (stimulus) → feed food (stimulus) → salivate (response)
    - Ring a bell (stimulus) → salivate (response)
  - Watson
    - Little Albert – conditioned fear response
    - Paired a scary loud sound with a white rat
    - Generalization – other animals and even white fur
Brief History Continued

- Mary Cover Jones
  - Repeated Watson’s study, Little Peter
  - Counterconditioning
  - Paired a scary noise with a white rabbit
  - Then paired a pleasurable stimulus (food) with white rabbit to counter condition
  - Another word for counter condition is extinguish

- Skinner
  - Operant conditioning
  - Pairing a behavior with a pleasurable reward
  - Behavioral responses that are rewarded are reinforced
  - Example: a student who studies for an exam and receives a good grade may enjoy the reward of receiving a good grade and is thus motivated to study in the future

Many theories of Psychology

- Psychodynamic perspective – many Neo-Freudian therapists use Freud’s theories in the clinical practice; difficult to study empirically
- Behavioral perspective- still a strong force in psychology today both in scientific study and clinical practice
- Humanistic perspective (third force)
  - Free will; people drive their own lives
  - Reach their own potential

- Cognitive perspective – very strong in clinical practice; understanding and though processes in turn to change mood and behavior; in scientific analysis – memory, intelligence, perception, language, problem solving, etc.
- Cognitive neuroscience –combines thought processes with analysis of what is going on in the brain
Many theories of Psychology

- Sociocultural perspective – the study of groups and culture (values & behaviors associated with a particular group)
  - Impact on science: findings may not be generalizable to all groups; there may be a cultural factor to assess

- Bio-psychological perspective – study of biological basis of behavior
  - This is an area unto itself (study of abnormal conditions that may be rooted in a chemical source such as schizophrenia) (hallucinations, false beliefs, disordered thinking)
  - Many areas use biology to further inform their research

Many theories of Psychology

- Evolutionary perspective – uses the theories of Darwin in application to a variety of psychological topics
  - Those who adapt to the environment survive
  - These skills, abilities, and physical traits are passed on future generations through both learned behavior and biological processes

Psychology as profession

- Psychologist versus psychiatrist
  - Psychologist studies the field of psychology only; no medical training; typically they do not prescribe drugs; varied in professional setting

  - Psychiatrist – is a medical doctor; prescribes drugs; and is usually employed in the assessment and assistance of psychological disorders

- Therapists; private practice; or community health
- Professors (teach; research)
- Research (think tanks)
- Governmental Jobs
Psychology as profession

- In conjunction with other professions:
  - Legal services
  - Interior Design
  - Educational services (Educational Psychology)
  - Corporate settings (Industrial/Organizational)
  - Sports (Sports Psychologists)
  - Politics

Scientific Methodology

- In general, what is the scientific method?
  - The steps:
    - Formulating a question (empirical; testable)
    - Generating a hypothesis – a tentative answer to your question; an explanation of phenomena that may or may not be correct
    - Testing the hypothesis – does your theory hold up to an experimental test?
      - If it does, does that prove that it is right?

Scientific Methodology

- Drawing conclusions
  - Support or no support?
  - Support – tentative evidence for your conclusion
  - No support – methodology (how you conducted the experiment, the measures you chose; etc.)
  - Findings are cumulative
  - Generalization
  - Report your results
    - Reporting when the results are inconclusive
Methods for conducting studies

- Naturalistic observation — what is happening in the environment the person or animal lives in?
  - Benefit: you are observing in a place that is normal to the participant; no artificial lab setting
  - Drawback: important to remain objective
    - Remediation: checklist of behaviors
  - Drawback: observer effect: animals or people who are being observed act differently than if they were not
    - Remediation: make sure it is not obvious you are observing; one way mirrors
  - Drawback: less control
  - Bias: observer bias — you see what you expect to see
    - Remediation: blind observers

- Laboratory setting
  - Benefit: control; easier to be objective
  - Drawback: life may not mimic a laboratory setting; Can you generalize to individuals/animals in natural settings?

- Case Studies
  - Detailed description of some phenomenon
  - Benefit: rich in information
  - Benefit: opportunity to know about something that can not be obtained with other methods
  - Drawback: generalization
  - Drawback: possible observer effect & observer bias

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**Methods for conducting studies**

- **Surveys**
  - Asking the participant (questionnaire (paper or pencil or internet), in person, over the phone)
  - Best methods:
    - Sample is representative of the population and therefore there is the ability to generalize
    - Sample is randomly selected
    - Random assignment: any participant in the population has an equal chance of being assigned to the experiment

- **Best methods:**
  - Sample is representative of the population and therefore there is the ability to generalize
  - Sample is randomly selected

**Understanding Data**

- **Qualitative Method** (concepts, ideas, no numbers)
- **Quantitative Method**
  - Statistics
  - Correlation – relationship between two or more variables
  - Correlation does not equal causation!
  - Variable – is a number that can change
    - Example: smoking behavior and cancer

**Methods for conducting studies**

- **Surveys**
  - Benefit: collecting information anonymously with large groups of people allows for privacy
  - Drawback: social desirability responding; courtesy bias

**Understanding Data**

- Calculating a correlation – correlation coefficient
  - Noted a “r” and ranges from 1.00 and -1.00
  - Example: strong positive .95
  - Example: strong negative -.95
  - Example: weak positive: .10
  - Example: weak negative: -.10

- **Strength of association & Direction**
  - Smoking and cancer – positive relationship
  - Smoking and life expectancy – negative or inverse relationship
The Experiment

- Helps to determine cause
- A variable is manipulated while other variables are held constant to understand/pinpoint the nature of the variable of interest
  - Example: aggressive behavior in children and violence in TV viewing
- Operational definitions
  - What constitutes violent TV
  - What constitutes violent behavior in children?
  - How will we measure these variables?

The Experiment

- Independent variable – the manipulated variable (violence in TV)
- Dependent variable – outcome variable - response of the participants (presence or absence of aggressive behavior due to independent variable)
- What is a confounding variable (often referred to as “noise” or an extraneous variable) – a variable that has an impact on the dependent variable but was not considered in your experiment

The Experiment

- Grouping:
  - Experimental group: exposure to the manipulation (ex: TV violence)
  - Control group: no exposure to the manipulation

Common issues with experiments

- Placebo effect – a participant’s belief in a certain outcome actually influences the results of a study
  - Example: drug testing; if a person thinks a drug will make them better, they may get better merely as a result of their belief
- Experimenter effect – the experiment’s expectations actually influences the results of a study
  - Example: if an experimenter verbal insinuation that a drug will be effective
Remediation of those issues

- Single Blind Study
  - Participants are “blind” to whether they are in the experimental or control group
  - In a drug study example, that would mean the experimental group would receive the drug; the control group would receive a pill that did not have the active ingredients in that drug, i.e., a sugar pill

- Double Blind Study
  - Experimenter is “blind” to whether the participant is in the experimental or control group
  - The lead experimenter/research would need to code the data to know which group the participant is in.

Common issues with experiments

- Randomization
  - Difficulties due to the type of study you are doing; need to classify according to some group
  - Difficulties due to practical considerations

- Remediation of the Issue:
  - Conduct what is called a quasi-experimental study
    - In this study, participants are not randomly assigned

Critical Analysis

- Case example in your book, page 32
  - In a group, determine:
    - Who was in the experimental group?
    - Who was in the control group?
    - What is the independent variable?
    - What is the dependent variable?
    - What are possible confounding or extraneous variables?

Ethics in Psychological Research

- Examples of studies before ethical considerations:
  - Little Albert & Little Peter
  - Zimbardo – Stanford Prison Experiment
  - Milgram – Obedience to Authority
  - Tuskegee – Syphilis Study

- Ethical procedures today:
  - Institutional Review Board, IRB
  - What do they review?
Ethical Considerations in Research:

- Rights and well being of the participant: is the participant being subjected to any unnecessary risk or harm? Is the risk minimal and worth the purpose of the study?
- Informed consent: The researcher must explain the study and what will happen; risks should be outlined; some information may be withheld in order to avoid biasing the response of the participant.
- Deception: If deception is necessary, there must be adequate justification and the participant must be informed after the study the true nature of the study. This is called debriefing.

Critical Thinking

- Questioning claims reviewing evidence for and against that claim
  - Use of scientific method: there should be testing if possible and supporting evidence
  - The evidence: is it of good quality? Has a study been well conducted? Were assumptions or biases part of the study? Is there another way to interpret the data?
  - The authority is right, correct? Not necessarily. Evaluate the claim!

Ethical Considerations in Research:

- Right to withdraw: to drop out for any reason; sometimes the reason is not an ethical one, but due to ethical considerations you must allow the participant to drop out.
- Confidentiality: participants are anonymous and data is anonymous and secure.
- Unexpected reaction: considerations should be put in place for possible negative impact to the participant (example: providing information for counseling services).
- Special note on animals: is research with animals ethical? Researcher are given more freedom with animals. The restriction is primarily in causing unnecessary harm.

Critical Thinking

- General points to remember:
  - The simplest answer is usually the correct one. This is called the law of parsimony or Occam’s razor (the Latin phrase).
  - The wilder the claim, the greater need for substantial evidence, is the claim plausible? What does your common sense tell you?
  - To take on the scientific view means that you are open to considering any claim, but you evaluate every claim critically and with skepticism.
What’s new in psychology?

- Biological research
  - Brain chemistry is providing insight into mental activity
  - Genetic processes
    - the human genome – the genetic code for the human body
    - genes and behavior
    - Mapping mind (thoughts & feelings) to brain regions

- Evolutionary perspectives
  - Idea: the brain is adaptive increasing chances of survival
  - Social behaviors may also be adaptive – being part of a group increases your chances of survival
  - Studying built-in mechanisms thought to be a part of the evolutionary process
    - Example: Children being afraid of heights despite their lack of knowledge about heights or gravity
    - Example: We like sweet foods, because bitter plants were often poisonous.

What’s new in psychology?

- Understanding that culture influences mind
  - Culture is our beliefs, values, rules, norms and customs within a group and it affects our thinking, thus it affects mind
  - Examples:
    - The Irish celebrate a deceased person at an Irish wake while other cultures mourn the loss of a deceased person
    - Long hair among Euro-American can sometimes signify someone who is a hippy or considered unprofessional while in many Native American cultures, long hair is a symbol of manhood

End of Chapter 1 Slides
1. Stuart believes that he has a soul that is distinct from his body. He is interested, however, in just what is the relationship between them. Stuart's interests reflect:

- a. the neuroscience-cognition debate
- b. the mind-body problem
- c. the application of Darwin's theory to psychology
- d. the basic question of behaviorism

2. The approach to psychology that emphasizes the adaptive value of the mind is:

- a. social psychology
- b. structuralism
- c. introspection
- d. functionalism

3. Dr. Cohen believes that the study of psychology should be limited to stimuli that can be measured and responses that can be observed. This approach is:

- a. psychoanalysis
- b. structuralism
- c. behaviorism
- d. cognitivism

4. Psychological science is based on critical thinking. This means that psychological scientists:

- a. evaluate information before they accept it
- b. do not believe anything that they did not discover themselves
- c. do not have any kind of faith
- d. accept without question any information that is given to them by an authority
5. Janice is interested in studying thoughts and feelings. Therefore, the aspect of psychological science that she is most clearly focusing on is the:

- a. mind
- b. brain
- c. behavior
- d. nonconscious